

WL Low Voltage Power Circuit Breaker ANSI / UL 1066 & UL 489



SIEMENS

Global network of innovation



SIEMENS

WL Circuit Breaker

powerful ideas reliable solutions

WL Circuit Breakers and Non-Automatic Switches

WL Communication-Capable **Circuit Breakers**

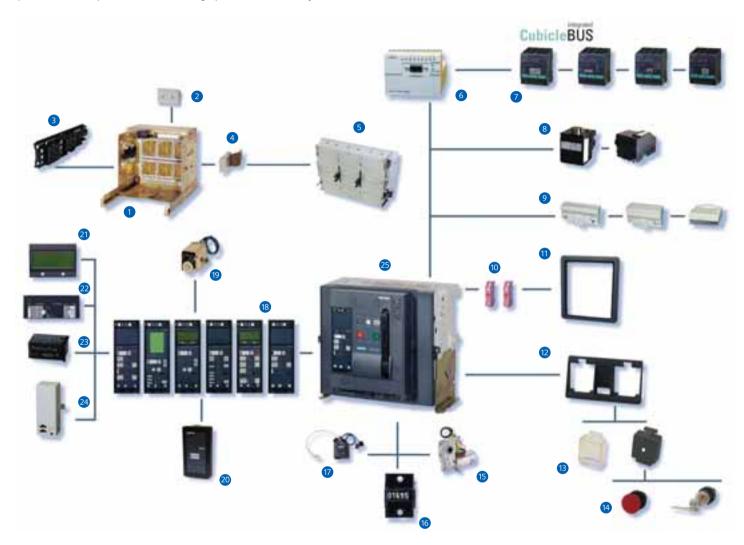
Standards and Certificates





WL Circuit Breaker:

Superior individual products for low-voltage power distribution systems



- Guide Frame (for drawout version only)
- Vertical to Horizontal BUS Connector
- Position Signaling Switch
- Breaker / Guide Frame Grounding Contact 2 Interlocking Set Base Plate
- Shutter (locking)
- MODBUS or PROFIBUS Communications
- External CubicleBUS I/O Module
- Plug-In Open and Closed Solenoids
- Multiple Secondary Connections
 Auxiliary Switch Block
- 11 Door Sealing Frame
- B Protective Cover for OPEN/CLOSE Buttons
- Multiple Key Locking Accessories
- Single Bolt Motor Operator Installation
- **Operations Counter**

- Breaker Status Sensor (BSS)
- Complete Trip Unit Family
- Remote Reset
- Breaker Data Adapter (BDA) for Internet Connection
- 21 Multi Angle LCD Module
- Ground Fault Protection Module
- Rating Plug
- Metering Function (+ wave forms and harmonics)
- Circuit Breaker



Selection	and	Ordering	Data

Circuit Breakers and Non-Automatic Switches	1/2
3-Pole up to 5000A	
Electronic Trip Units	1/4
Catalog Numbering System	1/6

Components and Accessories

UL 489 Circuit Breaker Frames & Non-Automatic Switches	1/15
ANSI / UL 1066 Circuit Breaker Frames & Non-Automatic Switches	1/16
Guide Frames and Guide Frame Accessories	1/17
Internal Breaker Accessories	1/20
External Breaker Accessories	1/22
Spare Parts and Miscellaneous Accessories	1/24

Application Data

Technical Data	1/25
Electronic Trip Units	1/36
Modified Differential Ground Fault Scheme	1/45
Accessories	1/47
Time / Current Characteristic Curves	1/51
Secondary Terminal Assignments	1/54
Technical Data for Current Transformers	1/55
Technical Data for Voltage Transformers	1/58
Outline Drawings	1/59

3 pole, up to 5000A

Breaker Description

The ever-increasing use of plant and energy management systems has intensified the demand for circuit breakers supporting multiple open protocols to monitor and control the flow of energy in the power system. The extensive and modular WL family of circuit breakers and accessories provides this for applications from 200A to 5000A.

Applications

WL breakers can be applied as main, tie, feeder or distribution breakers in low-voltage electrical power systems.

Versions

- Frame ratings: 800A to 5000A
- 3 physical frame sizes
- Rated nominal operating voltage up to 600V AC
- Seven interrupting classes from 50kA to 200kA at 480V
- Circuit breaker or nonautomatic switch
- WL Circuit Breakers are delivered as complete assembled breakers or individual frames, guide frames and accessories

Installation Types

Fixed-mounted or Draw-out version

Standards

- WL ANSI / UL 1066 Circuit Breakers will satisfy: C37.13, C37.16, C37.17, C37.50, NEMA SG3
- WL UL 489 Circuit Breakers will satisfy: UL 489 CSA C22.2 No. 5-02 NMX-J-266-ANCE-2002
- WL Circuit Breakers are suitable for use in UL 1558 LV Switchgear and UL 891 LV Switchboards.

Conditions of Application

WL Circuit Breakers are designed to meet standard Industrial and Commercial application requirements.

Uniform Dimensions

WL Circuit Breaker dimensions differ only in the device width, which varies by frame size. With the exception of the 200kA ANSI Frame Size II which has an additional 5" in depth to accommodate integral fuses and the UL 489 Frame Size I which measures only 15" in height to allow sixhigh stacking in switchboards.

Minimal Space Requirements

The WL design is extremely compact without sacrificing performance and does not use energy-wasting heat sinks.

Trip Units

The electronic, microprocessor-based trip unit is auxiliary voltage-independant for all protective functions and enables adaptation to the different protection requirements of distribution systems, motors, transformers and generators.

Non-Automatic Switch

A special version of the circuit breaker is used as a nonautomatic switch. The nonautomatic switch is constructed without a trip unit and has no protective function. A possible application is for use as a tiein system with parallel feeds.

Main Bus Connectors

Breakers are equipped with standard vertical main bus connections. Horizontal bus connections are available as an option in Frame Size 1 and 2 up to 2000A.

Communication Capability

MODBUS or PROFIBUS communications transmit the acquired and metered data, such as current values, breaker status, trip log, etc. to a central monitoring computer. When the optional metering function is installed, the WL acquires data useful for

power management and can contribute to a significant savings in energy costs. A new, internal circuit breaker bus enables the expansion of breaker functionality through the integration of many secondary functions which were previously separate, including:

- Control of analog displays
- Options for testing the communication setup
- Display of breaker status and reason for trip
- Input modules for reading other external signals and transmitting these signals via PROFIBUS or MODBUS communication
- A selection of output modules to provide contact closures based on events or measured-value setpoints.
 It is not only possible to monitor the breaker remotely, it is also possible to open and close the breaker as well as setting parameters remotely.

Operating Mechanisms

Circuit breakers can be optionally delivered with different operating mechanisms, including:

- Manual operating mechanism with mechanical closing (standard)
- Manual operating mechanism with mechanical and electrically interlocked closing
- Motorized operating mechanism with mechanical and electrically interlocked closing. Operating mechanisms with electrically interlocked closing are suitable for synchronizing tasks.

Auxiliary Contacts

Auxiliary switches can be added according to the type of installation. They are easily mounted via front, top mounted terminal blocks.

Modularity

Common guide frames for the draw-out version make them completely interchangeable between the UL 489 and ANSI / UL 1066 rated circuit breakers.

Components, such as auxiliary releases, motorized operating mechanisms, trip units, current sensors, auxiliary signal switches, automatic reset devices or interlocks can be used to modify or retrofit any circuit breaker to meet changing requirements. The main contacts can be replaced to extend the life of the circuit breaker and feature integrated contact wear indicators.

Electronic Trip Unit Modularity

Modularity is the outstanding feature of the new WL Circuit Breakers. The trip units themselves can be retrofitted with special LCDs, ground fault modules, rating plugs and communication modules.

100% Rated Circuit Breaker

WL circuit breakers are designed for continuous operation at 100% of their current rating without the need for external heat sinks.

Conditions of Application

WL Circuit Breakers are designed to meet standard Industrial and Commercial application requirements.



3 pole, up to 5000A

Rating Plug

It is no longer necessary to replace the current transformer to change the rated current of the breaker. Instead, you simply replace the rating plug which is easily accessible on the front of the trip unit. The circuit breaker is set to the new rated current quickly and is already correctly labeled.

Long Time Overcurrent Protection with Switchable I²t / I⁴t Characteristics

The long time overcurrent protection in the ETU745, ETU755 and ETU776 trip units can be switched between an I2t and I4t characteristic to improve coordination between upstream circuit breakers and fuses.

Front Panel

The front panel is designed so that it can be accessed through a cutout in the door, which means that all controls and displays are accessible even when the cubicle door is closed. The front panels of all Frame Size II and Frame Size III circuit breakers are identical,

and allow for two different through-door access designs: Trip unit and front panel controls or front panel controls only. The degree of protection of the front panel is IP 20.

Environmental Protection The plastics used are halogenfree and recycleable.

Safety and Reliability

In order to help protect the electrical distribution system and circuit breaker against unauthorized breaker operations, a wide range of locking devices can be installed or retrofit, including:

- Lockable drawout version to protect against unauthorized removal (standard)
- High degree of protection through Plexiglas cover
- Mechanical reclosing lockout after long-time, short-time or instantaneous trip (optional)
- Devices with trip unit ETU745 or higher are equipped with temperature sensors on the BSS and COM15/COM16 (standard)

- Lock provision for locking the breaker in the OPEN position
- Lockable covers for the **CLOSE** button
- · Lockable racking handle prevents moving the breaker
- Lockable charging handle prevents charging the springs

Standard Version Features WL Circuit Breakers have the

following standard equipment: Mechanical CLOSE and mechanical OPEN push

- buttons Manual operating mechanism with mechanical
- closing Contact position indicator • Front panel ready-to-close indicator

- Spring charge indicator
 Rear vertical main contacts
 Main contact replacement flag
- Auxiliary plug system with bare wire pressure screw terminals. Delivery includes all auxiliary plugs necessary for both factory installed and future field installed accessories

- Mechanical trip indicator of the overcurrent release system
- Automatic reset after trip
- The front panel cannot be removed if the circuit breaker is closed
- Laminated main contact fingers as part of the breaker contact strip on the drawout circuit breaker
- · Breaker position display in the operator's panel

 Captive crank handle for
- racking out the breaker
- · Guide frame with guide rails for easy handling of draw-out
- Breaker cannot be moved in the CLOSED state
- Rated current coding between the guide frame and the breaker
- Suitable for reverse feed applications
- The breaker is always equipped with the required number of secondary disconnect blocks

Exclusive Features

Generator/Utility Protection Sets

24/7/365 power availability is critical for some systems.
On-site generation capability is growing more and more common in many systems. All of the WL digital electronic trip units allow the system designer to precisely tailor trip settings for the most demanding requirements. However, the 755 and 776 trip units allow one set of trip settings for a fully loaded utility feed and with a simple contact closure, the trip unit toggles to a second trip set tailored to provide optimal generator protection. The wide range of settings allows the WL to provide protection for a minimal generator capacity for only essential loads, through full backup for an entire facility. This dual utility/generator protection capability in a single circuit breaker allows the system designer unparalleled, costeffective flexibility.

Dynamic Arc-Flash Sentry

(Patent Pending) A unique feature of the WL trip designer to achieve lower levels of arc flash energy and delayed tripping for selective trip coordination purposes.

Dynamic Arc-Flash Sentry (DAS) employs the unique dual protective setting capability of the 755 and 776 trip units, coupled with the ability to easily toggle to a lower arc flash parameter set. A normal operation parameter set can be optimized for selective trip coordination, while the second set is optimized for lower arc flash energy levels. The dynamic action comes from the ability to switch from the normal operation set to the arc flash limiting set based on the presence of personnel as they approach the flash protection boundary. A wide variety of switching methods may be used based on the needs of a particular facility. The capabilities range from fully automatic switching using

appropriate occupancy sensors to manual switching via a key operation.

Extended Instantaneous Protection (Patent Pending) Extended Instantaneous protection (EIP), another unique feature of the WL trip unit, allows the system designer to achieve full selective trip coordination up to the short-time rating of the frame while also allowing application of the breaker up to the interrupting rating of the frame. The typical power circuit breaker with an 'LS' trip unit, or when the instantaneous function is switched off on an 'LSI' trip unit, can only be applied up to it's short-time rating, commonly 85kA or less. For application on systems with levels of available fault current above the short-time rating, the typical 'LS' power circuit breaker cannot be applied or must employ an instantaneous override. This instantaneous override is set at as much as 20% below the short-time

rating and can seriously compromise selective trip coordination with downstream breakers.

The WL, equipped with EIP, overcomes these limitations by providing full withstand capability, and full coordination, with a minus 0% short-time band tolerance up to 85kA on frame Size II and 100kA on Size III. Above fault currents of 20% higher than the full shorttime rating, the WL breaker is self-protecting, and the EIP function will trip the breaker instantly to protect the frame and the system from these extremely high currents, as high as 150kA on frame Size III. One added benefit is that arc flash energy is greatly reduced in this high current region due to the instantaneous trip response that EIP provides.

Electronic Trip Unit

Trip Unit Functions

Selection criteria for **WL Circuit Breakers**

The basic criteria for selecting circuit

breakers is:

Maximum Available Short-Circuit at the installation point. This value determines the short-circuit current interrupting rating or short-circuit current withstand rating of the circuit

breaker.

Rated Current I_n which is to flow through the respective circuit breaker continuously. This value may not be greater than the maximum rated current of the circuit breaker. The rated current for the WL is determined by the rating plug, up to the maximum frame rating. Ambient Temperature of the circuit breaker. This is usually the temperature inside the cubicle. Design of the circuit breaker.
Protective Functions of the circuit breaker. These are determined by selection of the appropriate trip unit.







		The second second				
Basic Protective Functions		ETU725	ETU727			
Long-time overcurrent protection	L	•	•			
Short-time delayed overcurrent protection	S	•	•			
Instantaneous overcurrent protection	1	•	•			
Neutral conductor protection	N	-	•			
Ground fault protection	G	-	•			
Additional Functions						
Selectable neutral protection		-	•			
Defeatable short-time protection		•	•			
Defeatable instantaneous protection		-	-			
Selectable thermal memory		-	-			
Zone selective interlocking		-	-			
Selectable I ² t or fixed short-time delay		- 1	- 1			
Adjustable instantaneous pick-up		-	-			
Selectable I ² t or I ⁴ t long-time delay		-	-			
Adjustable short-time delay and pick-up		•	•			
Selectable and adjustable neutral protection	l	_	_			
Dual protective setting capability		_	-			
Dynamic arc-flash sentry		-	_			
Extended instantaneous protection		•	•			
Parameterization and Displays						
Parameterization by rotary switches (10 step	os)	•	•			
Parameterization by communication (absolu	ite values)	-	-			
Parameterization by menu/keypad (absolute	values)	_	_			
Remote parameterization of the basic functi	ons	_	-			
Remote parameterization of the additional f	unctions	_	_			
Alphanumeric LCD		_	-			
Graphical LCD		-	-			
Metering Function						
Metering function Plus		-	-			
Communication						
CubicleBUS		-	-			
Communication via PROFIBUS-DP		-	-			
Communication via the MODBUS		-				
Communication via the Ethernet (BDA)	Communication via the Ethernet (BDA)					
• standard - not available O opt	ional	① Fixed short	time delay only			







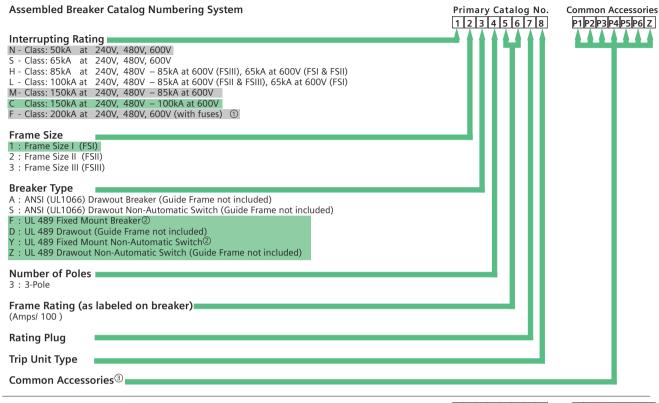


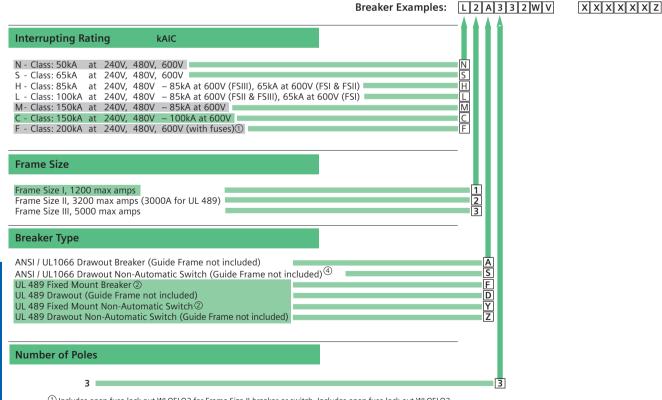
		Annual Value of the last			THE OWNER OF
Basic Protective Functions		ETU745	ETU748	ETU755	ETU776
Long-time overcurrent protection	L	•	•	•	•
Short-time delayed overcurrent protection	S	•	•	•	•
Instantaneous overcurrent protection	ı	•	-	•	•
Neutral conductor protection	N	•	•	•	•
Ground fault protection	G	О	О	О	О
Additional Functions					
Selectable neutral protection		•	•	•	•
Defeatable short-time protection		•	-	•	•
Defeatable instantaneous protection		•	-	•	•
Selectable thermal memory		•	•	•	•
Zone selective interlocking		•	•	•	•
Selectable I ² t or fixed short-time delay		•	•	•	•
Adjustable instantaneous pick-up		•		•	•
Selectable I ² t or I ⁴ t long-time delay		•	•	•	•
Adjustable short-time delay and pick-up		•	•	•	•
Selectable and adjustable neutral protection		•	•	•	•
Dual protective setting capability		-	-	•	•
Dynamic arc-flash sentry		-	-	•	•
Extended instantaneous protection		•	•	•	•
Parameterization and Displays					
Parameterization by rotary switches (10 step	s)	•	•	-	-
Parameterization by communication (absolu	te values)	-	•	•	•
Parameterization by menu/keypad (absolute	values)	-	_	-	•
Remote parameterization of the basic function	ons	-		•	•
Remote parameterization of the additional fu	unctions	-		•	•
Alphanumeric LCD		O	0	-	_
Graphical LCD		_	_	-	•
Metering Function					
Metering function Plus		0	0	O	0
Communication					
CubicleBUS		•	•	•	•
Communication via PROFIBUS-DP		О	0	0	0
Communication via the MODBUS		О	0	О	0
Communication via the Ethernet (BDA)		О	0	О	0

• standard - not available O optional



UL 489 Only
ANSI / UL 1066 Only
Valid for both





- ① Includes open fuse lock-out WLOFLO2 for Frame Size II breaker or switch. Includes open fuse lock-out WLOFLO3, fuse carriage WLFCAR50, and fuses for Frame Sizes III breaker or switch. Guide frame for the breaker or switch and the guide frame for the fuse carriage must be ordered separately.
- $\begin{tabular}{ll} \begin{tabular}{ll} \beg$
- 3 All 15 character spaces must be utilized for a valid catalog number. An "N" should be used when additional components are not required. All primary catalog number characters must be selected.
- (4) All non-automatic switches are H, L or F-Class, therefore "H", "L" or "F" must be chosen for position 1 in the catalog number. Breaking capacity is equal to the short time rating, Reference Technical Data on pages 1/26 thru 1/29.

UL 489 Only ANSI / UL 1066 Only Valid for both

WL Circuit Breaker Non-Automatic Switch

Assembled Breaker Catalog Numbering System Primary Catalog No. Common Accessories 1 2 3 4 5 6 7 8 P1P2 P3 P4 P5 P6 Z Frame Rating (Amps / 100) as labeled on breaker 0 8 1 2 1 6 2 0 2 5 800A Frame Size I, II 1200A Frame Size I, II 1600A Frame Size II 2000A Frame Size II 2500A Frame Size II 3 0 3 2 4 0 3000A Frame Size II 3200A Frame Size II, III 4000A Frame Size III 5000A Frame Size III Rating Plug (I_n) Includes the following component: None (for Non-Automatic Switch) $^{\textcircled{1}}$ 200A for Frame Size I, II WLRP200 B C D 225A for Frame Size I, II WLRP225 250A for Frame Size I, II WLRP250 300A for Frame Size I, II WLRP300 315A for Frame Size I, II WLRP315 350A for Frame Size I, II WLRP350 400A for Frame Size I, II WLRP400 G 450A for Frame Size I, II WLRP450 H K L M 500A for Frame Size I, II WLRP500 600A for Frame Size I, II WLRP600 630A for Frame Size I, II WLRP630 700A for Frame Size I, II WLRP700 800A for Frame Size I, II, III WLRP800 1000A for Frame Size I, II, III WLRP1000 P R T U V 1200A for Frame Size I, II, III WLRP1200 1250A for Frame Size II, III WLRP1250 WLRP1600 1600A for Frame Size II. III 2000A for Frame Size II, III WLRP2000 2500A for Frame Size II. III WLRP2500 3000A for Frame Size II, III WLRP3000 W Y Z 3200A for Frame Size II. III. WLRP3200 4000A for Frame Size III WLRP4000 5000A for Frame Size III WLRP5000 **Trip Unit Types** Includes the following component(s): 2 None (for Non-Automatic Switch) 1 ETU725: Α Protective functions L(S)I WLETU725 ETU727: Protective functions L(S)IG В WLETU727 Protective functions L(S)(I) WLETU745 Protective functions L(S)(I) with LCD display WLETU745 + WLLCD48 Protective functions L(S)(I)(A) with Ground fault module (alarm only) WI FTU745 + WI GFA48 E Protective functions L(S)(I)(A) with LCD display and ground fault module (alarm only) WLETU745 + WLLCD48 + WLGFA48 Protective functions L(S)(I)(G) with Ground fault module (alarm and trip)
Protective functions L(S)(I)(G) with LCD display WI FTU745 + WI GFM48 == G and ground fault module (alarm and trip) WLETU745 + WLLCD48 + WLGFM48 Н ETU748: Protective functions LS WI FTU748 Protective functions LS with LCD display WLETU748 + WLLCD48 Protective functions LS(A) with ground fault module (alarm only) WLETU748 + WLGFA48 Protective functions LS(A) with LCD display and ground fault module (alarm only) WLETU748 + WLLCD48 + WLGFA48 Protective functions LS(G) with WLETU748 + WLGFM48 ground fault module (alarm and trip) Protective functions LS(G) with LCD display and ground fault module (alarm and trip) WLETU748 + WLLCD48 + WLGFM48 Q

¹⁾ This is not a valid choice when ordering a circuit breaker.

²⁾ Trip units include clear plastic front cover WLTUSC55 as standard

WL Circuit Breaker Non-Automatic Switch

Assembled Breaker Catalog Numbering System Primary Catalog No. Common Accessories 1 2 3 4 5 6 7 8 P1P2 P3 P4 P5 P6 Z **Trip Unit Types** (continued) Includes the following component(s): 1 ETU755: Protective functions L(S)(I) WLETU755 R Protective functions L(S)(I)(A) with ground fault module (alarm only) Protective functions L(S)(I)(G) with WLETU755 + WLGFA76 U WLETU755 + WLGFM76 ground fault module (alarm and trip) ETU776: V Protective functions L(S)(I) WLETU776 Protective functions L(S)(I)(A) WLETU776 + WLGFA76 with ground fault module (alarm only) W Protective functions L(S)(I)(G) with ground fault module (alarm and trip) WLETU776 + WLGFM76 **Signaling Configurations**

Possible Combinations

Remote Reset for Bell Alarm & Trip Indicator, Bell Alarm Contact, Ready-to-Close Contact, Internal Auxiliary Contacts

Control	Voltage	Remote	Bell	Ready-to	- A	ux		
for Remo	ote Reset	Reset	Alarm	Close	Con	tacts		
AC	DC				2NO+2NC	4NO+4NC	Includes the following component(s):	
		-	-	-	-		None	X
			1				WLBA	■ A
				✓			WLRTCS	■B
					/		WLAS2	■ C
						1	WLAS4	■ D
			1	1			WLBA + WLRTCS	E
			1		/		WLBA + WLAS2	■ E
			1			1	WLBA + WLAS4	G
				1	/		WLRTCS + WLAS2	■ H
				1		1	WLRTCS + WLAS4	■□
			1	1	/		WLBA + WLRTCS + WLAS2	ı 🗍
				1	/	1	WLBA + WLRTCS + WLAS4	K
	24	1	1				WLRSET24 + WLBA	
	48	1	1				WLRSET48 + WLBA	M
120	125	1	1				WLRSET120 + WLBA	N
240	250	1	1				WLRSET240 + WLBA	• O
	24	1	1	1			WLRSET24 + WLBA + WLRTCS	₽
	48	1	1	1			WLRSET48 + WLBA + WLRTCS	■Q
120	125	1	1	1			WLRSET120 + WLBA + WLRTCS	R
240	250	1	1	1			WLRSET240 + WLBA + WLRTCS	S
	24	1	1		/		WLRSET24 + WLBA + WLAS2	·∏
	48	1	1		/		WLRSET48 + WLBA + WLAS2	U
120	125	1	1		/		WLRSET120 + WLBA + WLAS2	V
240	250	1	1		/		WLRSET240 + WLBA + WLAS2	W
	24	1	1			1	WLRSET24 + WLBA + WLAS4	Y
	48	1				1	WLRSET48 + WLBA + WLAS4	Z
120	125	1	1			1	WLRSET120 + WLBA + WLAS4	1
240	250	1	1			1	WLRSET240 + WLBA + WLAS4	2
	24	1	1	1	/		WLRSET24 + WLBA + WLRTCS + WLAS2	3
	48	1	1	/	/		WLRSET48 + WLBA + WLRTCS + WLAS2	4
120	125	1	1	1	/		WLRSET120 + WLBA + WLRTCS + WLAS2	5
240	250	1	1	1	✓		WLRSET240 + WLBA + WLRTCS + WLAS2	■ 6
	24	/	1	/		1	WLRSET24 + WLBA + WLRTCS + WLAS4	7
	48	/	1	/		1	WLRSET48 + WLBA + WLRTCS + WLAS4	8
120	125	/	/	/		1	WLRSET120 + WLBA + WLRTCS + WLAS4	9
240	250	1	/	/		/	WLRSET240 + WLBA + WLRTCS + WLAS4	0

① Trip units include clear plastic front cover WLTUSC55 or WLTUSC76 as standard.

WL Circuit Breaker Non-Automatic Switch

Assembled Breaker Catalog Numbering System

UL 489 Only

Primary Catalog No.
1 2 3 4 5 6 7 8

Common Accessories P1 P2 P3 P4 P5 P6 Z

1st Shunt Trip and Shunt Trip Signal Contact

Control Voltage									
	AC	DC	Includes the following component(s):						
None			$\sum_{i=1}^{n}$	X					
Shunt Trip		24	WLST24	A					
Shunt Trip		48	WLST48	В					
Shunt Trip	120	125	WLST120	ā					
Shunt Trip	240	250	WLST240	5					
Shunt Trip with Signal Contact (1 NO)		24	WLST24 + WLSTC	E					
Shunt Trip with Signal Contact (1 NO)(1)		48	WLST48 + WLSTC	Ē					
Shunt Trip with Signal Contact (1 NO)	120	125		G					
Shunt Trip with Signal Contact (1 NO) ^①	240	250	WLST240 + WLSTC	Н					
Interlock Shunt Trip (Continous Duty)		24	WLSTCD24	j					
Interlock Shunt Trip (Continous Duty)		48	WLSTCD48	ĸ					
Interlock Shunt Trip (Continous Duty)	120	125	WLSTCD120	ā					
Interlock Shunt Trip (Continous Duty)	240	250	WLSTCD240	۷Ī					
Interlock Shunt Trip (Continous Duty) with Signal Contact (1 NO)		24	WLSTCD24 + WLSTC	N					
Interlock Shunt Trip (Continous Duty) with Signal Contact (1 NO)		48	WLSTCD48 + WLSTC	P					
Interlock Shunt Trip (Continous Duty) with Signal Contact (1 NO)	120	125	WLSTCD120 + WLSTC	R					
Interlock Shunt Trip (Continous Duty) with Signal Contact (1 NO)		250	WLSTCD240 + WLSTC	S					
		1	·	_					

Undervoltage Release (with or without time delay), 2nd Shunt Trip, Signal Contact for UVR or 2nd Shunt Trip

		Pos	sible Com	binations				
Control V		LIVR	UVR with	2nd ②	2nd Shunt Trip (Interlock)	´ Signal 🕦		
120 240 120 240 120 240 120 240 120 240	24 48 125 250 48 125 250 24 48 125 250 24 48 125 250 24 48 125 250 24 48 125 250 250 48 125 250 24 48 125 250 24 48 125 250 250 26 27 27 28 28 28 29 20 20 20 20 20 20 20 20 20 20 20 20 20	UVR	Delay -	Shunt Trip	(Interlock)	Contact	Includes the following component(s): None WLUV24 WLUV48 WLUV120 WLUV240 WLUVD120 WLUVD120 WLVD120 WLST24 WLST24 WLST24 WLST24 WLST120 WLST240 WLUV24 + WLUVRC WLUV24 + WLUVRC WLUV120 + WLUVRC WLUV240 + WLUVRC WLUV240 + WLUVRC WLUV120 + WLUVRC WLUVD120 + WLUVRC WLST24 + WLSTC WLST240 + WLSTC WLSTCD120 WLSTCD120 WLSTCD120 WLSTCD120 + WLSTC WLSTCD120 + WLSTC WLSTCD120 + WLSTC WLSTCD120 + WLSTC WLSTCD120 + WLSTC	XABBCODEFFGHJKLLMXPPQRRSTUVWYZ11233445667

① Not available if the COM15 or COM16 communication module is ordered. ② The 2nd shunt trip is not available unless the 1st shunt trip is also ordered.

Assembled Breaker Catalog Numbering System

Primary Catalog No.

Common Accessories

Motor Operator, Motor Cut-off Switch, Operations Counter, and Local Electric Close (LEC)

		Possil	ole Combina	ations			
Control \	Voltage	Motor	Motor Cut	Operations	1		
AC	DC	Operator	off Switch	Counter	LEC Sealable ②	Includes the following component(s):	
		_	-	-	-	None	■ X
	24	/				WLELCMTR24	A
	48	1				WLELCMTR48	В
120	125	/				WLELCMTR120	■ C
240	250	1				WLELCMTR240	■ D
	24	/	✓			WLELCMTR24S	■ <u>E</u>
	48	/	✓			WLELCMTR48S	Œ
120	125	1	✓			WLELCMTR120S	■G
240	250	1	1			WLELCMTR240S	■ H
	24	1		√		WLELCMTR24 + WLNUMCNT	■ J
	48	1		/		WLELCMTR48 + WLNUMCNT	■ K
120	125	1		√		WLELCMTR120 + WLNUMCNT	L
240	250	1		/		WLELCMTR240 + WLNUMCNT	■M
	24	/	/	/		WLELCMTR24S + WLNUMCNT	■ N
	48	1	/	/		WLELCMTR48S + WLNUMCNT	P
120	125	1	/	/		WLELCMTR120S + WLNUMCNT	■ Q
240	250	/	/	/ /		WLELCMTR240S + WLNUMCNT	■ R
	24	1			√	WLELCMTR24 + WLLECS	■ S
	48	/			√	WLELCMTR48 + WLLECS	·I
120	125	/			√	WLELCMTR120 + WLLECS	■ U
240	250	/			√	WLELCMTR240 + WLLECS	·V
				,	/	WLLECS	W
	24	/		/ /	√	WLELCMTR24 + WLNUMCNT + WLLECS	2
	48	/		/ /	√	WLELCMTR48 + WLNUMCNT + WLLECS	3 4
120	125	/		/	/	WLELCMTR120 + WLNUMCNT + WLLECS	-4
240	250	/		1	✓	WLELCMTR240 + WLNUMCNT + WLLECS	5

Remote Close Coil, Metering Function, and Communications

		Possible	e Combinatio	ns			
		Remote	Metering	MODBUS	PROFIBUS		
Control	Voltage	Close	Function	Comm	Comm		
AC	DC	Coil	Plus ③	COM 16 ^④	COM 15 ⁴	Includes the following component(s):	
		-	-	-	-	None	
	24	✓				WLRCS24	
	48	✓				WLRCS48	
120	125	✓				WLRCS120	
240	250	1				WLRCS240	
			1			WLMETERP	
				1		WLCM16MD + BSS	
					1	WLCM15M + BSS	
			1	1		WLMETERP + WLCM16MD + BSS	
			1		1	WLMETERP + WLCM15M + BSS	
	24	1		1		WLRCS24 + WLCM16MD + BSS	
	24	1			1	WLRCS24 + WLCM15M + BSS	
	24	1	1	1		WLRCS24 + WLMETERP + WLCM16MD + BSS	
	24	/	1		1	WLRCS24 + WLMETERP + WLCM15M + BSS	
	48	/		1		WLRCS48 + WLCM16MD + BSS	
	48	1			1	WLRCS48 + WLCM15M + BSS	
	48	/	/	1		WLRCS48 + WLMETERP + WLCM16MD + BSS	
	48	/	1		1	WLRCS48 + WLMETERP + WLCM15M + BSS	
120	125	/		1		WLRCS120 + WLCM16MD + BSS	
120	125	/			1	WLRCS120 + WLCM15M + BSS	
120	125	/	/	1		WLRCS120 + WLMETERP + WLCM16MD + BSS	
120	125	/	1		1	WLRCS120 + WLMETERP + WLCM15M + BSS	
240	250	/		/		WLRCS240 + WLCM16MD + BSS	
240	250	/			/	WLRCS240 + WLCM15M + BSS	
240	250	/	/	/		WLRCS240 + WLMETERP + WLCM16MD + BSS	
240	250	/	/		/	WLRCS240 + WLMETERP + WLCM15M + BSS	
	24	1	/			WLRCS24 + WLMETERP	
	48	/	/			WLRCS48 + WLMETERP	
120	125	1	/			WLRCS120 + WLMETERP	
240	250		/			WLRCS240 + WLMETERP	

① Sealable cover for the local electric close is provided as standard.

② Local electric close must be ordered with the remote close coil.

③ Requires external voltage potential transformers with 120V AC secondary output.

⁴ The Breaker Status Sensor (BSS) comes as standard when you order the COM15 or COM16.

Remote open and close via communications is possible.

WL Circuit Breaker Non-Automatic Switch

UL 489 Only

Assembled Breaker Catalog Numbering System

Primary Catalog No.
1 2 3 4 5 6 7 8

Common Accessories P1P2P3P4P5P6Z

Breaker Front Panel Locking Devices

- (1) Lock Breaker in OPEN Position, KIRK Key (2) Lock Breaker in OPEN Position, 4 padlock provision (This lock is supplied as standard on all ANSI/UL1066 circuit breakers.)
- (3) Lock Kit, Sealable/Padlockable covers, cheat-hole covers, CES lock for CLOSE or OPEN button
- (4) Lock against Moving Breaker, locks racking handle, KIRK Key
- (5) Lock Charging Handle, prevents charging springs, padlock provision

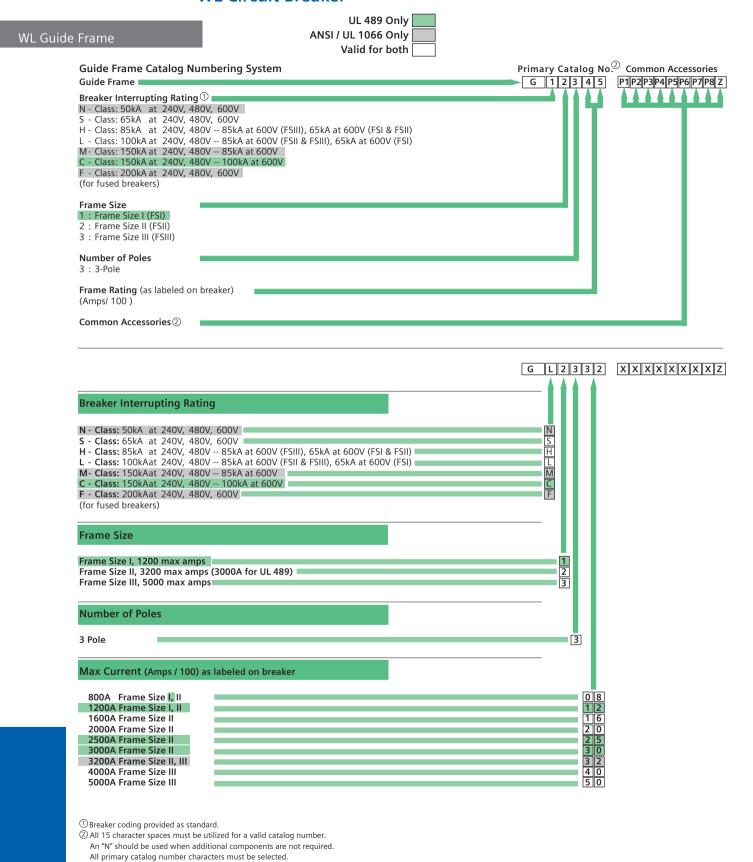
Docc	ible		mhii	natio	nc
POSS	IDIE	າເດ	mnıı	าลบเด	ns

(4) D. J. ODENI		Combination		(E) Cl :		
(1) Breaker OPEN		N .		(5) Charging		
Locking	Locking		Handle	Handle		
Device	Device		Locking	Locking		
(KIRK Key)	(padlock)	(3) Lock Kit	Device	Device	Includes the following component(s):	
-	-	-	-	-	None None	X
1	-	-	-	-	WLLKOFFKRK	- A
-	✓	-	-	-	WLLKNP	В
-	-	✓	-	-	WLLKKT	C
-	-	-	1	-	WLLKCLKRK	D
-	-	-	-	1	WLHANDLC	E
1	✓	-	-	_	WLLKOFFKRK + WLLKNP	F
1	-	1	-	_	WLLKOFFKRK + WLLKKT	■ G
_	/	/	_	_	WLLKNP + WLLKKT	H
/	/	/	_	_	WLLKOFFKRK + WLLKNP + WLLKKT	J
/	_	_	/	_	WLLKOFFKRK + WLLKCLKRK	■ K
_	1	_	1	_	WLLKNP + WLLKCLKRK	
1	1	_	1	_	WLLKOFFKRK + WLLKNP + WLLKCLKRK	M
_	_	1	1	_	WLLKKT + WLLKCLKRK	
1	_	1	1	_	WLLKOFFKRK + WLLKKT + WLLKCLKRK	■ 🗑
_	1	1	1	_	WLLKNP + WLLKKT + WLLKCLKRK	Q
1	1	1	1	_	WLLKOFFKRK + WLLKNP + WLLKKT + WLLKCLKRK	R
1	· _	· _	_	1	WLLKOFFKRK + WLHANDLC	<u> </u>
_	1	_	_	1	WLLKNP + WLHANDLC	Ť
1	1	_	_	1	WLLKOFFKRK + WLLKNP + WLHANDLC	ij
_	<u> </u>	1	_	,	WLLKKT + WLHANDLC	V
	_	1		1	WLLKOFFKRK + WLLKKT + WLHANDLC	W
_		1		1	WLLKNP + WLLKKT + WLHANDLC	Y
_	,	,	_	,	WLLKOFFKRK + WLLKNP + WLLKKT + WLHANDLC	- #
'	•	•	-	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	WLLKCLKRK + WLHANDLC	1
	-	-	V	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	WLLKOFFKRK + WLLKCLKRK + WLHANDLC	=
'	-	-	V	· /		3
	V	-	V	V .	WLLKNP + WLLKCLKRK + WLHANDLC	
/	/	-,	/	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	WLLKOFFKRK + WLLKNP + WLLKCLKRK + WLHANDLC	4
Ţ	-	V	V	V	WLLKKT + WLLKCLKRK + WLHANDLC	
/		V	/	✓	WLLKOFFKRK + WLLKKT + WLLKCLKRK + WLHANDLC	6
	/	V	/	/	WLLKNP + WLLKKT + WLLKCLKRK + WLHANDLC	7
✓	✓	✓	/	✓	WLLKOFFKRK + WLLKNP + WLLKKT + WLLKCLKRK + WLHANDLC	8

Z-Parameter

Z-Parameter indicates additional components are included as part of the assembled breaker order. Possible Z-Parameter components can be found on pages 1/20 - 1/23 and can be identified by the @ symbol.

N - In this position indicates no additional components.



UL 489 Only ANSI / UL 1066 Only Valid for both

WL Guide Frame

Guide Frame Catalog Numbering System

Primary Catalog No. Common Accessories

		G 1 2 3 4 5	XXXXXXXX
Type of Secondary Terminal Connection ①			
ANSI / UL1066 Circuit Breaker Screw Connection for Bare Wire (SIGUT) Tension Spring Connection for Bare Wire Screw Connection for Ring Terminals UL489 Circuit Breaker Screw Connection for Bare Wire (SIGUT)	Includes the following component: WLGAUXPLUGP WLGAUXPLUGT WLGAUXPLUGR WLGAUXPLUGP		P T R
Tension Spring Connection for Bare Wire Screw Connection for Ring Terminals ANSI / UL1066 Non-Automatic Switch	WLGAUXPLUGT WLGAUXPLUGR		B
Screw Connection for Bare Wire (SIGUT) Tension Spring Connection for Bare Wire Screw Connection for Ring Terminals UL489 Non-Automatic Switch Screw Connection for Bare Wire (SIGUT) Tension Spring Connection for Bare Wire	WLGAUXPLUGP WLGAUXPLUGR WLGAUXPLUGP WLGAUXPLUGP WLGAUXPLUGT		
Screw Connection for Ring Terminals	WLGAUXPLUGR		
Guide Frame Position Signal Contacts (TOC)			1111
Breaker Position Signaling Switch available in these contact configurations None	Includes the following component:		X
1-Connected, 1-Test - 1-Disconnected Form C 3-Connected, 2-Test - 1-Disconnected Form C 6-Connected, Form C	WLGSGSW111 WLGSGSW321 WLGSGSW6		3 6
Guide Frame Mounted Locking Device against clo	sing the breaker $^{ extstyle exts$		1111
None Lock Breaker in OPEN position (KIRK Key) Lock Breaker in OPEN position (Superior Lock) Double Lock Breaker in OPEN position (KIRK Key) Double Lock Breaker in OPEN position (Superior Lock) Provision Only - Lock Breaker in OPEN position Provision Only - Double Lock Breaker in OPEN position	Includes the following component: WLDLKRK WLDLSUP WLDLDKRK WLDLDSUP WLDLDSUP WLDLPR WLDLPR WLDLDR		X A B C D E F
Guide Frame Mounted Shutters			ll l
None Lockable Shutters for Frame Size I Lockable Shutters for Frame Size II, except M or C-Class Lockable Shutters for Frame Size II, C-Class only Lockable Shutters for Frame Size III, except M or C-Class Lockable Shutters for Frame Size III, M or C-Class only	Includes the following component:		X D A E B
Arc Chute Covers			
None Arc Chute Covers for Frame Size I Arc Chute Covers for Frame Size II (except F-Class) Arc Chute Covers for Frame Size II, for UL 489 device Arc Chute Covers for Frame Size III (except F, M & C-Class)	Includes the following component: WLGARC1UL WLGARC2 WLGARC2UL WLGARC3		X C A D B

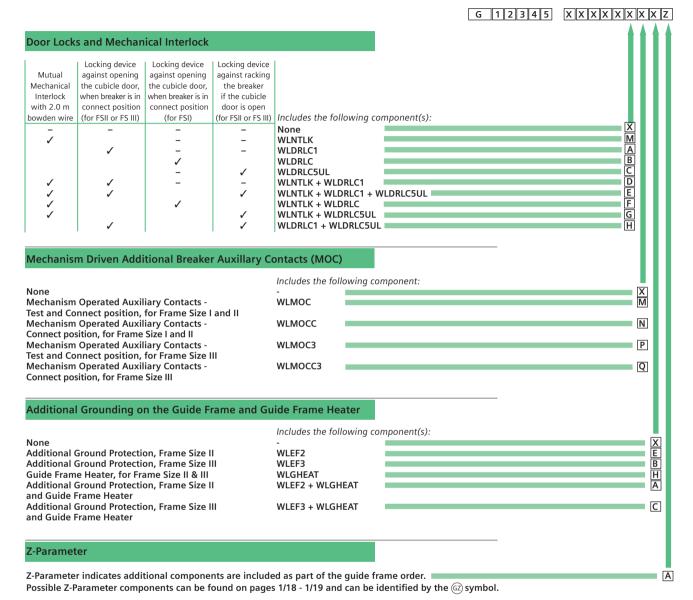
continued on the next page

 $[\]textcircled{1}$ All necessary terminal blocks (X5, X6, X8, X9) are installed as standard. 2 All guide frame mounted locks are for Frame Size II and Frame Size III only.

Components and Accessories

Guide Frame Catalog Numbering System

Primary Catalog No. Common Accessories



N - In this position indicates no additional components.

WL Guide Frame

Description	Max Ampere Rating A	Interrupting Rating kA	Catalog Number	List Price
S-Class	Max / impere nating /	interrupting rating to	catalog (vallibe)	LIST THEC
Frame Size I	800	65	WI C1E200	0 157
Frame Size I		65	WLS1F308	8,157
	1200		WLS1F312	9,462
Frame Size II	800	65	WLS2F308	8,157
Frame Size II	1200	65	WLS2F312	9,462
Frame Size II	1600	65	WLS2F316	9,462
Frame Size II	2000	65	WLS2F320	10,173
H-Class				
Frame Size I	800	85	WLH1F308	8,619
Frame Size I	1200	85	WLH1F312	9,702
L-Class				
rame Size I	800	100	WLL1F308	8,773
rame Size I	1200	100	WLL1F312	9,783
Frame Size II	800	100	WLL2F308	8,773
Frame Size II	1200	100	WLL2F312	9,783
Frame Size II	1600	100	WLL2F316	9,783
Frame Size II	2000	100	WLL2F320	10,477
Frame Size II	2500	100	WLL2F325	17,566
Frame Size II	3000	100	WLL2F330	22,732
Frame Size III	4000	100	WLL3F340	34,185
Frame Size III	5000	100	WLL3F350	53,498
C-Class				
	200	150	WI COEDOO	10.60
Frame Size II ②	800	150	WLC2F308	10,695
Frame Size II ②	1200	150	WLC2F312	10,695
Frame Size II ②	1600	150	WLC2F316	10,695
Frame Size II ②	2000	150	WLC2F320	12,392
Frame Size II (2)	2500	150	WLC2F325	28,447
Frame Size II (2)	3000	150	WLC2F330	
Frame Size III Frame Size III	4000 5000	150 150 150	WLC2F330 WLC3F340 WLC3F350	28,447 42,369 64,305
Frame Size III Frame Size III	4000	150	WLC3F340	42,369
Frame Size III Frame Size III UL 489 Drawout C	4000 5000	150	WLC3F340	42,369
Frame Size III Frame Size III UL 489 Drawout C S-Class	4000 5000	150	WLC3F340	42,369 64,309
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I	4000 5000 ircuit Breaker Frames ①	150 150	WLC3F340 WLC3F350	42,369 64,309 9,498
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I	4000 5000 ircuit Breaker Frames ①	150 150 65	WLC3F340 WLC3F350 WLS1D308	42,369 64,305 9,498 11,820
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II	4000 5000 ircuit Breaker Frames ① 800 1200	150 150 65 65	WLC3F340 WLC3F350 WLS1D308 WLS1D312	9,498 11,820 9,498
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size II Frame Size II	4000 5000 ircuit Breaker Frames ^① 800 1200 800	150 150 65 65 65	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308	9,498 11,820 11,820
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II	4000 5000 ircuit Breaker Frames ① 800 1200 800 1200	150 150 65 65 65 65	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312	9,498 11,820 9,498 11,820 11,820
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II	4000 5000 ircuit Breaker Frames 1 800 1200 800 1200 1600	150 150 65 65 65 65 65 65	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316	9,498 11,820 9,498 11,820 11,820
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II	4000 5000 ircuit Breaker Frames 1 800 1200 800 1200 1600	150 150 65 65 65 65 65 65	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316	9,498 11,820 11,820 11,820 11,820 14,400
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II	4000 5000 ircuit Breaker Frames ⁽¹⁾ 800 1200 800 1200 1600 2000	150 150 65 65 65 65 65 65	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320	9,498 11,820 11,820 11,820 11,820 11,820 11,820
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II	800 1200 800 1200 1200 1600 2000	150 150 65 65 65 65 65 65	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308	9,498 11,820 11,820 11,820 11,820 11,820 11,820
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II L-Class	800 1200 800 1200 800 1200 1600 2000	150 150 65 65 65 65 65 65 65 85	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D308	9,498 11,820 9,498 11,820 11,820 14,400
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II L-Class Frame Size I	4000 5000 fircuit Breaker Frames ① 800 1200 800 1200 1600 2000 800 1200	150 150 150	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D308	9,498 11,820 11,820 11,820 11,820 11,820 12,029
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II H-Class Frame Size I L-Class Frame Size I Frame Size I Frame Size I	## 4000 5000	150 150 150 65 65 65 65 65 65 85 85 80	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D308 WLL1D308 WLL1D312	9,498 11,820 11,820 11,820 11,820 11,820 12,025
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II L-Class Frame Size I	4000 5000 ircuit Breaker Frames ① 800 1200 800 1200 1600 2000 800 1200 800 1200 800 1200 800	150 150 150	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D308 WLL1D312	9,498 11,820 11,820 11,820 11,820 12,025 10,368 12,094
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II Frame Size II Frame Size II	## 4000 5000	150 150 150 65 65 65 65 65 65 65 100 100 100	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D308 WLL1D312 WLL2D308 WLL2D312	9,498 11,820 11,820 14,400 10,151 12,025 10,368 12,094
Frame Size III Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I L-Class Frame Size I Frame Size II	800 1200 800 1200 800 1200 1600 2000 800 1200 800 1200 800 1200 800 1200	150 150 150 65 65 65 65 65 65 85 85 80 100 100 100 100	WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL2D308 WLL2D312 WLL2D312 WLL2D316	9,498 11,820 9,498 11,820 11,820 11,820 12,025 10,368 12,094 10,368 12,094 12,094
Frame Size III Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I H-Class Frame Size I L-Class Frame Size I Frame Size II	800 1200 800 1200 800 1200 1600 2000 800 1200 800 1200 800 1200 1200	150 150 150 65 65 65 65 65 65 85 85 80 100 100 100 100 100	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D308 WLL1D312 WLL2D312 WLL2D316 WLL2D316 WLL2D316 WLL2D320	9,498 11,820 9,498 11,820 11,820 14,400 10,151 12,025 10,368 12,094 12,094 12,094 14,804
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II	## 4000 5000	150 150 150 65 65 65 65 65 65 85 85 85 100 100 100 100 100 100	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D308 WLL2D308 WLL2D316 WLL2D316 WLL2D316 WLL2D320 WLL2D320 WLL2D320	9,498 11,820 11,820 11,820 11,820 11,820 12,025 10,368 12,094 10,368 12,094 12,094 14,804 20,870
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II	## 4000	150 150 150 65 65 65 65 65 65 85 85 80 100 100 100 100 100 100 100 100	WLS1D308 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D308 WLL1D312 WLL2D308 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D320 WLL2D330	9,498 11,820 11,820 11,820 11,820 11,820 11,820 12,002 10,368 12,002 12,
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II	## 4000 5000	150 150 150 65 65 65 65 65 65 85 85 85 100 100 100 100 100 100	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D308 WLL2D308 WLL2D316 WLL2D316 WLL2D316 WLL2D320 WLL2D320 WLL2D320	9,498 11,820 11,820 11,820 11,820 11,820 12,025 10,368 12,094 12,094 12,094 12,094 14,804 20,870 20,870 20,971 42,067
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II Frame Size III Frame Size III Frame Size III	## 4000 5000	150 150 150 65 65 65 65 65 65 85 85 80 100 100 100 100 100 100 100 100 100	WLS1D308 WLS1D312 WLS2D312 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D312 WLL2D312 WLL2D316 WLL2D310 WLL2D316 WLL2D310	9,496 11,820 11,820 11,820 11,820 11,820 11,820 12,025 10,366 12,094 12,094 12,094 14,804 20,87 26,971 42,067
Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II Frame Size III	## 4000 5000 1200 800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 1600 2000 2500 3000 4000 5000 1000	150 150 150 65 65 65 65 65 65 85 85 85 100 100 100 100 100 100 100 100 100 10	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL2D308 WLL2D312 WLL2D316 WLL2D316 WLL2D316 WLL2D320 WLL2D325 WLL2D330 WLL3D330 WLL3D340 WLL3D350	9,498 11,820 11,820 11,820 11,820 11,820 12,092 10,368 12,092 10,368 12,094 12,094 14,804 20,870 26,918 42,065 66,559
Frame Size III Frame Size III Frame Size III S-Class Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II Frame Size III	## A000	150 150 150 65 65 65 65 65 65 85 85 85 100 100 100 100 100 100 100 100 100	WLC3F340 WLC3F350 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D312 WLL2D308 WLL2D312 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D325 WLL2D330 WLL3D350 WLC2D308	9,498 11,820 11,820 11,820 11,820 11,820 11,820 12,094 12,094 12,094 12,094 12,094 14,804 20,870 26,918 42,065 66,559
Frame Size III Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II Frame Size III	## A000	150 150 150 65 65 65 65 65 65 85 85 85 100 100 100 100 100 100 100 100 100 10	WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D312 WLL2D316 WLL2D312 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D350 WLL2D316 WLL2D350 WLL2D316 WLC2D308 WLC2D316 WLC2D308 WLC2D312	9,498 11,820 11,820 11,820 11,820 11,820 11,820 14,400 10,151 12,025 10,368 12,094 12,094 12,094 14,804 20,870 26,918 42,067 66,559
Frame Size III Frame Size III Frame Size III UL 489 Drawout C S-Class Frame Size I Frame Size I Frame Size II Frame Size I H-Class Frame Size I Frame Size I Frame Size I Frame Size I Frame Size II Frame Size III	800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 800 1200 1600 2000 2500 3000 4000 5000	150 150 150 65 65 65 65 65 65 85 85 85 100 100 100 100 100 100 100 100 100 10	WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL2D308 WLL2D312 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D316 WLL2D310 WLL2D316 WLL2D310 WLL2D310 WLL2D310 WLL2D310 WLL2D310 WLL2D310 WLL2D310 WLL2D310 WLL2D310	9,498 11,820 9,498 11,820 11,820 14,400 10,151 12,025 10,368 12,094 12,094 14,804 20,870 66,559 14,432 14,578 14,578
Frame Size III Frame Size III Frame Size III S-Class Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II Frame Size III Frame Size III Frame Size III Frame Size III C-Class Frame Size III ② Frame Size II ② Frame Size II ② Frame Size II ② Frame Size II ②	## A000	150 150 150 65 65 65 65 65 65 85 85 85 100 100 100 100 100 100 100 100 100 10	WLS1D308 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D308 WLL2D312 WLL2D316 WLL2D316 WLL2D320 WLL2D316 WLL2D320 WLL3D350 WLC2D312 WLC2D316 WLC2D316 WLC2D310	9,498 11,820 9,498 11,820 11,820 14,400 10,153 12,029 10,368 12,094 12,094 12,094 14,804 20,870 26,918 42,065 66,559
Frame Size III Frame Size III Frame Size III Frame Size I Frame Size I Frame Size I Frame Size II Frame Size I Frame Size II Frame Size III	## A000	150 150 150 65 65 65 65 65 65 85 85 85 80 100 100 100 100 100 100 100 100 100	WLC2B308 WLS1D308 WLS2D312 WLS2D316 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL2D316 WLL2D316 WLL2D312 WLL2D316 WLL2D316 WLL2D310 WLL2D310 WLL2D310 WLL2D310 WLL2D320 WLL2D330 WLL3D340 WLL3D350 WLC2D312 WLC2D312 WLC2D312 WLC2D312 WLC2D312 WLC2D312 WLC2D312 WLC2D312 WLC2D312 WLC2D316 WLC2D320 WLC2D325	9,498 11,820 11,820 11,820 11,820 11,820 11,820 11,820 11,820 11,820 14,400 10,15 12,094 14,804 20,870 26,918 42,065 66,559 14,433 14,578 14,578 14,578 14,578 16,273 25,893
Frame Size III Frame Size III	## A000	150 150 150 65 65 65 65 65 65 85 85 85 100 100 100 100 100 100 100 100 100 10	WLS1D308 WLS1D308 WLS1D312 WLS2D308 WLS2D312 WLS2D316 WLS2D320 WLH1D308 WLH1D312 WLL1D308 WLL2D312 WLL2D316 WLL2D316 WLL2D320 WLL2D316 WLL2D320 WLL3D350 WLC2D312 WLC2D316 WLC2D316 WLC2D310	9,498 11,820 11,820 11,820 11,820 11,820 11,820 11,820 12,092 10,368 12,092 12,092 14,802 20,870 20,870 26,918 42,067 66,559

Circuit Breaker and Non-Automatic Switch Frames must be ordered as part of an assembled catalog number as defined on pages 1/6 through 1/11.
 Available January 2006

Components and Accessories

00	50 50 50 65 65 65 65 85 85 85 85 85 80 100 100 100 100 100 100	WLN2A308 WLN2A316 WLS2A308 WLS2A316 WLS2A320 WLS2A332 WLH2A332 WLH2A316 WLH2A332 WLH3A340 WLH2A350 WLL2A332 WLH3A340 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A332 WLM3A340 WLM3A350	7,631 9,122 8,682 10,904 15,600 17,828 10,006 12,655 18,501 22,721 32,488 41,253 10,693 15,165 19,440 29,060 38,305 47,983
000 000 000 000 000 000 000 000 000 00	85 85 85 85 85 85 85 80 100 100 100 100 100 100	WLN2A316 WLS2A308 WLS2A316 WLS2A320 WLS2A332 WLH2A308 WLH2A316 WLH2A320 WLH2A332 WLH3A340 WLH3A350 WLL2A308 WLL2A316 WLL2A316 WLL2A332 WLL3A340 WLL3A350 WLL3A340 WLL3A340 WLL3A340 WLL3A340 WLL3A340	9,122 8,682 10,904 15,600 17,828 10,006 12,655 18,501 22,721 32,488 41,253 10,693 15,165 19,440 29,060 38,305 47,983 30,099 44,659
00 00 00 00 00 00 00 00 00 00	65 65 65 65 65 85 85 85 85 85 80 100 100 100 100 100	WLS2A308 WLS2A316 WLS2A320 WLS2A332 WLS2A332 WLH2A316 WLH2A332 WLH3A3340 WLH3A350 WLL2A316 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350	8,682 10,904 15,600 17,828 10,006 12,655 18,501 22,721 32,488 41,253 10,693 15,165 19,440 29,060 38,305 47,983
000 000 000 000 000 000 000 000 000 00	65 65 65 85 85 85 85 85 85 100 100 100 100 100 100	WLS2A316 WLS2A320 WLS2A332 WLH2A308 WLH2A316 WLH2A320 WLH2A332 WLH3A340 WLH3A350 WLL2A308 WLL2A316 WLL2A320 WLL2A322 WLL2A332 WLL3A340 WLL3A350	10,904 15,600 17,828 10,006 12,655 18,501 22,721 32,488 41,253 10,693 15,165 19,440 29,060 38,305 47,983
000 000 000 000 000 000 000 000 000 00	65 65 65 85 85 85 85 85 85 100 100 100 100 100 100	WLS2A316 WLS2A320 WLS2A332 WLH2A308 WLH2A316 WLH2A320 WLH2A332 WLH3A340 WLH3A350 WLL2A308 WLL2A316 WLL2A320 WLL2A322 WLL2A332 WLL3A340 WLL3A350	10,904 15,600 17,828 10,006 12,655 18,501 22,721 32,488 41,253 10,693 15,165 19,440 29,060 38,305 47,983
000 000 000 000 000 000 000 000 000 00	65 65 85 85 85 85 85 85 100 100 100 100 100 100 100	WLS2A320 WLS2A332 WLH2A308 WLH2A316 WLH2A320 WLH2A332 WLH3A340 WLH3A350 WLL2A316 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350	15,600 17,828 10,006 12,655 18,501 22,721 32,488 41,253 10,693 15,165 19,440 29,060 38,305 47,983
000 000 000 000 000 000 000 000 000 00	85 85 85 85 85 85 85 100 100 100 100 100 100	WLS2A332 WLH2A308 WLH2A316 WLH2A320 WLH2A332 WLH3A340 WLH3A350 WLL2A308 WLL2A316 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A340 WLM3A340	17,828 10,006 12,655 18,501 22,721 32,488 41,253 10,693 15,165 19,440 29,060 38,305 47,983 30,099 44,659
500 500 500 500 500 500 500 500	85 85 85 85 85 85 100 100 100 100 100 100 100	WLH2A316 WLH2A320 WLH2A332 WLH3A340 WLH3A350 WLL2A308 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A340 WLM3A332 WLM3A340	12,655 18,501 22,721 32,488 41,253 10,693 15,165 19,444 29,060 38,305 47,983
500 500 500 500 500 500 500 500	85 85 85 85 85 85 100 100 100 100 100 100 100	WLH2A316 WLH2A320 WLH2A332 WLH3A340 WLH3A350 WLL2A308 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A340 WLM3A332 WLM3A340	12,655 18,501 22,721 32,488 41,253 10,693 15,165 19,444 29,060 38,305 47,983
000 000 000 000 000 000 000 000 000	85 85 85 85 85 100 100 100 100 100 100 100	WLH2A320 WLH2A332 WLH3A340 WLH3A350 WLL2A308 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A340	18,501 22,721 32,488 41,253 10,693 15,165 19,440 29,060 38,305 47,983
200 200 200 200 200 200 200 200 200 200	85 85 85 85 100 100 100 100 100 100 150	WLH2A332 WLH3A340 WLH3A350 WLL2A308 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A340 WLM3A332 WLM3A340	22,721 32,488 41,253 10,693 15,165 19,440 29,060 38,305 47,983 30,099 44,659
000 000 000 000 000 000 000	85 85 100 100 100 100 100 100 150	WLH3A340 WLH3A350 WLL2A308 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A332 WLM3A340	32,488 41,253 10,693 15,161 19,440 29,060 38,303 47,983 30,099 44,659
000 00 000 000 000 000 000	100 100 100 100 100 100 100	WLH3A350 WLL2A308 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A332 WLM3A340	10,693 15,169 15,169 19,444 29,060 38,309 47,983
000 5000 9000 9000 9000	100 100 100 100 100 100 150	WLL2A308 WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A332 WLM3A332	10,693 15,169 19,444 29,066 38,309 47,983
500 000 200 000 000	100 100 100 100 100 100	WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A332 WLM3A340	15,165 19,440 29,060 38,305 47,983 30,099 44,659
500 000 200 000 000	100 100 100 100 100 100	WLL2A316 WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A332 WLM3A340	15,16: 19,440 29,060 38,30: 47,98: 30,09: 44,659
200 200 200 200 200 200	100 100 100 100 100	WLL2A320 WLL2A332 WLL3A340 WLL3A350 WLM3A332 WLM3A340	19,44 29,06 38,30 47,98 30,09 44,65
200 000 000 000	100 100 100 100	WLL2A332 WLL3A340 WLL3A350 WLM3A332 WLM3A340	29,060 38,30! 47,983 30,099 44,659
000 000 200	100 100 150 150	WLL3A340 WLL3A350 WLM3A332 WLM3A340	38,30! 47,983 30,099 44,659
200	100 150 150	WLM3A332 WLM3A340	47,983 30,099 44,659
000	150	WLM3A340	44,659
000	150	WLM3A340	44,659
000	150	WLM3A350	55,93°
00	200	WLF2A308	11,076
500	200	WLF2A316	17,181
			20,049
		_	29,122 45,857
	200	WLF3A350 ②	58,722
natic Switc	hes①		
iatic Switch	_		
	Breaking Capacity KA		
00	85	WLH1Y308	8,619
200	85	WLH1Y312	9,702
		WLL2Y316	9,783
			10,477
			17,568
			22,732
			34,18! 53,498
	00 200 500 500 500 500 500 500 500 500 5	200 200	### Reaking Capacity kA ### Reaking Capaci

Components and Accessories

			'	
UL 489 Drawout N	on-Automatic Switches			
Description	Max Ampere Rating A	Interrupting Rating kA	Catalog Number	List Price \$
H-Class	000	05	WII.147200	40.454
Frame Size I	800	85	WLH1Z308	10,151
Frame Size I	1200	85	WLH1Z312	12,025
L-Class				
Frame Size II	1600	100	WLL2Z316	12,094
Frame Size II	2000	100	WLL2Z320	14,804
Frame Size II Frame Size II	2500 3000	100 100	WLL2Z325 WLL2Z330	20,870
Frame Size III	4000	100	WLL3Z340	26,918 42,067
Frame Size III	5000	100	WLL3Z350	66,559
5120	5000	.00		00,000
ANSI / III 1066 Des	awout Non-Automatic Sv	uitches (1)		
ANSI / UL 1000 DI	awout Non-Automatic Sv	_		
		Breaking Capacity kA ^③		
L-Class				
Frame Size II	800	100	WLL2S308	9,870
Frame Size II	1600	100	WLL2S316	13,252
Frame Size II Frame Size II	2000 3200	100 100	WLL2S320 WLL2S332	17,771 23,292
Frame Size III	3200 4000	100	WLL25332 WLL3S340	23,292 33,086
Frame Size III	5000	100	WLL3S350	41,939
		100	WEESSSSO	——————————————————————————————————————
F-Class (with fuses		204	WII EDCOOR	11 122
Frame Size II Frame Size II	800 1600	20④	WLF2S308 WLF2S316	11,133 13,743
Frame Size II	2000	20④	WLF2S310 WLF2S320	19,738
Frame Size III	3200	40 40	WLF3S332 ②	24,537
Frame Size III	4000	40 ④	WLF3S340 ②	41,299
Frame Size III	5000	40 ④	WLF3S350 ②	54,301
Circuit Propker / N	on-Automatic Switch Gu	ido Eramos and Accosso	rios	
Guide Frames for U	L 489 Drawout Circuit Bre	akers and Non-Automatic	Switches	
S-Class				
Frame Size I	800	65	WLGS1308	1,850
Frame Size I	1200	65	WLGS1312	1,850
Frame Size II	800	65	WLGS2308	1,850
Frame Size II	1200	65	WLGS2312	1,850
Frame Size II	1600	65	WLGS2316	1,850
Frame Size II	2000	65	WLGS2320	2,138
H-Class				
Frame Size I	800	85	WLGH1308	1,850
Frame Size I	1200	85	WLGH1312	1,850
L-Class				
Frame Size I	800	100	WLGL1308	1,850
Frame Size I	1200	100	WLGL1312	1,850
Frame Size II	800	100	WLGL2308	1,850
Frame Size II	1200	100	WLGL2312	1,850
Frame Size II Frame Size II	1600 2000	100 100	WLGL2316 WLGL2320	1,850
Frame Size II	2500	100	WLGL2320 WLGL2325	2,138 3,312
Frame Size II	3000	100	WLGL2323 WLGL2330	3,312
Frame Size III	4000	100	WLGL3340	6,451
Frame Size III	5000	100	WLGL3350	6,451
C-Class				
Frame Size II (5)	800	150	WLGC2308	2,639
Frame Size II 5	1200	150	WLGC2300 WLGC2312	2,639
Frame Size II 5	1600	150	WLGC2312 WLGC2316	2,639
Frame Size II 5	2000	150	WLGC2310 WLGC2320	2,639
Frame Size II 5	2500	150	WLGC2325	4,111
Frame Size II (5)	3000	150	WLCG2330	4,111
Frame Size III	4000	150	WLGC3340	6,451
Frame Size III	5000	150	WLGC3350	6,451
Traine Size iii				

 $[\]ensuremath{\textcircled{\scriptsize 1}}$ Circuit Breaker and Non-Automatic Switch Frames must be ordered as part of an assembled catalog number as defined on pages 1/6 through 1/11.
② Includes WLFCAR50 fuse carriage.
③ Breaking capacity with external relay is equal to the short-time rating.

④ Interrupting rating is equal to 200kA based on the rating of the fuse.

Available January 2006

Circuit Breaker / Non-Automatic Switch Guide Frames and Accessories

Guide Frames for ANSI / UL 1066 Drawout Circuit Breakers and Non-Automatic Switches 1

Description	Max Ampere Rating A	Interupting Rating kA	Catalog Number	List Price \$
N-Class				
Frame Size II Frame Size II	800 1600	50 50	WLGN2308 WLGN2316	1,850 1,850
S-Class				
Frame Size II	800	65	WLGS2308	1,850
Frame Size II	1600	65	WLGS2316	1,850
Frame Size II	2000	65	WLGS2320	2,138
Frame Size II	3200	65	WLG32320 WLGS2332	3,312
H-Class				
Frame Size II	800	QE.	MICHOOO	1 050
	800	85	WLGH2308	1,850
Frame Size II	1600	85	WLGH2316	1,850
Frame Size II	2000	85	WLGH2320	2,138
Frame Size II	3200	85	WLGH2332	3,312
Frame Size III	4000	85	WLGH3340	6,451
Frame Size III	5000	85	WLGH3350	6,451
L-Class				
Frame Size II	800	100	WLGL2308	1,850
Frame Size II	1600	100	WLGL2316	1,850
Frame Size II	2000	100	WLGL2320	2,138
Frame Size II		100		
	3200		WLGL2332	3,312
Frame Size III	4000	100	WLGL3340	6,451
Frame Size III	5000	100	WLGL3350	6,451
M-Class				
Frame Size III	3200	150	WLGM3332	6,451
Frame Size III	4000	150	WLGM3340	6,451
Frame Size III	5000	150	WLGM3350	6,451
F-Class				
	800	200	WI CESSOO	1 050
Frame Size II	800	200	WLGF2308	1,850
Frame Size II	1600	200	WLGF2316	1,850
Frame Size II	2000	200	WLGF2320	2,676
Frame Size III	3200	200	WLGF3332 ^②	11,607
Frame Size III	4000	200	WLGF3340 ②	11,607
Frame Size III	5000	200	WLGF3350 ^②	11,607
Fuse Carriage 3				
-	th 3200A / 4000A / 5000A			
Frame Size III F-Class Bre			WLFCAR50	5,156
Guide Frame Access		with C.Class singuity has also		
		with C-Class circuit breakers		
For vertical to horizontal		0.1.1.600.1.22222	GZ GZ	
	80	0A / 1600A / 2000A	WLG20TCN	225
Removeable Secondary	Screw connection for ring	n terminals	WLGAUXPLUGR	100
•		5	WLGAUXPLUGT	115
,	Tension spring connection fo Screw connection fo			
Connectors	Screw connection to	or pare wire	WLGAUXPLUGP	89
Sliding Disconnect Secon	ndary Auxiliary on Guide Fra	me	WLGDSCN	185
	ndary Auxiliary on Guide Fra	me	WLGBDSCN	50
(dummy block)				
Breaker Position Signalin	g Switch (all contacts are Fo	orm C)		
	connect, Truck Operated Cor		WLGSGSW111	375
	connect, Truck Operated Cor	maci (TOC)	WLGSGSW321	450 475
6-Connect, Truck Operat	tea Contact (TOC)		WLGSGSW6	475
(1) All quide frames with	Vertical Bus configuration, h	norizontal ontional		
② Includes quide frame f		ionzontai optionai.		
	ot include quide frame for t	ho fuco carriago		
	order as a guide frame Z-Pa			
	eter accessory. This compon			
an assembled guide fi	rame catalog number order.			





WLGAUXPLUGT



Circuit Breaker / Non-Automatic Switch Guide Frames and Accessories

Components and Accessories



Circuit Breaker / Non-Autom	atic Switch	Guide Frame	es and Accesso	ories	
Guide Frame Accessories					
Description				Catalog Number	List Price \$
·				catalog Hamber	List Trice \$
Shutter Field installable and lockable with	Eramo Sizo I	UL 489	S, H, L-Class	WLGSHUT1UL	450
	Frame Size II		N, S, L, F-Class	WLGSHUT2	515
padiock provision	riaille size ii	UL 489	C-Class	WLGSHUTM2	515
	Erama Siza III	ANSI / UL 489		WLGSHUT3	575
		ANSI / UL 489		WLGSHUTM3	575
	Frame Size I	UL 489	S, H, L-Class	WLGARC1UL	295
	Frame Size II		N, S, H, L-Class	WLGARC2	337
		UL 489 ANSI / UL 489	S, L-Class	WLGARC2UL WLGARC3	337 425
	(110.6)	ANSI / OL 409	TI, L-Class	WEGANCS	723
Mechanism Operated Auxiliary Cor					
Mounted on the Guide Frame (dram				WILMOC	900
4NO+4NC, Test and Connect		FSI & FSII FSI & FSII		WLMOC WLMOCC	800 700
4NO+4NC, Connect position 4NO+4NC, Test and Connect		FSIII		WLMOC3	800
4NO+4NC, Test and Connect 4NO+4NC, Connect position		FSIII		WLMOC3	700
For fixed mount breakers	ii Oiliy	1 3111		WEWOCCS	700
4NO+4NC		FSI		WLMOCUL1	700
4NO+4NC		FSII		WLMOCUL	700
Guide Frame Heater				WLGHEAT	62
Locking Devices Mounted on	the Guide	Frame			
Lock Breaker in OPEN position, KIRI				WLDLKRK	750
Lock Breaker in OPEN position, Kill				WLDLSUP	675
Double Lock Breaker in OPEN positi				WLDLDKRK	1,450
Double Lock Breaker in OPEN positi		Lock		WLDLDKKK	1,305
Provision Only - Lock Breaker in OP		LOCK		WLDLPR	247
Provision Only - Double Lock Break		sition		WLDLDPR	350
Locking Device against opening the cu			ect position	WLDRLC1 [©]	180
FSII & FSIII	abicic door ii bi	canci is iii comine	ice position,		
Locking Device against opening the cu	ubicle door if br	eaker is in conne	ect position, FSI	WLDRLC	180
Locking Device against closing the bre			, ,	WLDRLC5UL	237
and breaker is in the connect position					
3-Phase Metering CTs, Guide	Frame mou	unted (3 win	dows per CT)		
_		Rating	•		
Frame Size I	& II	100:5		WLG1005MCT2 [©]	1,158
		150:5		WLG1505MCT2 [©]	1,158
		200:5		WLG2005MCT2 [©]	1,158
		250:5		WLG2505MCT2 ^{©2}	1,158
		300:5		WLG3005MCT2 ^{©2}	1,158
		400:5		WLG4005MCT2 ^{©2}	1,158
		500:5		WLG5005MCT2 [©]	1,158
		600:5		WLG6005MCT2 [©]	1,158
		800:5		WLG8005MCT2 [©]	1,158
		1000:5		WLG10005MCT2@	1,158
		1200:5		WLG12005MCT2@	1,158
		1500:5		WLG15005MCT2@	1,158
		1600:5		WLG16005MCT2@	1,158
		2000:5		WLG20005MCT2@	1,158
		2500:5		WLG25005MCT2@	1,158
		3000:5		WLG30005MCT2@	1,158
		3200:5		WLG32005MCT2@	1,158
Frame Size II	II	2000:5		WLG20005MCT3@2	1,623
		2500:5		WLG25005MCT3©	1,623
		3000:5		WLG30005MCT3©	1,623
		3200:5		WLG32005MCT3©	1,623
		4000:5		WLG40005MCT3©	1,623
		5000:5		WLG50005MCT3©	1,623
Coding Kit for Drawout Break					
Breaker Coding Kit for different br	reaker styles	Frame Size I (UL 489 only)	WLBCK1	120
-	-	Frame Size II	-	WLBCK2	120
		Frame Size III		WLBCK3	120
Additional Grounding Between			rame		
Additional ground protection for the	e Guide Frame			WLEF2	86
		Frame Size III		WLEF3	86





WLEF2

① Breakers are coded for frame rating and interrupting capacity standard from the factory.

[©]Z) Guide Frame Z-Parameter accessory. This component can be added to an assembled guide frame catalog number order.

Components and Accessories

Electronic Trip Units 1	Protective Functions		
Description		Catalog Number	List Price :
	. (=):		
ETU725	L(S)I	WLETU725	1,375
ETU727	L(S)IG	WLETU727	2,145
ETU745	L(S)(I) G ②	WLETU745	1,600
ETU748	LS G ^②	WLETU748	1,550
ETU755	L(S)(I) G ^②	WLETU755	1,900
ETU776	L(S)(I) G ^②	WLETU776	3,600
() indicates a Defeatable function			
Electronic Trip Unit Accessories			
Metering Function Plus (not including voltage t	transformers) ^④	WLMETERP	1,600
Non-Automatic Reset (Reclosing is locked out a	fter trip)	WLNOAUTRSET BZ	300
Remote Reset Solenoid for the Trip Indicator	24V DC	WLRSET24	400
and the Bell Alarm	48V DC	WLRSET48	400
	120V DC	WLRSET120	400
	240V DC	WLRSET240	400
Sealing Cover for the electronic trip unit	ETU725 - 755	WLTUSC55	50
	ETU776	WLTUSC76	50
LCD Display	ETU745 & 748	WLLCD48	780
Optional Ground Fault Modules for Ele			
Ground Fault Trip and Alarm for ETU745 & 748		WLGFM48	770
Ground Fault Trip and Alarm for ETU755 & 776		WLGFM76	770
Ground Fault Alarm Only for ETU745 & 748		WLGFA48	400
Ground Fault Alarm Only for ETU755 & 776		WLGFA76	400
Communication Accessories			
COM15 PROFIBUS Module		WLCM15M	1,700
COM15 PROFIBUS Retrofit Kit with BSS ^③		WLCM15RET	1,950
COM16 MODBUS Module		WLCM16MD	1,700
COM16 MODBUS Retrofit Kit with BSS ^③		WLCM16RET	1,950
BSS (Breaker Status Sensor)		WLBSS	600
Rating Plugs	Amp Rating		
5,,,,,,, C;,,, I O II	200	MII BDOOG	100
Frame Size I & II	200	WLRP200	100
	225	WLRP225	100
	250	WLRP250	100
	300 315	WLRP300 WLRP315	100 100
	350	WLRP350	100
	400	WLRP400	100
	450	WLRP450	100
	500	WLRP500	100
	600	WLRP600	100
	630	WLRP630	100
	700	WLRP700	100
Frame Size I, II & III	800	WLRP800	100
	1000	WLRP1000	100
	1200	WLRP1200	100
Frame Size II & III	1250	WLRP1250	100
	1600	WLRP1600	100
	2000	WLRP2000	100
	2500	WLRP2500	100
	3000	WLRP3000	100
C. III	3200	WLRP3200	100
Frame Size III	4000 5000	WLRP4000 WLRP5000	100 100
Closing Coils			
Remote Close Solenoid	24V DC	WLRCS24	350
(3-cycle close)	48V DC	WLRCS48	350
	120V AC / 125V DC	WLRCS120	350
\ -	240V AC / 250V DC	WLRCS240	350
)Trip units include clear plastic front sealing covers ② Optional Ground Fault Module can be ordered sepa			
and not removable once installed.	nately. It is lielu ilistallable		
For use if communications is not originally ins	stalled		
Requires external voltage potential transformers in			
Circuit Breaker Z-Parameter accessory. This comp			
added to an assembled breaker or switch catalog			
		WL Selection and Appli	ication Guid
		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	



WLRSET24



WLTUSC55









WLRP3200

Components and Accessories





WLUV24





WLELCMTR24



WLELCMTR24S







WLLKOFFKRK



WLLKKT





WLHANDLC

Shunt Trips			
Description		Catalog Number	List Price \$
<u> </u>	24V DC	WLST24	350
	48V DC	WLST48	350
	120V AC / 125V DC 240V DC / 250V DC	WLST120 WLST240	350 350
t tot Tala	270V DC	1100.0	
Interlock Shunt Trip Continous Duty, for UL 489 only	24V DC	WLSTCD24	350
continuous surg,	48V DC	WLSTCD48	350
	120V AC / 125V DC 240V AC / 250V DC	WLSTCD120 WLSTCD240	350 350
Undervoltage Release UVR	24V DC	WLUV24	550
JVK	24V DC 48V DC	WLUV24 WLUV48	550 550
	120V AC / 125V DC	WLUV120	550
······································	240V AC / 250V DC 48V DC	WLUV240 WLUVD48	550 1,650
UVR with time delay	48V DC 120V AC / 125V DC	WLUVD48 WLUVD120	1,650 1,650
	240V AC / 250V DC	WLUVD240	1,650
Motor Operator		THE CLATES A	2.150
Electric Spring Charging Motor	24V DC 48V DC	WLELCMTR24 WLELCMTR48	2,159 2,159
	120V AC / 125V DC	WLELCMTR120	2,159
with main cut-off switch option	240V AC / 250V DC 24V DC	WLELCMTR240 WLELCMTR24S	2,159 2,230
With Main Cut-on system option	48V DC	WLELCMTR48S	2,230
	120V AC / 125V DC	WLELCMTR120S WLELCMTR240S	2,230
	240V AC / 250V DC	WLELCMTR240S	2,230
Internal Auxiliary Contacts Auxiliary Contact Block	2 NO + 2 NC	WLAS2	275
	4 NO + 4 NC	WLAS4	450
Signaling Contacts			25
Signaling Contact for UVR Signal Contact for 1st Shunt Trip	,	WLUVRC WLSTC	95 95
Signal Contact for 1st Shunt Trip Open Fuse Trip Kit (ANSI only)	Frame Size II	WLOFLO2	300
	Frame Size III	WLOFLO3	300
Bell Alarm Remote Trip Kit	1 Form C contact	WLBA WLRTK ^{BZ}	540 400
Ready to Close Signal Contact	1 NO contact	WLRTCS	225
Locking Devices & Provisions -		BZ)	450
Locking device against opening the cubicle door when the breaker	UL 489 fixed mount Frame Size I UL 489 fixed mount Frame Size II, III	WLLKOFFDRUL1 ^(BZ) WLLKOFFDRUL3 ^(BZ)	150 150
is closed	UL 469 lixeu mount mame sizz,	WLENOT	
Lock breaker in the OPEN position	KIRK	WLLKOFFKRK	900
	Superior 4 Padlock Provision	WLLKOFFSUP ® WLLKNP	810 150
	Key Lock Provision	WLLKNP WLLKOFFPR ^{®Z}	150
Lock Kit - field installable	Transparent protective covers for OPEN	WLLKKT	250
	or CLOSE buttons(2) (Padlock or Sealable		
	option), OPEN or CLOSE button covers with cheat-hole, CES lock for OPEN or CLOSE button		
Locking Device against moving	KIRK UL 489 Frame Size I	WLLKCLKRK1 ^{®Z}	858
a Drawout Breaker in all 3 positions	ANSI / UL 489 Frame Size II, III	WLLKCLKRK	858
by locking the racking handle	Superior UL 489 Frame Size I ANSI / UL 489 Frame Size II, III	WLLKCLSUP1 BZ WLLKCLSUP BZ	858 858
	ANSI / UL 489 Frame Size II, III Key Lock Provision, for Frame Size II, III	WLLKCLSUP (BZ) WLLKCKPR (BZ)	858 150
Locking Device for charging handle, prevents charging the springs	1 Padlock Provision	WLHANDLC	120
Locking Device against moving the breaker if the cubicle door is open	for UL 489 Frame Size II or III only	WLDRLC5UL	150
·		WEDRECOOL	
Miscellaneous Internal Accessor Operations Counter ①	ories	WLNUMCNT	433
Local electric CLOSE pushbutton with	sealing cap, front panel mounting	WLITOMENT	150
(including wiring and microswitch)		W/ EDEN	140
Mushroom Head Emergency OPEN Bu Secondary Disconnect Adapter for Co		WLEPEN WLCNMDA ^{BZ}	140 120
DELUTION PROGRAMMENT	IIIdet Module for Brasson S. C	WECHTIO	

Components and Accessories

External Accessories				
UL 489 Fixed Mount Circ u Description	uit Breaker Externa	al Bus Connectors	Catalog Number Lis	st Price \$
Front Mount Bus Connector				
	e Size I, 85kA max	800A, 1200A	WLH1F12CONUL	120
Fram	e Size II, 100kA max	1600A	WLL2F16CONUL ^{®2} WLL2F20CONUL ^{®2}	120
		2000A 2500A, 3000A	WLL2F30CONUL®	120 200
Fram	e Size III, 100KA max		WLL3F50CONUL ^{®2}	600
Pressure Wire Main Connector				
	e Size I & II, 65kA ma:	k 800A, 1200A	WLS2P12CONUL ^{®2}	90
Fram	e Size II, 65kA max	1600A, 2000A	WLS2P20CONUL ^{®2}	120
Rear Vertical Bus Connector				
Fram	e Size I, 85kA max	800A, 1200A	WLH1R12CONUL ^{©2}	120
Fram	e Size II, 100kA max	1600A	WLL2R16CONUL	120
		2000A	WLL2R20CONUL ^{®Z}	120
From:	a Cina II. 1EOk A many	2500A, 3000A	WLL2R30CONUL ^{®Z)}	200
Frairi	e Size II, 150kA max	1600A, 2000A, 2500A, 3000A	WLC2R30CONUL®2	200
Fram	e Size III, 150kA max		WLC3R50CONUL®	600
Neutral Sensors for Mete	ring 5A Secondar	v		
	ing, 3A secondar	y Rating		
For Frame Size I, II or III		100:5	WLG100NMCT23 🕸	835
		150:5	WLG150NMCT23 📴	835
		200:5	WLG200NMCT23 🕸	835
		250:5	WLG250NMCT23 🕸	835
		300:5	WLG300NMCT23 🕸	835
		400:5	WLG400NMCT23 😥	835
		500:5	WLG500NMCT23 🖾	835
		600:5	WLG600NMCT23 ®2	835
		800:5	WLG800NMCT23 ®2	835
		1000:5	WLG1000NMCT23®	835
		1200:5	WLG1200NMCT23 ®	835
		1500:5	WLG1500NMCT23®	835
		1600:5	WLG1600NMCT23 82 WLG2000NMCT23 82	835
		2000:5	WLG2500NMCT23 ®	835 835
		2500:5 3000:5	WLG3000NMCT23 ®	835
		3200:5	WLG3000NMCT23 ®2	835
		4000:5	WLG4000NMCT23 ®2	835
		5000:5	WLG5000NMCT23 ®2	835
Replacement Mounting Bracke	t for Neutral Sensor	Frame Size II, III	WLNMCTMB23 ®	60
Neutral Sensors for Modi	fied Differential G	F or Source Gnd Return		
For Modified Differential GF	Frame Size II	1200:1	WLGMDGFCT2®2	1,350
	Frame Size III	1200:1	WLGMDGFCT3 🖾	1,500
For Source Ground Return	Frame Size I, II, III	1200:1	WLGNMDGCT23 ^{®2}	800
External Neutral Sensors		al Ground Fault		
without copper bus adapters (pass-una modili)	for 3" max bus bar	WLNCT2 ®Z	1,000
		for 3" - 5" bus bar	WLNCT3 ®	1,300
with copper bus adapters for b	us bar connection	.5. 5 5 505 501	TILITO O	1,500
		for 3" max bus bar	WLNCT2CB ®2	1,050
		for 3" - 5" bus bar	WLNCT3CB ®	1,350
Door Sealing Frame & Co	vers			
Door Sealing Frame (for Frame			WLDSF	220
Plexiglas Breaker Cover			WLPGC	450
External Communication	Devices			
BDA (Breaker Data Adapter) Ele	ectronic Trip Unit para	meterization interface for		
PC connection	•		WLBDA	1,230
BDA PLUS, Electronic Trip Unit	parameterization inte	rface for PC and		
Ethernet connection			WLBDAP	1,593

[©] Circuit Breaker Z-Parameter accessory. This component can be added to an assembled breaker or switch catalog number order.

WLNCT2CB

WLPGC

WLBDA

Components and Accessories

les
Catalog Number List Price \$
odule WLZSIMD 395 with Rotary Switch WLDGSCUB 495 otary Switch WLRLYCUB 672 e, configurable WLDGSCCUB 602 urable WLRLYCCUB 567 WLDGNCUB 532 Modules 0.2 meter long WLCBUSCABLE02 24 1.0 meter long WLCBUSCABLE1 40 2.0 meters long WLCBUSCABLE2 80 4.0 meters long WLCBUSCABLE4 120 9.0 meters long WLCBUSCABLE9 180
Unit, Fixed LSIG pickup WLTS ester WLTSC 150 Unit, Adjustable LSIG pickup WLTSC Unit, Adjustable LSIG pickup WLPTS801 CSO
cludes 2.0 m Bowden wire) me Frame Size I, II, III WLNTLK 680 Frame Size I WLNTLKF1 680 Frame Size II, III WLNTLKF23 680
2.0 m
sories wiring (package of 70) WL10RL W 30 WLGDAUXPLUG 27 or UL 489 fixed mount WLCODEKITUL 120 n leads for UL 489 Fix Mount WLTERMBLKUL 115 er (knife block) WLCNMD 86
s Power Supply, 2.5A SITOP Power, Class 2 wLSITOP25 330 s Power Supply, 3.8A SITOP Power, Class 2 wLSITOP1 600
M8x25 for Frame Size I, II WLMETRC 125 M10x25 for Frame Size II, III WLMETRC3 150
oftware Kit WLCONFIG 495
wiring (package of 70) wultork wuld A89 fixed mount in leads for UL 489 Fix Mount er (knife block) s Power Supply, 2.5A SITOP Power, Class 2 s Power Supply, 3.8A SITOP Power, Class 2 in M8x25 for Frame Size I, II in M10x25 for Frame Size II, III in M10x25 for Frame Size II, III wuld Recommendation wultork wultork wultork wultork wultork wultore wult

① For use with WLGAUXPLUGR ring terminal secondary auxiliary connector.
② Indicates a Circuit Breaker Assembled Catalog Number Z-Parameter.
This component can be added to an assembled breaker or switch catalog number order.

Components and Accessories

Spare Parts and Misce	llaneous Assesse	rios			
•			<u></u>		
Main Breaker Contacts	Replacement Ki	t (ANSI only)	U	Catalog Number	List Price
Description		Intorru	nting Bating Class	Catalog Number	LIST FIICE
Includes fixed and moveable	Frame Size II	10 mm bus	pting Rating Class N - Class	RCS2N10	1,200
contact arm for 1 pole		800A, 1600A	S - Class	RCS2S10	1,310
		,	H - Class	RCS2H10	1,455
			L - Class	RCS2L10	1,530
		15 mm bus	S - Class	RCS2S15	2,100
		for 2000A	H & F - Class	RCS2HF15	2,420
			L - Class	RCS2L15	2,525
		30 mm bus	S - Class	RCS2S30	2,470
		for 3200A	H - Class	RCS2H30	3,015
	Frame Size III	30 mm bus	L - Class H & F - Class	RCS2L30 RCS3HF30	3,710
		000A, 5000A	L - Class	RCS3L30	4,430 5,070
	101 4	000A, 3000A	M - Class	RCS3M30	5,770
					-,
Replacement Fuse Kits	(ANSI only)				
Current Limiting Fuses Kit,	200kAIC	Frame Size II	3000A	WLCLFUSE2002	1,045
		Frame Size III	6000A	WLCLFUSE2003	1,800
Ponlacoment Arc Chut	o Vita				
Replacement Arc Chut	ANSI Frame Size II			WLARC2	106
	ANSI Frame Size III			WLARC3	177
	ANSI Frame Size III	M-Class only		WLARCM3	204
	7.1.13.1.14.11.6.31.26.11.				
Finger Cluster Replace	ment Kit				
	UL 489 Frame Size			WLFNGR1UL	190
	UL 489 Frame Size				
	S & L-Class	1600A	10 mm	WLFNGR10UL	250
		2000A	15 mm	WLFNGR15UL	250
	UL 489 Frame Size	2500A, 3000	4 30 mm	WLFNGR30UL	405
	OL 469 Flaille Size	1600A, 2000	Δ		
		2500A, 3000A		WLFNGR30ULC	450
	ANSI Frame Size II			WLFNGR10	250
		2000A	15 mm	WLFNGR15	250
		3200A	30 mm	WLFNGR30	405
	Frame Size III	4000A, 5000A	A 30 mm	WLFCK3	650
Lateral 2 along ST Co	D 11/1				
Internal 3-phase CT Sp	oare Part Kit UL 489 Frame Size	1		WI CT1111	175
	UL 489 Frame Size UL 489 Frame Size	-		WLCT1UL WLCT2UL	175 225
	UL 489 Frame Size			WLCT3UL	275
	ANSI Frame Size II	***		WLCT2	275
	ANSI Frame Size III			WLCT3	240
Miscellaneous Accesso	ories				
Breaker Lifting Device				WLLFT	585
Circuit Breaker Hoist				WLHOIST	3,400
1 It is recommended that a	arc chutes and main	contacts are cha	anged at		
the same time.					



WLLFT

WL Circuit Breakers ANSI / UL 1066

Breaker Ratings

			Frame Size II															
Frame Rating				800					1600				20	00			3200	
Rating Class		N	S	Н	L	F	N	S	Н	L	F	S	Н	L	F	S	Н	L
Interrupting Current I _{cs}	254V AC	50	65	85	100	200	50	65	85	100	200	65	85	100	200	65	85	100
(kAIR RMS) 50/60 Hz	508V AC	50	65	85	100	200	50	65	85	100	200	65	85	100	200	65	85	100
	635V AC	50	65	65	85	200	50	65	65	85	200	65	65	85	200	65	65	85
Short-time Withstand																		
Current I _{CW} (kA RMS)																		
50/60 Hz	0.5 s	50	65	65	85	20	50	65	65	85	20	65	65	85	20	65	65	85
Extended Instantaneous	285-																	
Protection	508V AC	50	65	85	100	200	50	65	85	100	200	65	85	100	200	65	85	100
(kA RMS)	635V AC	50	65	65	85	200	50	65	65	85	200	65	65	85	200	65	65	85
Close and Latch Ratings																		
(kA RMS) 50/60 Hz		50	65	65	85	75	50	65	65	85	75	65	65	85	75	65	65	85
Rating Plug Range			200	0A to 8	300A			200 <i>A</i>	to 16	00A		2	00A to	2000	A	200	to 32	200A
Endurance Rating										_								_
(switching operations	Mechanical			15,000					15,00					000			15,00	
with maintenance)①	Electrical			15,000	0				15,00	0			15,	000			15,00	0

			Frame Size III									
Frame Rating		3	3200			400	00		50	00		
Rating Class		M	F	Н	L	M	F	Н	L	M	F	
Interrupting Current I _{cs}	254V AC	150	200	85	100	150	200	85	100	150	200	
(kAIR RMS) 50/60 Hz	508V AC	150	200	85	100	150	200	85	100	150	200	
	635V AC	85	200	85	85	85	200	85	85	85	200	
Short-time Withstand												
Current I _{CW} (kA RMS)												
50/60 Hz	0.5 s	100 ②	40	85	100②	100②	40	85	100②	100②	40	
Extended Instantaneous	254V AC											
Protection	508V AC	150	200	85	100	150	200	85	100	150	200	
(kA RMS)	635V AC	85	200	85	85	85	200	85	85	85	200	
Close and Latch Ratings												
(kA RMS) 50/60 Hz		100 ^②	40	85	100 ②	100 ^②	40	85	100 ^②	100 ②	40	
Rating Plug Range		800A to 3	3200A		800A to	4000A			800A t	5000A		
Endurance Rating		40	000		10	000			10	200		
(switching operations	Mechanical		000			000		10,000 10,000				
with maintenance) ^①	Electrical	10,	10,000 10,000 1						10,	000		

① Maintenance means: replacing main contacts and arc chutes (see operating instructions). M-Class main contacts can be replaced by Siemens personnel only.
② Do not apply breaker at 635V AC on a system with available fault current > 85kA RMS.

Technical Data

WL Non-Automatic Switches ANSI / UL 1066

Ratings

			Frame Size II					Frame Size III					
Frame Rating		80	00	16	00	20	00	3200	3200	40	00	500	0
Rating Class		L	F ^①	L	F⊕	L	F ^①	L	F ①	L	F①	L	F①
Short-time Withstand													
Current													
(kA RMS) 50/60 Hz	0.5 s	85	20	85	20	85	20	85	40	100 ^②	40	100 ^②	40
Breaking Capacity with	254V AC	100	20	100	20	100	20	100	40	100	40	100	40
External Relay (kA RMS)	506V AC	100	20	100	20	100	20	100	40	100	40	100	40
50/60 Hz, instantaneous trip	635V AC	85	20	85	20	85	20	85	40	85	40	85	40

WL Circuit Breakers ANSI / UL 1066

			Fram	e Size II			Frame Size III	
Frame Rating		800	1600	2000	3200	3200	4000	5000
Rated current In								
at 40°C, at 50/60Hz	Α	800	1600	2000	3200	3200	4000	5000
Rated operational voltage	V AC	600	600	600	600	600	600	600
IEC Rated insulation								
voltage (Ui)	V AC	690	690	690	690	690	690	690
IEC 60-947-1 Rated impulse								
withstand voltage U _{imp}								
Main conducting paths	kV	8	8	8	8	8	8	8
Auxiliary circuits	kV	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Permissible ambient								
temperature								
operation								
(for operation with								
LCD max. 55°C)	°C	-25 / +70	-25 / +70	-25 / +70	-25 / +70	-25 / +70	-25 / +70	-25 / +70
Storage								
(observe special								
conditions for LCD)	°C	-40 / +70	-40 / +70	-40 / +70	-40 / +70	-40 / +70	-40 / +70	-40 / +70
Power loss at In	W	85	320	500	1150	700③	1100③	1650③
with 3-phase		130	520	850				
symmetrical load		(fused)	(fused)	(fused)				
Operating times								
Make-time	ms	35	35	35	35	35	35	35
Break-time	ms	34	34	34	34	34	34	34
Make-time, electrical								
(via closing solenoid)	ms	50	50	50	50	50	50	50
Break-time, electrical								
(via shunt trip)	ms	40	40	40	40	40	40	40
Break-time, electrical								
(via instantaneous UVR)	ms	73	73	73	73	73	73	73

① Interrupting rating is equal to 200kA based on the rating of the fuse.
② Do not apply switch at 635V AC on a system with available fault current > 85kA RMS.
③ Consult factory for fuse carriage power loss.

Technical Data

WL Circuit Breakers ANSI / UL 1066

		Frame Size II					Frame Size III	
Frame Rating		800	1600	2000	3200	3200	4000	5000
Endurance								
Mechanical	operating							
(without maintenance)	cycles	12,500	12,500	10,000	10,000	5,000	5,000	5,000
Mechanical	operating							
(with maintenance) 1	cycles	15,000	15,000	15,000	15,000	10,000	10,000	10,000
Electrical	operating							
(without maintenance)	cycles	7,500	7,500	4,000	4,000	2,000	2,000	2,000
Electrical	operating							
(with maintenance) ^①	cycles	15,000	15,000	15,000	15,000	10,000	10,000	10,000
Switching frequency	1/h	60	60	60	60	60	60	60
Minimum interval								
between breaker trip and								
next closing of the								
circuit breaker (when								
used with the automatic								
mechanical reset of the								
reclosing lockout	ms	80	80	80	80	80	80	80
		30 30	MIN)	1.1.2. tex.				
		THE STATE OF	N 3		e.			
Mounting position			Part of	-				
Auxiliary secondary wire	Bare wire							
size (Cu) max # of aux.	pressure	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14
connecting leads x cross	terminal	or	or	or	or	or	or	or
section (solid or stranded)	(standard)	2 x AWG 16	2 x AWG 16	2 x AWG 16	2 x AWG 16	2 x AWG 16	2 x AWG 16	2 x AWG 16
	Tension							
	spring							
	terminal	2 x AWG 14	2 x AWG 14	2 x AWG 14	2 x AWG 14	2 x AWG 14	2 x AWG 14	2 x AWG 14
	Ring	2 x AWG 14	2 x AWG 14			2 x AWG 14	2 x AWG 14	2 x AWG 14
	tongue	1 x AWG 10 ^②	1 x AWG 10 ⁽²⁾	1 x AWG 10 ⁽²⁾	1 x AWG 10 ^②			
	terminal	2 x AWG 16	2 x AWG 16	2 x AWG 16	2 x AWG 16	2 x AWG 16	2 x AWG 16	2 x AWG 16
TOC wire connection size	Bare							
(Cu) max # of aux.	wire							
connecting leads x cross	pressure							
section (solid or stranded)	terminal	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14
Weight ③								
Circuit Breaker	kg/lb	72/159	72/159	75/165	95/209	118/260	118/260	118/260
Guide Frame	kg/lb	51/112	51/112	60/132	69/152	139/306	139/306	139/306
MOC wire connection	Bare							
size (Cu) max # of aux.	wire							
connecting leads x cross	pressure							
section (solid or stranded)	terminal	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14

Maintenance consists of replacing main contacts and arc chutes (see operating instructions.)
 M-Class main contacts can be replaced by Siemens personnel only.
 For use only with Siemens supplied ring terminals (WL10RL).
 Frame Size II (fused)

Frame Size III (fused) same as table above Breaker 103/227 Guide Frame 68/150 130/275 Fuse Carriage 102/225

Technical Data

WL UL 489 Insulated Case Circuit Breakers

Breaker Ratings

		Frame Size I								
Frame Rating			800			1200				
Rating Class		S	Н	L	S	Н	L			
Interrupting Current Ics	240V	65	85	100	65	85	100			
(kAIR RMS) 50/60 Hz	480V	65	85	100	65	85	100			
	600V	65	65	65	65	65	65			
Short-time Withstand										
Current I _{CW} (kA RMS)										
50/60 Hz	0.5 s	65	65	65	65	65	65			
Extended Instantaneous	240-480V	65	85	100	65	85	100			
Protection (kA RMS)	600V	65	65	65	65	65	65			
Close and Latch Ratings										
(kA RMS) 50/60 Hz		65	65	65	65	65	65			
Rating Plug Range			200A to 800A			200A to 1200A				
Minimum switchboard	width (in.)		22.0			22.0				
cubicle dimensions	height (in.)		15.0		15.0					
(fixed or draw-out version)	depth (in.)		19.5		19.5					

		Frame Size II															
Frame Rating			800			1200			1600			2000		25	00	3000	
Rating Class		S	L	C ①	S	L	C ①	S	L	C ①	S	L	C①	L	C ^①	L	C ①
Interrupting Current I _{cs}	240V	65	100	150	65	100	150	65	100	150	65	100	150	100	150	100	150
(kAIR RMS) 50/60 Hz	480V	65	100	150	65	100	150	65	100	150	65	100	150	100	150	100	150
	600V	65	85	100	65	85	100	65	85	100	65	85	100	85	100	85	100
Short-time Withstand																	
Current I _{cw} (kA RMS)																	
50/60 Hz	0.5 s	65	85	100	65	85	100	65	85	100	65	85	100	85	100	85	100
Extended Instantaneous	240-480V	65	100	150	65	100	150	65	100	150	65	100	150	100	150	100	150
Protection (kA RMS)	600V	65	85	100	65	85	50	65	85	100	65	85	100	85	100	85	100
Close and Latch Ratings																	
(kA RMS) 50/60 Hz		65	85	100	65	85	100	65	85	100	65	85	100	85	100	85	100
Rating Plug Range		200	A to 80	00A	200A	to 12	00A	200 <i>A</i>	to 16	00A	200A	to 20	AOC	200 to 3	2500A	200 to	3000A
Minimum switchboard	width (in.)		22.0			22.0			22.0			22.0		22	2.0	22	2.0
cubicle dimensions	height (in.)		22.5			22.5			22.5			22.5		22	2.5	22	2.5
(fixed or draw-out version)	depth (in.)		19.5			19.5			19.5			19.5		19	.5	19	9.5

		Frame Size III								
Frame Rating		40	00	500	00					
Rating Class		L	С	L	С					
Interrupting Current I _{cs}	240V	100	150	100	150					
(kAIR RMS) 50/60 Hz	480V	100	150	100	150					
	600V	85	100	85	100					
Short-time Withstand										
Current I _{cw}										
(kA RMS) 50/60 Hz	0.5 s	85	100	85	100					
Extended Instantaneous	240-480V	100	150	100	150					
Protection (kA RMS)	600V	85	100	85	100					
Close and Latch Ratings										
(kA RMS) 50/60 Hz		85	100	85	100					
Rating Plug Range		800A to	4000A	800A to	5000A					
Minimum switchboard	width (in.)	32	.0	33	2.0					
cubicle dimensions	height (in.)	22	.5	22	2.5					
(fixed or draw-out version)	depth (in.)	19	.5	19	9.5					

① Available in 2006

Technical Data

WL Non-Automatic Switches UL 489

Ratings

		Frame	Size I		Frame S	Size II		Frame Size III		
Rating Nominal Current		800	1200	1600	2000	2500	3000	4000	5000	
Rating Class		Н	Н	L	L	L	L	L	L	
Short-time Withstand										
Current										
(kA RMS) 50/60 Hz	0.5 s	65	65	85	85	85	85	85	85	
Breaking Capacity with	240V	85	85	100	100	100	100	100	100	
External Relay (kA RMS) 50/60 Hz,	480V	85	85	100	100	100	100	100	100	
instantaneous trip	600V	65	65	85	85	85	85	85	85	

Technical Data

Frame Rating			Frame	e Size I			
Rated Current at 50/60 Hz		A	800	1200			
Rated voltage		V AC	600	600			
Permissible ambient temperature	Operation (for operation with LCD max 55°C)	C	-25 / +70	-25 / +70			
	Storage (observe special conditions for LCD)	С	-40 / +70	-40 / +70			
Power loss at rated	Drawout version	W	80	180			
current In (with 3-phase	Fixed mount version	W	60	120			
symetrical load) Operating times	Make-time	ms	35	35			
Operating times	Break-time	ms	34	34			
	Make-time, electrical						
	(via closing solenoid)	ms	50	50			
	Break-time, electrical (via shunt trip)	ms	40	40			
	Break-time, electrical						
	(via instantaneous UVR)	ms	73	73			
Endurance	Mechanical (without maintenance)	operating cycles	7,500	7,500			
	Electrical (without maintenance)	operating cycles	7,500	7,500			
Switching frequency	(William Charles)	operations/	7,500	7,500			
		hour	60	60			
Minimum interval							
between breaker trip and							
next closing of the							
circuit breaker (when							
used with the automatic							
mechanical reset of the reclosing lockout)		ms	80	80			
Mounting position			简伯里				
Dimensions	Fixed-mounted	width	18.	1			
	Circuit Breaker	height	14.				
		depth	9.1				
	Guide Frame	width	18.				
	(for draw-out version)	height depth	15. 18.				
Weight	Fixed-mounted	асрит	10.				
3	Circuit Breaker						
	(w/o main						
	busbar connectors)	lb/kg	86/39	86/39			
	Drawout Circuit Breaker		137/62	137/62			
Auxiliary secondary wire	Guide Frame	lb/kg	108/49 1 x AWG	108/49			
size (Cu) max # of aux.	Bare wire pressure terminal (standard)		1 x AWG				
connecting leads x cross	Tension spring terminal		2 x AW				
section (solid or stranded)	Ring tongue		2 x AW				
	terminal		1 x AW	∕G 10 ^①			
			2 x AW				
	Pigtail leads (fixed mount	breaker only)	1 x AWG 14	, 40" long			
TOC wire connection size	Bare wire pressure		1 414	IC 14			
(Cu) max # of aux.	terminal		1 x AW	0 14			
connecting leads x cross section (solid or stranded)							
MOC wire connection	Bare wire pressure						
size (Cu) max # of aux.	terminal		1 x AW	/G 14			
connecting leads x cross							
section (solid or stranded)							

 $[\]ensuremath{\textcircled{1}}$ for use only with Siemens supplied ring terminals (WL10RL)

Technical Data

Frame Rating				Frame Size II					
Rated Current at 50/60 Hz	!	A	800	1200	1600				
Rated voltage		V AC	600	600	600				
Permissible ambient	Operation (for operation			300					
temperature	with LCD max 55°C)	C	-25 / +70	-25 / +70	-25 / +70				
	Storage (observe special		207775	227.7.2	207.7.0				
	conditions for LCD)	С	-40 / +70	-40 / +70	-40 / +70				
Power loss at rated	Drawout version	W	85	150	320				
current In (with 3-phase	Fixed mount version	W	40	80	120				
symetrical load)									
Operating times	Make-time	ms	35	35	35				
	Break-time	ms	34	34	34				
	Make-time, electrical								
	(via closing solenoid)	ms	50	50	50				
	Break-time, electrical								
	(via shunt trip)	ms	40	40	40				
	Break-time, electrical		72	72	73				
	(via instantaneous UVR)		73	73					
Endurance	Mechanical	operating	10,000	10,000	10,00				
	(without maintenance)	cycles .	5,000 (C-Class)	5,000 (C-Class)	5,000 (C-Class)				
	Electrical (without maintenance)	operating	7,500 5,000 (C-Class)	7,500 5,000 (C.Class)	7,500 5,000 (C-Class)				
Contraction of the contraction	(Without maintenance)	cycles	5,000 (C-Class)	5,000 (C-Class)	5,000 (C-Class)				
Switching frequency		operations/	60	60	CO				
NAIIII		hour	60	60	60				
Minimum interval between breaker trip and									
next closing of the									
circuit breaker (when									
used with the automatic									
mechanical reset of the									
reclosing lockout)		ms	80	80	80				
<u> </u>			man and Contact To	and the control of th					
				1-4-					
Mounting position									
Dimensions	Fixed-mounted	width		18.1					
	Circuit Breaker	height		18.7					
		depth		9.5					
	Guide Frame	width		18.1					
	(for draw-out version)	height		20.3					
		depth		18.6					
Weight	Fixed-mounted Circuit Br	eaker	124/56	124/56	124/56				
	(w/o main busbar connectors)	lb/kg	148 / 67 (C-Class)	148/67 (C-Class)	148/67 (C-Class)				
			159/72	159/72	159/72				
	Drawout Circuit Breaker	· lb/kg	220 / 100 (C-Class)	220 / 100 (C-Class)	220 / 100 (C-Class)				
	C. H. F.	11- /1	112/51	112/51	112/51				
Audliamages-de	Guide Frame	lb/kg	163 / 74 (C-Class)	163 / 74 (C-Class)	163/74 (C-Class)				
Auxiliary secondary wire	Bare wire pressure			1 x AWG 14 or 2 x AWG 16					
size (Cu) max # of aux. connecting leads x cross	terminal (standard) Tension spring terminal			2 x AWG 16 2 x AWG 14					
section (solid or stranded)	Ring tongue			2 x AWG 14					
(some or strained)	terminal			1 x AWG 10 ①					
				2 x AWG 16					
	Pigtail leads (fixed mount	breaker only)		1 x AWG 14, 40" long					
TOC wire connection size	Bare wire pressure								
(Cu) max # of aux.	terminal			1 x AWG 14					
connecting leads x cross									
section (solid or stranded)									
MOC wire connection	Bare wire pressure								
size (Cu) max # of aux.	terminal			1 x AWG 14					
connecting leads x cross									
section (solid or stranded)									
1) for use only with Siemon									

 $[\]ensuremath{\textcircled{1}}$ for use only with Siemens supplied ring terminals (WL10RL)

Technical Data

Frame Rating				Frame Size II	
Rated Current at 50/60 Hz		A	2000	2500	3000
Rated voltage		V AC	600	600	600
Permissible ambient	Operation (for operation	1			
temperature	with LCD max 55°C)	С	-25 / +70	-25 / +70	-25 / +70
	Storage (observe special conditions for LCD)	С	-40 / +70	-40 / +70	-40 / +70
Power loss at rated	Drawout version	W	500	680	1000
current I _n (with 3-phase	Fixed mount version	W	230	320	450
symetrical load)	Timed modific version		250	320	.50
Operating times	Make-time	ms	35	35	35
	Break-time	ms	34	34	34
	Make-time, electrical		F0	F0	F0
	(via closing solenoid) Break-time, electrical	ms	50	50	50
	(via shunt trip)	ms	40	40	40
	Break-time, electrical	<u> </u>			
	(via instantaneous UVR)	ms	73	73	73
Endurance	Mechanical	operating	10,000	10,000	10,00
	(without maintenance)	cycles	5,000 (C-Class)	5,000 (C-Class)	5,000 (C-Class)
	Electrical	operating		4 000	4.000
Contraction for any and	(without maintenance)	cycles	4,000	4,000	4,000
Switching frequency		operations/	60	60	60
Minimum interval		hour	60	60	60
between breaker trip and					
next closing of the					
circuit breaker (when					
used with the automatic					
mechanical reset of the					
reclosing lockout)		ms	80	80	80
Mounting position			一个		
Dimensions	Fixed-mounted	width		18.1	
	Circuit Breaker	height		18.7	
		depth		9.5	
	Guide Frame	width		18.1	
	(for draw-out version)	height depth		20.3	
Weight	Fixed-mounted Circuit Br		130/59	141/64	141/64
Weight	(w/o main busbar connectors)		148/67 (C-Class)	148/67 (C-Class)	148/67 (C-Class)
			177/80	209/95	209/95
	Drawout Circuit Breaker	· lb/kg	220 / 100 (C-Class)	220 / 100 (C-Class)	220 / 100 (C-Class)
	Guide Frame	lb/kg	128/58 163/74 (C-Class)	152/69 163/74 (C-Class)	152 / 69 163 / 74 (C-Class)
Auxiliary secondary wire	Bare wire pressure			1 x AWG 14 or	
size (Cu) max # of aux.	terminal (standard)			2 x AWG 16	
connecting leads x cross	Tension spring terminal			2 x AWG 14 2 x AWG 14	
section (solid or stranded)	Ring tongue terminal			1 x AWG 10 ①	
	terrimai			2 x AWG 16	
	Pigtail leads (fixed mount	: breaker only)		1 x AWG 14, 40" long	
TOC wire connection size	Bare wire pressure				
(Cu) max # of aux.	terminal			1 x AWG 14	
connecting leads x cross					
section (solid or stranded)					
MOC wire connection	Bare wire pressure				
size (Cu) max # of aux.	terminal			1 x AWG 14	
connecting leads x cross					
section (solid or stranded)					

① for use only with Siemens supplied ring terminals (WL10RL)

Technical Data

Frame Rating			Frame	Size III	
Rated Current at 50/60 Hz		A	4000	5000	
Rated voltage		V AC	600	600	
Permissible ambient	Operation (for operation				
temperature	with LCD max 55°C)	С	-25 / +70	-25 / +70	
	Storage (observe special				
	conditions for LCD)	С	-40 / +70	-40 / +70	
Power loss at rated	Drawout version	W	1100	1650	
current In (with 3-phase	Fixed mount version	W	580	950	
symetrical load)					
Operating times	Make-time	ms	35	35	
	Break-time	ms	34	34	
	Make-time, electrical				
	(via closing solenoid)	ms	50	50	
	Break-time, electrical				
	(via shunt trip)	ms	40	40	
	Break-time, electrical				
	(via instantaneous UVR)	ms	73	73	
Endurance	Mechanical	operating	_		
	(without maintenance)	cycles	5,000	5,000	
	Electrical	operating			
	(without maintenance)	cycles	2,000	2,000	
Switching frequency		operations/			
		hour	60	60	
Minimum interval					
between breaker trip and					
next closing of the					
circuit breaker (when					
used with the automatic					
mechanical reset of the					
reclosing lockout)		ms	80	80	
Mounting position				2	
Dimensions	Fixed-mounted	width	26	5.8	
2	Circuit Breaker	height).7	
	circuit breaker	depth	9.5		
	Guide Frame	width		7.7	
	(for draw-out version)	height).3	
	(depth	18.6		
Weight	Fixed-mounted				
g	Circuit Breaker				
	(w/o main		181/82	181/82	
	busbar connectors)	lb/kg	200/90 (C-Class)	200/90 (C-Class)	
	Drawout Circuit Breaker		278/126	278/126	
	Guide Frame	lb/kg	306/139	306/139	
Auxiliary secondary wire	Bare wire pressure	<u> </u>		G 14 or	
size (Cu) max # of aux.	terminal (standard)			NG 16	
connecting leads x cross	Tension spring terminal			NG 14	
section (solid or stranded)	Ring tongue			NG 14	
,	terminal		1 x A\	WG 10 ^①	
				NG 16	
	Pigtail leads (fixed mount	breaker only)		4, 40" long	
TOC wire connection size	Bare wire pressure				
(Cu) max # of aux.	terminal		1 x A\	NG 14	
connecting leads x cross			1 / / //		
section (solid or stranded)					
MOC wire connection	Bare wire pressure				
size (Cu) max # of aux.	terminal		1 x A\	NG 14	
connecting leads x cross					
section (solid or stranded)					

① for use only with Siemens supplied ring terminals (WL10RL)

Technical Data

WL Circuit Breaker Accessory Ratings

losing/charging stored	d energy mechanism			
	Maximum actuating force required on hand	lever		52 lbs
	Number of hand lever strokes required			9
Manual Operating	Mechanism with Mechanical and Elec	ctrical Closing		
Charging stored-energy				
Closing solenoid	Coil voltage tolerance		24V DC	14 - 28V DC
and Shunt Trip			48V DC	28 - 56V DC
			120V AC / 125V DC	70 - 140V DC
				104 - 127V AC
			240V AC / 250V DC	140 - 280V DC
				208 - 254V AC
				180Y / 104V AC
				220Y / 127V AC
	Power consumption (5% duty cycle)			120 W for 50 ms
	Minimum closing solenoid actuation signal	required		50 ms
	lechanism with Mechanical and Elect	rical Closing		
Spring charging motor		• •		05 4400
	Motor voltage tolerance at 120V AC, 240V A		1051/50 5====	85 - 110%
	Extended tolerance for battery operation at	24V DC, 48V DC	125V DC, 250V DC	70 - 126%
	Power consumption of the motor			110 W
For motor and closing	Time required for charging the stored-energ	gy mechanism		≤ 10 s
	Standard slow-blow cartridge fuse		24 - 60 V	6A
	Standard slow-blow cartridge ruse		24 - 60 V 110 - 250 V	6A 3A
-			110 - 250 V	3A
Undervoltage release	Operating values		110 - 250 V ≥ 85% (circuit break	3A ser can be closed)
Undervoltage release	Operating values		110 - 250 V	3A ser can be closed) eaker opens)
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V		110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre	ser can be closed) eaker opens) 85 - 110%
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a	at 24V DC, 48V D0	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre	ter can be closed) eaker opens) 85 - 110% 85 - 126%
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V	at 24V DC, 48V DC AC 50/60Hz	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage	at 24V DC, 48V DC AC 50/60Hz DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre C, 125V DC, 250V DC V V	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a	AC 50/60Hz DC AC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre C, 125V DC, 250V DC V V VA	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous)	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre C, 125V DC, 250V DC V V VA W	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC /	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre C, 125V DC, 250V DC V V VA	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre C, 125V DC, 250V DC V V VA W ms	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation of Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre C, 125V DC, 250V DC V V VA W ms	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5 200
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre C, 125V DC, 250V DC V V VA W ms	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay)	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre 7, 125V DC, 250V DC V VA W ms ms ms	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5 200
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay) Adjustable delay	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre 7, 125V DC, 250V DC V V VA W ms ms ms	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5 200 80 200 0.2 to 3.2
Undervoltage release	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay)	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre 7, 125V DC, 250V DC V VA W ms ms ms	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5 200
Undervoltage release (UVR)	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay) Adjustable delay Reset by additional NC direct opening	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre 7, 125V DC, 250V DC V V VA W ms ms ms	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5 200 80 200 0.2 to 3.2
Undervoltage release (UVR)	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay) Adjustable delay	at 24V DC, 48V DC AC 50/60Hz DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre 7, 125V DC, 250V DC V V VA W ms ms ms	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5 200 80 200 0.2 to 3.2
Undervoltage release (UVR)	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay) Adjustable delay Reset by additional NC direct opening	at 24V DC, 48V DC AC 50/60Hz DC AC DC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre C, 125V DC, 250V DC V VA W ms ms ms ms	3A ter can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5 200 80 200 0.2 to 3.2 ≤ 100
Undervoltage release (UVR)	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay) Adjustable delay Reset by additional NC direct opening O (100% continuous duty) Operating range	at 24V DC, 48V DC AC 50/60Hz DC AC DC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit bre C, 125V DC, 250V DC V VA W ms ms ms ms	3A seer can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5 200 80 200 0.2 to 3.2 ≤ 100
Undervoltage release (UVR)	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation at Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay) Adjustable delay Reset by additional NC direct opening O (100% continuous duty) Operating range Extended tolerance for battery operation at 2	at 24V DC, 48V DC AC 50/60Hz DC AC DC DC AC A	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit break 7, 125V DC, 250V DC V VA W ms ms ms ms s ms	3A seer can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 80 200 0.2 to 3.2 ≤ 100 85 - 110% 70 - 126% 110, 230
Undervoltage release (UVR)	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation at Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay) Adjustable delay Reset by additional NC direct opening O (100% continuous duty) Operating range Extended tolerance for battery operation at 2	AC 50/60Hz DC DC DC 4V DC, 48V DC, 1 AC 50/60Hz	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit break 35 - 70% (circuit break 7, 125V DC, 250V DC V V VA W ms ms ms ms ms v S ms V V V V V V V V V V V V V V V V V V	3A seer can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 / 5 200 80 200 0.2 to 3.2 ≤ 100 85 - 110% 70 - 126%
Auxiliary Release Undervoltage release (UVR) Interlock Shunt Trip	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation a Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay) Adjustable delay Reset by additional NC direct opening O (100% continuous duty) Operating range Extended tolerance for battery operation at 2 Rated voltage Power consumption	AC 50/60Hz DC DC AV DC, 48V DC, 1 AC 50/60Hz DC AC DC AC DC AC DC AC DC	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit break 35 - 70% (circuit break 7, 125V DC, 250V DC V V VA W ms ms ms ms y s ms V V V V V V V V V V V V V V V V V	ser can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 80 200 0.2 to 3.2 ≤ 100 85 - 110% 70 - 126% 110, 230 24, 30, 48, 60, 110, 220
Undervoltage release (UVR)	Operating values AC Coil voltage tolerance at 120V AC, 240V DC Extended tolerance for battery operation at Rated control supply voltage Power consumption (inrush / continuous) Opening time of the circuit breaker for AC / UVR (no time delay), 2 settings Setting 1 Setting 2 UVR (with time delay) Adjustable delay Reset by additional NC direct opening O (100% continuous duty) Operating range Extended tolerance for battery operation at 2 Rated voltage	AC 50/60Hz DC AC 50/60Hz DC DC AV DC, 48V DC, 1 AC 50/60Hz DC AC / DC dV Oltage	110 - 250 V ≥ 85% (circuit break 35 - 70% (circuit break 35 - 70% (circuit break 7, 125V DC, 250V DC V VA W ms ms ms ms v V VA V VA V VA V V VA V V V	ser can be closed) eaker opens) 85 - 110% 85 - 126% 120, 240 24, 48, 125, 250 200 / 5 200 80 200 0.2 to 3.2 ≤ 100 85 - 110% 70 - 126% 110, 230 24, 30, 48, 60, 110, 220 15 / 15

Technical Data

WL Circuit Breaker Accessory Ratings

Contact rating	Alternating current						
, and the second	50/60 Hz	Rated operational voltage	240V				
		Rated operational current, continuous	10A				
		Rated operational current, making	30A				
		Rated operational current, breaking	3A				
	Direct current	Rated operational voltage	24V, 125V, 25	50V			
		Rated operational current, continuous	5A				
		Rated operational current, making	1.1A at 24V, 1	.1A at 125\	/, 0.55A at 250V		
		Rated operational current, breaking	1.1A at 24V, 1	.1A at 125	/, 0.55A at 250V		
Bell Alarm Switch	h and Ready-to-C	lose Signal Contact					
Contact rating	Alternating curre	ent					
	50/60 Hz	Rated operational voltage	240V				
		Rated operational current, continuous	5A				
		Rated operational current, making	8A				
		Rated operational current, breaking	5A				
	Direct current	Rated operational voltage	24V, 48V, 125	SV 250	IV DC ①		
		Rated operational current, continuous	0.4A	0.2	A		
		Rated operational current, making	0.4A	0.2	A		
		Rated operational current, breaking	0.4A	0.2	A		
Shunt Trip, UVR	and Blown Fuse S	Signaling Contacts					
Contact rating	Alternating curre	ent					
	50/60 Hz Rated operational voltage		127V, 240V				
		Rated operational current, continuous	3A				
		Rated operational current, making	5A				
		Rated operational current, breaking	6A				
	Direct current	Rated operational voltage	24V, 48V, 125	V 125	V DC (IEC Rating Only		
		Rated operational current, making	1.0A	0.5	A		
		Rated operational current, breaking	1.0A	0.5	A		
Position Signal C	ontact on the Gu	uide Frame (TOC)					
Breaker position:	Connected posit	ion	3 form C	1 form C	6 form C		
	Test position		2 form C or	1 form C	or 0 form C		
	Disconnected po	osition	1 form C	1 form C	0 form C		
Contact rating	Alternating curre	ent					
	50/60 Hz	Rated operational voltage	120V	240	V		
		Rated operational current, continuous	10A	10 <i>A</i>	1		
		Rated operational current, making	6A	3A			
		Rated operational current, breaking	6A	3A			
	Direct current	Rated operational voltage	24V 4	8V, 125V	250V		
		Rated operational current, continuous	6A 1	Α	1A		
		Rated operational current, making	6A 0	.22A	0.11A		

① Available July 2005

Technical Data

WL Circuit Breaker

Function Overview of the Electronic Trip Units

Basic Function	s		ETU725	ETU727	ETU745
		Long-time overcurrent protection	V	V	V
		Function can be switched ON/OFF	_		-
		Setting range $I_{R} = I_{n} \times$	0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.8, 0.9, 1	0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.8, 0.9, 1	0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.8, 0.9, 1
/n	L	Switch-selectable overload protection (I ² t or I ⁴ t dependent function)	-	-	V
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Setting range of time delay class t_R at t^2 t (seconds)	10s, fixed at 6 x <i>I</i> _r	10s, fixed at 6 x I _r	2, 3.5, 5.5, 8, 10, 14, 17, 21, 25, 30
		Setting range of time delay t_R at I^4t (seconds)	-	_	1, 2, 3, 4, 5
\		Thermal memory	-	-	✓ (via slide switch)
↓ \		Phase loss sensitivity	at t_{sd} =20 ms (M)	at t _{sd} =20 ms (M)	at t _{sd} =20 ms (M)
		Neutral protection	-	V	V
	Ν	Function can be switched ON/OFF	_	✓ (via slide switch)	✓ (via slide switch)
		N-conductor setting range $I_N = I_n \times$	-	1	0.5 1
		Short-time delayed overcurrent protection	V	V	V
		Function can be switched ON/OFF	_	-	✓ (via rotary switch)
		Setting range $I_{sd} = I_n \times$	1.25, 1.5, 2, 2.5,	1.25, 1.5, 2, 2.5,	1.25, 1.5, 2, 2.5,
		5 5 3u 11	3, 4, 6, 8, 10, 12	3, 4, 6, 8, 10, 12	3, 4, 6, 8, 10, 12
		Setting range of time delay t_{sd} , fixed			
	S	(seconds)	0, 0.02 (M), 0.1,	0, 0.02 (M), 0.1,	0.02 (M), 0.1, 0.2,
			0.2, 0.3, 0.4	0.2, 0.3, 0.4	0.3, 0.4, OFF
		Switch-selectable short-time delay			
		short-circuit protection			
		(<i>I</i> ² <i>t</i> dependent function)	– fixed only	– fixed only	✓ (via rotary switch)
1.		Setting range of time delay t_{sd} at I^2t			
7		(seconds)	-	-	0.1, 0.2, 0.3, 0.4
		Zone Selective Interlocking (ZSI) function	-	-	per CubicleBUS module
		Instantaneous overcurrent protection	✓	V	✓
<u> </u>		Function can be switched ON/OFF,			
	10	Extended Instantaneous Protection			
	•	is enabled when OFF	-	-	✓ (via rotary switch)
		Setting range $I_i = I_n \times$	$l_{\rm i} = 0.8 \times l_{\rm CW}$	$I_{i} = 0.8 \times I_{CW}$	1.5, 2.2, 3, 4, 6, 8, 10, 12
			50kA max	50kA max	$0.8 \times I_{CW} = \text{max, OFF} = I_{CW} = \text{EIP}$
+		Ground fault protection ②		✓ (standard)	o (field installable module)
		Trip and alarm function	-	-	V
		Detection of the ground fault current			
		by residual summing method	-	V	✓
		Detection of the ground fault current			
		by direct summing method		- -	<i>V</i>
	G	Setting range of the I _g for trip		A, B, C, D, E	A, B, C, D, E
		Setting range of the time delay t	_		A, B, C, D, E
₩.		Setting range of the time delay t_g (seconds)		01 02 02 04 05	01 02 02 04 05
N.		Switch-selectable		0.1, 0.2, 0.3, 0.4, 0.5	0.1, 0.2, 0.3, 0.4, 0.5
<u> </u>		ground fault protection			
*		ground fault protection (l^2t) fixed)			V
		Setting range time delay t_q at l^2t			0.1, 0.2, 0.3, 0.4, 0.5
		ZSI ground function	_		per CubicleBUS module
		251 ground function			per cubiciebos filodule

① Extended Instantaneous Protection (EIP) allows the WL breaker to be applied at the withstand rating of the breaker with minus 0% tolerance; that means no instantaneous override whatsoever. EIP further enables the circuit breaker to be applied up to the full instantaneous rating of the breaker on systems where the available fault current exceeds the withstand rating.
② Ground Fault Module cannot be removed after installation.

[✔] available

not available

optional

Technical Data

WL Circuit Breaker

Function Overview of the Electronic Trip Units

Basic Functions		ETU725	ETU727	ETU745
Parameter sets				
	Selectable between			
	parameter set A and B	_	_	_
LCD				
	LCD, alphanumeric (4-line)	-	_	0
	LCD, graphic	-	-	_
Communication				
	CubicleBUS integrated	-	_	v
	Communication capability via			
	MODBUS or PROFIBUS	_	_	V
Metering function				
	Metering function capability with			
	Metering Function or			
	Metering Function PLUS	_	_	V
Display by LED				
	Trip unit active	✓	V	v
	Alarm	✓	V	✓
	ETU error	✓	V	V
\sim //	L trip	✓	V	✓
	S trip	✓	V	✓
	l trip	✓	✓	✓
	N trip	-	V	✓
	G trip	-	V	✓ (only with ground fault module)
	G alarm	-	-	✓ (only with ground fault module)
	Tripped by extended protection or			
	protective relay function	-	_	✓
	Communication	-	_	✓
Signal contacts with	external CubicleBUS modules			
(Opto or relay)				
	Overcurrent warning	-	_	✓
	Load shedding OFF/ON	-	_	✓
	Early signal of long time trip (200 ms)	-	-	✓
	Temperature alarm	-	_	V
. .	Phase unbalance	-	_	✓
L\ <u>'</u> <i>T</i>	Instantaneous trip	-	_	✓
1 \ /	Short-time trip	-	_	✓
	Long-time trip	-	-	v
	Neutral conductor trip	-	-	V
	Ground fault protection trip	-	-	✓ (only with ground fault module)
1 1	Ground fault alarm	-	-	✓ (only with ground fault module)
	Auxiliary relay	-	-	V
	ETU error	-	-	V

Step for Settings via Communications or ETU Key Pad

_		-	
step	from to	step	
0.1	1000 1600	50	
1	1600 10000	100	
5	10000 max	1000	
10			
	0.1 1 5	0.1 1000 1600 1 1600 10000 5 10000 max	0.1 1000 1600 50 1 1600 10000 100 5 10000 max 1000

Setting range of the Ig

	5 5	3
	Frame Size II	Frame Size III
Α	100A	400A
В	300A	600A
C	600A	800A
D	900A	1000A
Е	1200A	1200A

- ✓ available
- not available
- o optional

Technical Data

WL Circuit Breaker

Function Overview of the Electronic Trip Units

Basic Function	s		ETU748	ETU755	ETU776
		Long-time overcurrent protection	V	V	✓
		Function can be switched ON/OFF	-	-	-
		Setting range $I_R = I_n \times$	0.4, 0.45, 0.5, 0.55,	0.4 1 (step: 1A)	0.4 1 (step: 1A)
			0.6, 0.65, 0.7, 0.8,		
1.1			0.9, 1		
ln 4		Switch-selectable overload protection			
"T++	L	(I ² t or I ⁴ t dependent function)	✓	✓(via communications)	V
\		Setting range of time delay class t_R at I^2 t			
\' *		(seconds)	2, 3.5, 5.5, 8, 10,	2 30 (step: 0.1s)	2 30 (step: 0.1s)
\			14, 17, 21, 25, 30		
\		Setting range of time delay t_R at $t^A t$			
\		(seconds)	1, 2, 3, 4, 5	1 5 (step: 0.1s)	1 5 (step: 0.1s)
\		Thermal memory	✓ (via slide switch)	✓ (on/off via communications)	✓ (on/off via key pad or communications)
\		Phase loss sensitivity	at t _{sd} =20 ms (M)	✓ (on/off via communications)	✓ (on/off via key pad or communications)
1		Neutral protection	-	V	✓
	N	Function can be switched ON/OFF	✓ (via slide switch)	✓ (via communications)	✓ (via key pad or communications)
		N-conductor setting range $I_N = I_n \times$	0.5, 1, OFF	0.5, 1, OFF	0.5 2, OFF
		Short-time delayed overcurrent protection	✓	V	✓
		Function can be switched ON/OFF	(via rotary switch)	✓ (via communications)	✓ (via key pad or communications)
		Setting range $I_{sd} = I_n \times$	1.25, 1.5, 2, 2.5,	1.25 0.8 x I _{CW} = max	1.25 0.8 x I _{CW} = max
			3, 4, 6, 8, 10, 12	(step: 10A)	(step: 10A)
		Setting range of time delay t_{sd} , fixed			
	S	(seconds)	M, 0.1, 0.2, 0.3, 0.4	M, 0.08 0.4, OFF (step: 0.001s)	M, 0.08 0.4, OFF (step: 0.001s)
		Switch-selectable short-time delay			
		short-circuit protection	47.		
		(I ² t dependent function)	✓ (via rotary switch)	✓ (via communications)	✓ (via key pad or communications)
++		Setting range of time delay t_{sd} at l^2t	01 02 02 04	0.1 0.4 (***** 0.001*)	0.1 0.4 (-+ 0.001-)
+		(seconds)	0.1, 0.2, 0.3, 0.4 per CubicleBUS module	0.1 0.4 (step: 0.001s)	0.1 0.4 (step: 0.001s)
		Zone Selective Interlocking (ZSI) function Instantaneous overcurrent protection	✓	per CubicleBUS module	per CubicleBUS module
<u> </u>		Function can be switched ON/OFF,			
+		Extended Instantaneous Protection			
	•	is enabled when OFF	_	✓ (via communications)	✓ (via key pad or communications)
		Setting range $I_i = I_n \times$	$-I_{i} = I_{CW} = EIP$	1.5 x I_n 0.8 x I_{cs} = max, OFF= I_{cw} =EIP 1	1.5 x I_n 0.8 x I_{cs} = max, OFF= I_{cw} =EIP
		Ground fault protection ②	o (field installable module)	o (field installable module)	
#		Trip and alarm function	o (field installable module)	✓ (via communications)	o (field installable module)
		Detection of the ground fault current		(via communications)	✓ (via key pad or communications)
		by residual summing method	V	V	V
		Detection of the ground fault current	•		
		by direct summing method	V	V	V
		Setting range of the $I_{\mathbf{Q}}$ for trip	A, B, C, D, E	A E (step: 1A)	A E (step: 1A)
	G	Setting range of the I_{Q} for alarm	A, B, C, D, E	A E (step: 1A)-	A E (step: 1A)
		Setting range of the time delay $t_{\rm q}$,
		(seconds)	0.1, 0.2, 0.3, 0.4, 0.5	0.1 0.5 (step: 0.001s)	0.1 0.5 (step: 0.001s)
M		Switch-selectable			
1		ground fault protection			
		$(l^2t \mid \text{fixed})$	V	V	V
		Setting range time delay t_q at I^2t	0.1, 0.2, 0.3, 0.4, 0.5	0.1 0.5 (step: 0.001s)	0.1 0.5 (step: 0.001s)
		ZSI ground function	per CubicleBUS module	per CubicleBUS module	per CubicleBUS module

① Extended Instantaneous Protection (EIP) allows the WL breaker to be applied at the withstand rating of the breaker with minus 0% tolerance; that means no instantaneous override whatsoever. EIP further enables the circuit breaker to be applied up to the full instantaneous rating of the breaker on systems where the available fault current exceeds the withstand rating.
② Ground Fault Module cannot be removed after installation.

✔ available

- not available
- o optional

 \overline{M} = Indicates phase loss sensitivity is enabled. LT pick-up reduced 80% when phase unbalance > 50%. ST = 20 ms

Communications = Setting the parameters of the trip unit via the Breaker Data Adapter, MODBUS, or PROFIBUS

Key pad = Direct input at the trip unit

Technical Data

WL Circuit Breaker

Function Overview of the Electronic Trip Units

Basic Functions		ETU748	ETU755	ETU776
Parameter sets				
	Selectable between			
	parameter set A and B	_	V	V
LCD	<u> </u>			
	LCD, alphanumeric (4-line)	0	_	_
	LCD, graphic	-	-	V
Communication				
	CubicleBUS integrated	V	V	V
	Communication capability via			
	MODBUS or PROFIBUS	V	V	V
Metering function				
_	Metering function capability with			
	Metering Function or			
	Metering Function PLUS	V	V	V
Display by LED				
	Trip unit active	V	V	V
	Alarm	V	V	V
	ETU error	V	V	V
N 12	L trip	V	V	V
1\1	S trip	V	V	V
+	I trip	-	V	V
	N trip	✓	✓	✓
	G trip	✓ (only with ground fault module)	✓ (only with ground fault module)	✓ (only with ground fault module)
	G alarm	✓ (only with ground fault module)	✓ (only with ground fault module)	✓ (only with ground fault module)
	Tripped by extended protection or			
	protective relay function	V	V	V
	Communication	✓	V	V
Signal contacts with	external CubicleBUS modules			
(Opto or relay)				
	Overcurrent warning	✓	✓	✓
	Load shedding OFF/ON	✓	✓	✓
	Early signal of long time trip (200 ms)	✓	✓	V
	Temperature alarm	✓	✓	V
1 1	Phase unbalance	✓	V	V
1 \ ¹	Instantaneous trip	V	V	V
· · · · · · · · · · · · · · · · · · ·	Short-time trip	✓	✓	V
· 1 1	Long-time trip	V	V	V
	Neutral conductor trip	V	V	V
	Ground fault protection trip	✓ (only with ground fault module)	✓ (only with ground fault module)	✓ (only with ground fault module)
	Ground fault alarm	✓ (only with ground fault module)	✓ (only with ground fault module)	✓ (only with ground fault module)
	Auxiliary relay	✓	V	V
	ETU error	V	✓	✓

Metering and Protective Relaying Accuracies

J	, .			
Protective Relaying	Pick-up Accuracy	Metering Values	Accuracy	
Phase Unbalance (I)	2% (5 50% I _n)	(I) at 1 x I _n	+/- 1%	
Phase Unbalance (V)	2% (5 50% V _n)	(V) at $1 \times V_n$	+/- 0.5%	
THD (I) (up to 29th)	+/- 3% (80 120% V _n)	(P) at 1x I _n	+/- 3%	
THD (V) (up to 29th)	+/- 3% (80 120% V _n)	(S) at 1 x I _n	+/- 2%	
Overvoltage	+/- 2% (80 120% V _n)	(Q) at 1 x I _n	+/- 3%	
Undervoltage	+/- 2% (80 120% V _n)			
Under/Over Frequency	+/- 0.1 Hz			

- ✓ available
- not available
- o optional

Electronic Trip Unit

Electronic Trip Unit

During development of our electronic trip units, we have consistently striven to ensure modularity. The following are just some of the modules that are simple to retrofit at any

- Ground fault protection Communication Metering function

- DisplaysRating plugs

This enables fast local adaptation to new system conditions. At the same time, the ETUs are provided with new, innovative functions, and all trip units are completely interchangeable independent of breaker ratings.

Rating Plug

The Rating Plug is a replaceable module that enables users to reduce the rated device current for optimum adaptation to the system; e.g. during startup of a plant section. The Rating Plug should be selected so that it corresponds to the rated current of the system.

Switch-selectable I2t or I4t Characteristic Curve Improved Overload Protection

The best possible protection is assured when all protective devices in the system are optimally coordinated. To achieve optimum selectivity and coordination, the long-time characteristic can be switched between I2t and I4t.

Switchable Parameter Sets

To allow the protection to adapt to changes in system needs such as switching between utility and generator feeds, WL Circuit Breakers support ETUs with two independent parameter sets. Switching between the parameter sets occurs in less than 100 ms and can be done remotely or via a contact input to an optional CubicleBUS module.

Dvnamic Arc-Flash Sentry (DAS) employs the unique dual protective setting capability of the 755 and 776 trip units, or the 755 and 776 trip units, coupled with the ability to easily toggle to a lower arc flash parameter set. A normal operation parameter set can be optimized for selective trip coordination while the second set is optimized for lower arc flash energy levels.



Manual Trip Indicator with optional remote **RESET**

LCD display with adjustable-angle viéwing

Micro switches for switch selectable characteristic curve adjustments.

Extended Instantaneous Protection

The electronic trip units designed for use with the WL low voltage power circuit breaker provide a feature we call "Extended Instantaneous Protection" (Patent Pending). It allows the WL breaker, as a family, across the entire range of ampacities to be applied at the withstand rating of the breaker with minus 0% tolerance: that means no instantaneous override whatsoever. EIP further enables the circuit breaker to be applied up to the full interrupting rating of the breaker on systems where the available fault current exceeds the withstand rating, even with LS-only trip units. Why is this feature important? The answer is reliable power.

The coordination of the main breaker and the first level of feeder breakers is especially important because of the wide spread outage that will occur if one of these breakers trips unnecessarily. Conventional practice is to specify electronic trip beakers with "LS" type trip units in critical power systems. These 'Long-Time' and 'Short-Time' only trip units forgo the fast tripping times given by an 'Instantaneous' function. The justification for this delay is the benefit of allowing a downstream breaker to open first to clear a high magnitude fault. The main or feeder stays closed to keep the remainder of the loads operating.

However, a circuit breaker with an LS-only trip unit may never be applied on a system capable of delivering fault current higher than the breaker's withstand rating, commonly 85kA or less. Where the available fault current is above this level, a breaker with an additional function must be used - an instantaneous override. This instantaneous override function trips the breaker instantly when the fault current reaches a pre-

determined level below the withstand rating, usually around 20% lower. The benefit of this override is to allow application of the breaker up to the interrupting rating, which may be as high as 150kA. The disadvantage is that it compromises the coordination benefit because the main will probably trip at the same time as a dównstream branch breaker in that 20% lower override window.

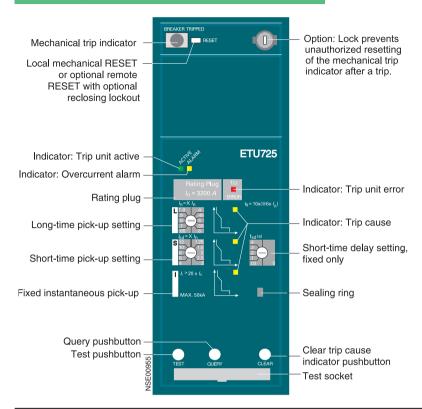
This is where the Extended Instantaneous Protection feature of the WL can offer the next level of coordination and protection functionality. Unlike an instantaneous override. Extended Instantaneous Protection (EIP) allows the full withstand rating - in fact up to the tolerance of plus 20% higher. Of course, EIP still provides the ability of the breaker to be applied at the interrupting level, as high as 150kA in a Frame Size III, nonfused breaker. This unique combination enables the

system designer to achieve the highest possible level of coordination in the industry and also allows application of the WL on modern power systems with extremely high levels of available fault current.

A further benefit offered by EIP, over a standard LS trip unit equipped breaker, is that it provides an extra measure of protection in the event that the available fault current increases at some time during the life of the system beyond the withstand level. This would typically be due to a utility transformer change but could also be due to the addition of generators or large motors that contribute fault current. EIP provides the breaker the ability to react in an instantaneous fashion to a high level fault instead of having to rely on the slower reaction time of the short-time function.

Electronic Trip Unit

Electronic Trip Unit ETU725



Application:

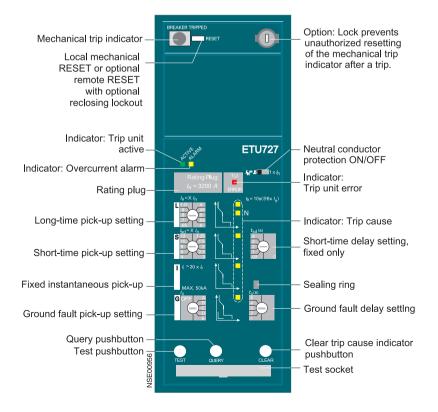
Low-cost building, motor and plant protection up to 5000A.

Features:

- Adjustable long-time overload protection with I²t characteristic time delay Long-time delay fixed at tR=10 seconds at 6 x I R
- Short-time delay short-circuit protection, adjustable from 1.25... 12 x ln
- Instantaneous short-circuit protection fixed at 20 x In. 50kA max
 Replaceable Rating Plug allows
- Replaceable Rating Plug allows instant adaptability to the required plant currents, thus ensuring overload protection of 200A to 5000A
- Overcurrent alarm indicator
- LED trip cause indicator
- Option for testing the trip unit
- Protective parameters set via rotary switch

For technical details, see table on pages 1/36 and 1/37.

Electronic Trip Unit ETU727



Application:

Low-cost building, motor and plant protection up to 5000A.

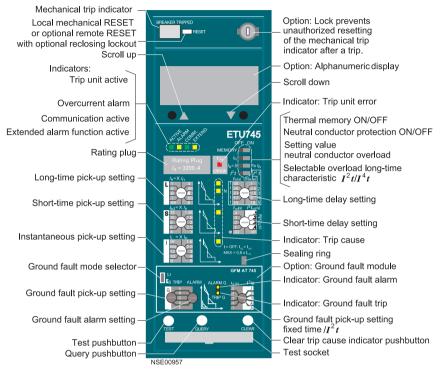
Features:

Same as for ETU725 plus the following:

- Selectable neutral conductor protection
- Integrated ground fault protection, 3- or 4- wire residual only

For technical details, see table on pages 1/36 and 1/37.

Electronic Trip Unit ETU745



Application:

Cost-effective standard model for intelligent building and all types of industrial applications - CubicleBUS integrated.

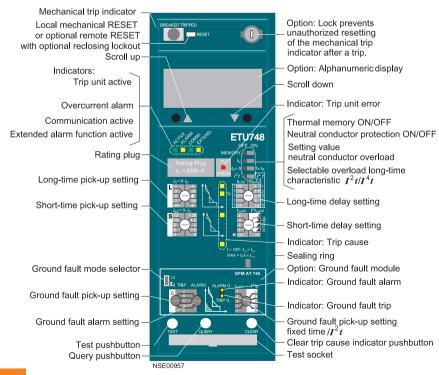
Features:

Same as for ETU727 plus the following:

- Adjustable long time delay
 Selectable I²t / I⁴t for
- long time delay
- Selectable fixed time / I²t for short time delay for better coordination with downstream protection and fuses
- Thermal memory for improved protection of motor loads
- Selectable neutral conductor protection using external neutral
- Modular ground fault protection, with separately adjustable alarm and trip function (option)
- Communication interface, for optional metering function (PLUS), connection of external modules as option or retrofit
- Optional high contrast display with viewing angle adjustment
- Setting of protective functions by means of rotary or slide switch

For technical details, see table on pages 1/36 and 1/37.

Electronic Trip Unit ETU748



Application:

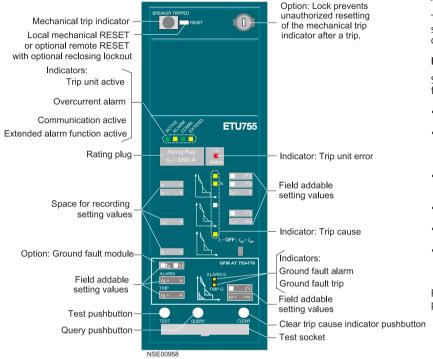
Cost-effective standard model for intelligent building and all types of industrial applications – CubicleBUS integrated.

Features:

Same as for ETU745 without the Instantaneous short-circuit trip function.

For technical details, see table on pages 1/38 and 1/39.

Electronic Trip Unit ETU755



Application:

Trip unit with remote-only parameter setting for special application demands. CubicleBUS integrated.

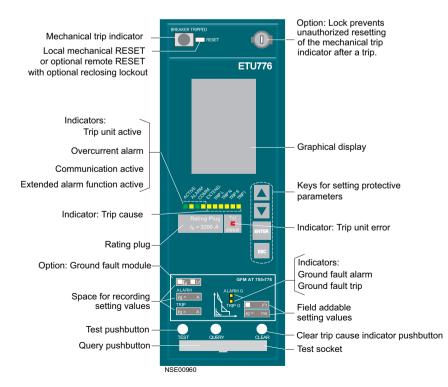
Features:

Same as for ETU745 plus the following:

- Detection of the energy flow direction
- Two independent sets of protective parameters, selectable via remote control or via optional external input module
- Overload protection that can be switched off for use with modern operating mechanism technology
- Adjustable short-time delay up to 4000 ms
- Neutral conductor protection adjustable to I_N = 2 x I_n
 Protective functions settable via
- Protective functions settable via Communications (COM15/16) or Breaker Data Adapter (BDA)

For technical details, see table on pages 1/38 and 1/39.

Electronic Trip Unit ETU776



Application:

Premium model with graphical display for system analysis – CubicleBUS integrated.

Features:

Same as for ETU755 plus the following

- Graphical display of all parameters and event/curve characteristics
- Storage of events and causes of release for specific error analysis
- High contrast, background-lit graphical display with sleep mode
- Easy-to-use keypad entry of all parameters

For technical details, see table on pages 1/38 and 1/39.

Electronic Trip Unit

Ground Fault Protection

When optional ground fault is selected, the trip unit detects fault currents that flow to ground and represent a fire hazard to the system. The adjustable time delay allows selective staggering of consecutively arranged circuit breakers.

When setting the parameters of the trip unit, a selection can be made between alarm and trip if the set current value is exceeded. The cause of the trip is displayed on an LED when the query button is pressed.

Modules

The trip unit versions ETU745, ETU478, ETU755 and ETU776 can be retrofitted with a ground fault protection module. In the case of overcurrent release ETU727, this module is permanently installed.

Two versions of the optional ground fault module can be ordered:

- Trip and Alarm
- Alarm only

Ground Fault Measuring Methods

Residual sensing of the ground fault current

The trip unit calculates the ground fault current by vectorial current summation of the 3-phase currents and the neutral conductor current.

Direct measurement of the ground fault current

A current transformer with the transformer ratio 1200A: 1A is used to measure the ground fault current. The transformer can be installed directly in the grounded star point of a transformer.

Setting

The ground fault module can be set depending on the measuring method (see above):

Measuring method 1: in position sum I Measuring method 2: in position G.

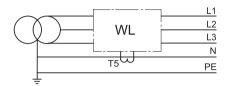
With trip units ETU755 and ETU776, this setting is implemented via the display and key pad or communications.

Ground Fault Protection with I2t Characteristic Curve

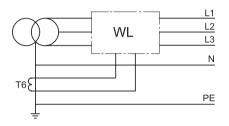
With the exception of the trip unit ETU727, all versions of the ground fault modules are delivered with an I²t or fixed delay.

Modules are available in either Alarm only or Alarm and Trip functions.

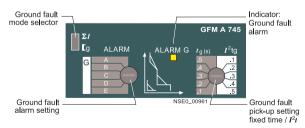
Residual sensing of the ground fault current



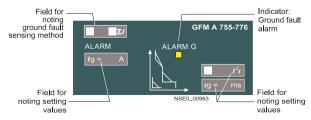
Direct measurement of the ground fault current



Ground fault module GFM A 745-748



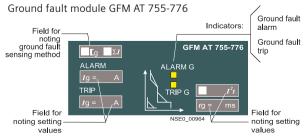
Ground fault module GFM A 755-776



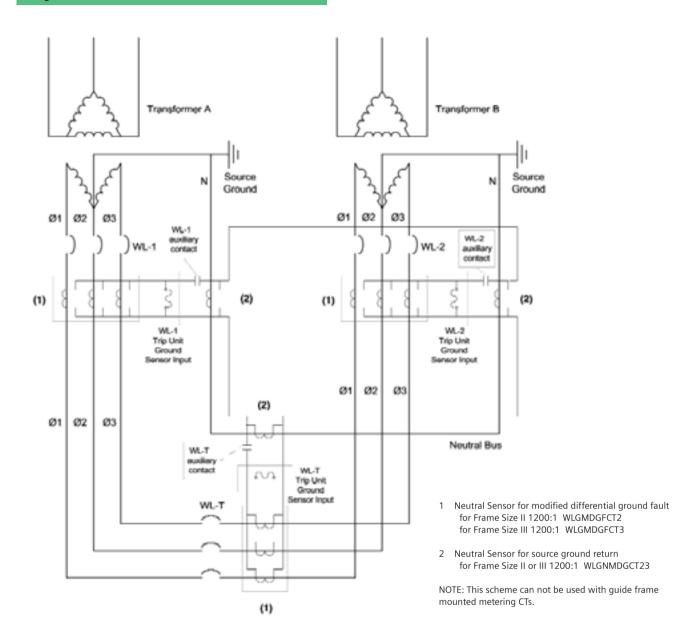
Ground fault mode selector Ground fault mode selector Ground fault alarm Ground fault trip Ground fault trip Ground fault trip Ground fault trip Ground fault trip

Ground fault module GFM AT 745-748

Ground fault ______ NSE0_00962 Ground fault pick-up setting fixed time / I^2t



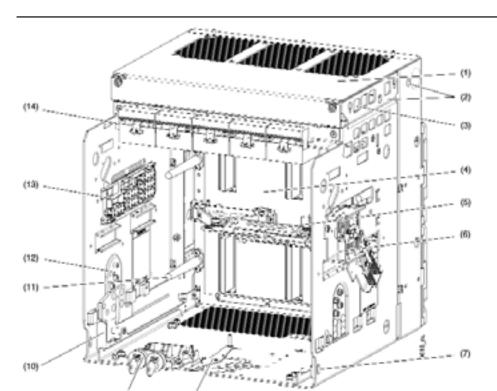
Modified Differential Ground Fault Protection using WL Circuit Breakers and extra iron-core CTs



Circuit Breaker

Circuit Breaker (28)(1) (2) (27)(26)(3) (4) (25)(5) (24) (6) (23)(22)0 (7) (21)(8) (20)(9) (19)(10)(11)(18)(17)(12)(13)(16)(14)(15)

- 1 Arc chute
- 2 Handle
- 3 ID label
- 4 Motor switch (optional) or "electrical CLOSE" (optional)
- 5 Type label of circuit breaker
- 6 Spring charge indicator
- 7 "Mechanical CLOSE" button
- 8 Rated current data
- 9 Racking handle operation diagram
- 10 Operations counter (optional)
- 11 Charging lever
- 12 Racking handle
- 13 Transport shaft for drawout unit
- 14 Equipment label
- 15 Grounding terminal
- 16 Position indicator
- 17 Ground fault protection table
- 18 Racking handle safety lock (optional)
- 19 Mechanical interlock release of racking handle (optional)
- 20 Electronic trip unit
- 21 Rating plug
- 22 "Mechanical OPEN" button or "emergency OPEN" mushroom head pushbutton (optional)
- 23 Ready-to-close indicator
- 24 Contact position indicator
- 25 Trip indicator (reset button)
- 26 Locking device Breaker OFF (optional)
- 27 Front panel
- 28 Terminal strip for auxiliary contacts



- 1 Arc chute cover (option)
- 2 Hole for crane hook
- 3 Arc vent openings
- 4 Shutter (option)
- 5 Locking device shutter (option)
- 6 Mutual mechanical circuit breaker interlocking (option)
- 7 Locking device guide rail
- 8 Door interlocking guide frame (option)
- 9 Locking device in DISCONNECT position (option)
- 10 Guide rail
- 11 Shutter operating device (option)
- 12 Interlocks (option)
- 13 Position signaling switch (option)
- 14 Secondary disconnects

Auxiliary Release

Up to two auxiliary releases can be installed at the same time. The following combinations are available:

- 1 shunt trip
- 1 undervoltage trip
- 2 shunt trips
- 1 shunt trip and 1 undervoltage trip

Shunt Trips

The shunt trip opens the circuit breaker when the working voltage is applied. The shunt trip is available in 5% duty cycle and provides 40 ms clearing time.

Interlock Shunt Trip

A unique accessory for the WL, it serves as a standard shunt trip to open a closed breaker when the coil is energized. In addition, if the coil is energized with the breaker open, it acts as an interlock or lockout device to prevent the breaker from closing. It is rated for 100% continuous duty energization. This device should not be used for remote ground fault tripping.

Undervoltage Release

The undervoltage release opens the circuit breaker when the working voltage falls below a specific value. The circuit breaker cannot be closed manually or by means of an electrical close command if the rated voltage is not applied to the undervoltage release. The undervoltage release is without time delay as standard and the customer can switch between $t_d\!>\!80$ ms and $t_d\!<\!200$ ms.

An additional version is available; undervoltage release with 0.2 to 3.2 s delay.

Signal Contact for Auxiliary Release

One signal contact per auxiliary release is available to interrogate the switching positions of the auxiliary release. These are not available when communications is installed.

Closing Solenoid

Serves to electrically close the circuit breaker by means of a local electrical "CLOSE" button or remote signal.

Motorized Operating Mechanism

For automatic charging of the stored energy mechanism. It is switched on when the stored energy mechanism is released and the control voltage is available. It automatically switches off after charging. The springs can still be charged manually if required.

Lock Kit (WLLKKT)

The lock kit is required when the operation of the mechanical CLOSE and OPEN buttons needs to be adapted to special demands of the switchgear operation by retrofitting various accessories (e.g. locks, access lock-outs preventing tool operation, seals).

Motor Switch

Knob operated switch for turning off the motorized operating mechanism.

Operations Counter (WLNUMCNT)

A 5-digit operating cycle counter is available with the motor operator.

Resetting the Manual Trip Signal

If the circuit breaker has been tripped, this is indicated by the protruding red RESET button on the ETU. Actuation of the RESET button or button resets the trip solenoid and the trip signal. If this manual indicator is to be remotely reset, the option is available to equip the RESET button with a reset solenoid.

With this option, the circuit breaker trip indicator can be reset both manually and electrically.

Automatic Reset of the Reclosing Lockout

With the optional reclosing lock-out (WLNOAUTRSET), if the breaker is tripped the circuit breaker cannot be reclosed until the trip indicator has been either electrically or manually reset.

With the standard "automatic reset of the reclosing lockout", the circuit breaker is ready-to-close immediately after a trip. The reset of the manual trip indicator is not required.

Remote Trip Signal Switch (WLRTK)

Consists of a secondary maglatch and signal switch disconnect. It is used to remotely trip and lock out the breaker. It is not available for fused breakers. It is actuated by applying a 24V DC pulse for 0.5 sec.

Ready-to-Close Signal Contact (WLRTCS)

WL Circuit Breakers are equipped with a visual ready-to-close front panel indicator as standard. The option to transmit this readiness to close over a signal contact is also available. If the circuit breaker is operated through communication, this signal switch is fitted as standard.

Locking devices

Locking Device in OPEN Position, Front Panel Mounted (WLLKOFFKRK, WLLKOFFSUP, WLLKNP)

This function prevents closing of the circuit breaker. This lock only actuates on this circuit breaker.

Locking Device for "Mechanical CLOSE" (included in the WLLKKT Lock Kit)

Prevents unauthorized mechanical closing. The mechanical CLOSE button can only be actuated if the key is inserted (key operation). Closing through the "electrical CLOSE" or remote closing are still possible.

Locking Device in OPEN
Position, Mounted through
the Cubicle Door
(WLDLKRK, WLDLPR, WLDLSUP,
WLDLDKRK, WLDLDPR,
WLDLSUP)

This special function for drawout circuit breakers prevents closing, independent of the circuit breaker. Unauthorized closing is also not possible after circuit breaker replacement.

Circuit Breaker Accessories

Locking Device for Racking Handle (WLLKCLKRK, WLLKCLSUP)

Prevents withdrawal of the racking handle. The circuit breaker is protected against moving. The blocking is only effective if the key is withdrawn.

Locking Device for "Mechanical OPEN" (included in the WLLKKT Lock Kit)

Prevents unauthorized mechanical disconnection at the front panel. The mechanical OPEN button can only be actuated if the key is inserted (key operation). Remote disconnection is still possible. The blocking is only effective if the key is withdrawn.

Locking Device for Charging Lever (WLHANDLC)

The charging lever can be locked with a padlock to prevent manually charging the stored energy mechanism.

Locking Device Against Resetting the Trip Indicator (included with WLTUSC55 and WLTUSC76)

A lockable cover prevents the manual resetting of the trip indicator after a tripping. This locking device is delivered together with the optional transparent cover for trip unit.

Sealing Devices

Sealing Cap over "Electrical CLOSE" Button (included with WLLECS)

The "electrical CLOSE button" is fitted with a sealing cap as standard.

Sealing Cap over "mechanical CLOSE" and "OPEN" button (included in the WLLKKT lock kit)

The lock kit includes blanking caps that can be sealed.

Sealing Cover for Electronic Trip Unit (WLTUSC55, WLTUSC76)

The transparent cover can be sealed. The areas of the parameter setting are covered against unauthorized access. Openings enable access to the query and test button.

Locking Devices

Closing Lockout with Open Cubicle Door (WLDRLC5)

The ready-to-close indicator is mechanically deactivated if the cubicle door is open. The circuit breaker cannot be closed either mechanically or electrically. Transmission of the locking signal is by means of the Bowden wire.

Interlocking of Cubicle Door The cubicle door cannot be opened if the drawout circuit breaker is in connected position

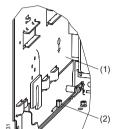
Access Locking through the "Mechanical CLOSE" and "OPEN" Button (included in the WLLKKT Lock Kit)

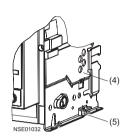
The mechanical "CLOSE" and "OPEN" buttons are protected by a cover that only permits actuation with a tool. These caps are components of the interlocking set.

Additional Equipment for Guide Frames

Shutter

The cover strips of the shutter lock the laminated contacts of





- (1) Guide Frame, inside left; inside right are the same
- (2) Coding Bolt on the Guide Rail in the Guide Frame
- (3) Guide Rail
- (4) Drawout Circuit Breaker right side; left side are the same
- (5) Coding Bolt on Guide Frame

the guide frame if the drawout circuit breaker is withdrawn so that they fulfill the function of a touch guard.

The cover strips can be manually opened with the strip lifter.

The cover strips can be fixed in different positions with padlocks and protected from unauthorized manipulation.

Rated Current Coding between Circuit Breaker and Guide Frame

Drawout circuit breakers and guide frames are equipped with a rated current coding as standard.

This ensures that in a guide frame only those circuit breakers can be inserted whose contact strips match the laminated contacts of the guide frame (see picture above).

Option Related Coding (WLBCK2, WLBCK3)

Drawout circuit breakers and guide frames can be retrofitted with an option related coding.

This permits the unique assignment of circuit breakers and guide frames, taking into account different equipment. If circuit breakers and guide frames do not have the same coding, it is not possible to insert the circuit breaker. There are 36 selectable coding options.

Circuit Breaker Accessories

Position Signal Contact for Guide Frame

Position signal contacts can be retrofitted to the guide frame. These can be used to indicate the position of the circuit breaker in the guide frame.

The position signal switches are preassembled with 1.5 m connecting cables and are mounted on the mounting plate. There are three contact configurations available (see adjacent table).

Mutual Mechanical Circuit Breaker Interlocking (WLNTLK)

The module for mutual mechanical interlocking can be implemented for two or three WL Circuit Breakers.

The circuit breakers can be installed either next to one another or on top of one another, whereby the distance between the circuit breakers is determined only by the length of the Bowden wire. The Bowden wires are available in the standard length of 2 m. Alternate Bowden wire lengths of 3 m (WLNTLWRE3), 4.5 m (WLNTLWRE4), or 6 m (WLNTLWRE5) can be ordered separately. Lockout signals are forwarded over the Bowden wires. With withdrawable circuit breakers, the interlocking is only effective in connected position. The mechanical service life of the Bowden wires is 10,000 operating cycles. For the mutual mechanical interlocking of circuit breakers, also see the adjacent table.

Positions of the drawout circuit breaker in the guide frame

	Representation	Position indicator	Main circuit	Auxiliary circuit	Cubicle door	Shutter
Maintenance position	(2) (4) NSE01033	COMMECT TREST DISSONS NSE01037	discon- nected	discon- nected	open	closed
Disconnected position	(3) NSE01034	TEST DBSCON NSE01038	discon- nected	discon- nected	closed	closed
Test position	NSE01035	TEST GRECON NSE01039	discon- nected	con- nected	closed	closed
Connected position	NSE01036	TEST TOUR NEED TO THE TEST TOUR NEED TOUR NEED TO THE TEST TOUR NEED TOUR NEED TO THE TEST TOUR NEED TO THE TE	con- nected	con- nected	closed	open

- Auxiliary circuit
- (2) Main circuit (3) Cubicle door (4) Shutter

Mutual mechanical interlocking of circuit breakers - examples

Interlocking	Interlocking	Interlocking	Interlocking of three
of two mutual	of three non-mutual	of three mutual	circuit breakers, two of
circuit breakers	circuit breakers	circuit breakers	which are mutual
S ₁ S ₂	S ₂	S ₁	S ₂ S ₂

Phase Barriers

Plant manufacturers can make phase barriers out of insulation material as a protection against internal arcs. Guiding grooves are fitted at the rear of the fixedmounted circuit breaker or guide frame.

Arc Chute Cover

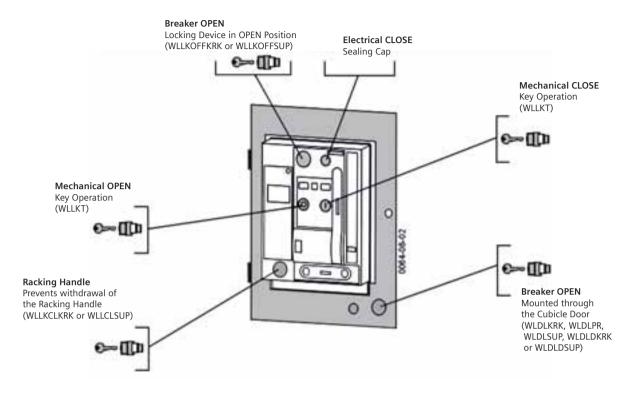
The arc chute cover is available as an option for the guide frame. It serves to protect switchgear parts that are located directly next to the circuit breaker.

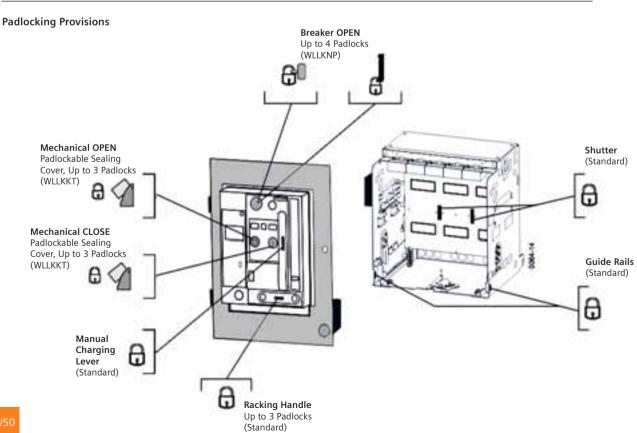
Door Sealing Frame and Plexiglas Cover

As standard, the WL Circuit Breakers have IP 20 degree of protection. However, if the switchgear assembly is to be provided with a higher degree of protection, a door sealing frame and a Plexiglas cover are available for Frame Size II and Frame Size III circuit breakers.

Circuit Breaker Accessories

Locking Devices and Sealing Caps





Time / Current Characteristic Curves

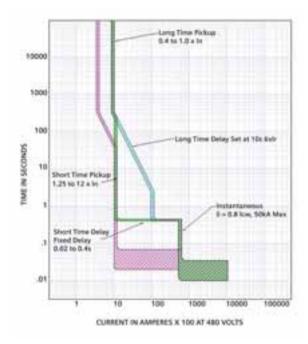
Tripping Characteristics

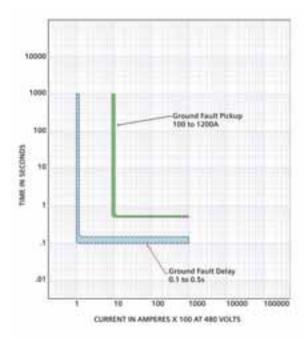
Every trip unit and every trip function has its own characteristic. You will find just a small section of these illustrated below. The characteristics show the respective greatest and smallest setting range of WL Circuit Breakers.

To obtain a complete release characteristic, the appropriate characteristic functions must be determined.

The characteristics show the behavior of the overcurrent release when it is activated by a current already flowing before tripping. If the overcurrent trip takes place immediately after closing and the overcurrent release is therefore not yet activated, the opening time is prolonged by about 3 to 10 ms, depending on the value of the overcurrent.

ETU725 and ETU727

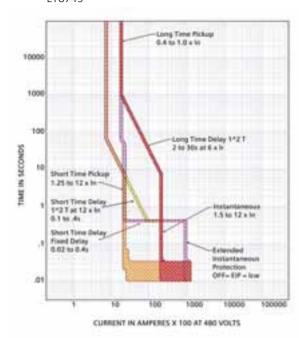


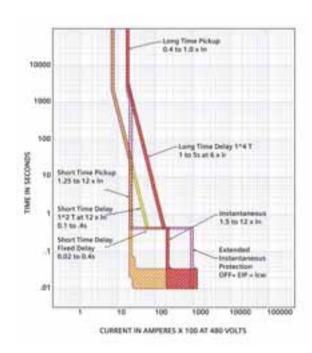


Time / Current Characteristic Curves

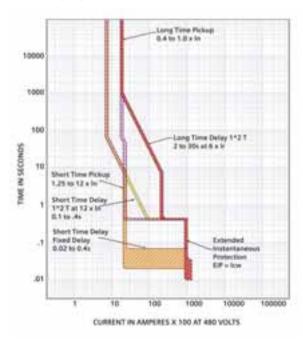
Tripping Characteristics

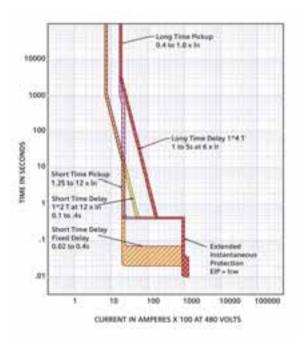
ETU745





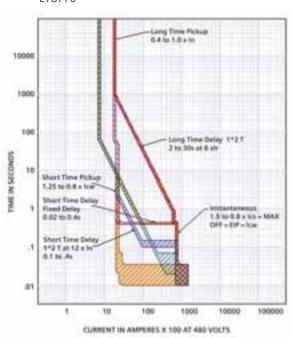
ETU748

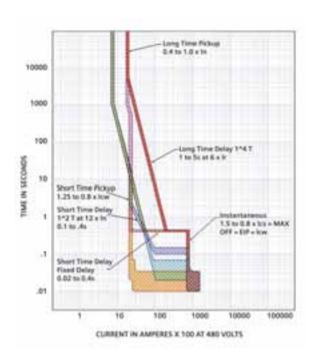




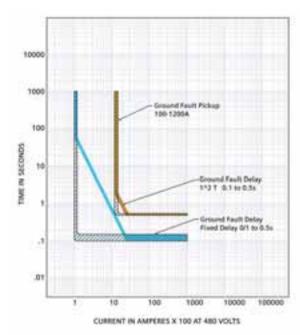
Tripping Characteristics

ETU776





Ground Fault Curve for ETU745, 748, 755 and 776



Application Data

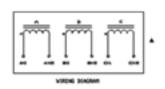
WL Secondary Terminal Assignments

	Internal	Terminate	ANSI C37.2 device	External	
Bell alarm / trip signaling	P#	X9	36		
Signating switch, 2nd shunt trip Local electric close	# 7		5200		L/(+) Control power signal
Signaling switch, 1st shunt trip	#	=;	SUCE		THE TOWN TOWN DESTI-
Signal switch, open fuse lockout	#	=;			White C
Maglatch for open fuse lockout	Timo				X9.4 Fuse carriage X9.3 L1(+) Control power signal
2nd shunt trip	T-40		serie	-374-8	N1(-)
Remote reset bell alarm & tripped indicator GF sensor S2		X8	79		£7(+) Control power signal N f (-)
GF sensor S1 N sensor S2		11		000	" Short terminals, if no N sensor
N sensor 51 External voltage transformer COM					Phase A For use with 120V AC
External voltage transformer L3 External voltage transformer L2 External voltage transformer L1	0.00			=/F	Phase B secondary voltage transformers Phase C
DV d.c. Control Power 24 V d.c.	1 5	=:		-11-11	24 V d.c. Input
CUB +	15	=;			Termination resistor, 120 Ω, 0.5 W if no external CB Module connected
COM15/16, otherwise no connection		X7			
1st Shunt Trip		X6		40	LI (+) Control power signal
Aux switch, N.O., 52a, 51		14	6210 / IW		N / (-)
Aux switch, N.C., 52b, 51	÷a.	: :	520		
Closing coil	## 185	=:	1000		N ((-) : L1(+) Control power signal
"Ready to close" signal	2	7	101.0		Erital councilons advant
Aux switch, N.O., 52a, 52	÷.	-	52%		
Aux switch, N.C., 52b, 52	ži.		:826.)		
		X5			Breaker will open if X5-13 and X5-14 are not connected or opened by an emergency open
Emergency open via UVR	C00	1 14	10	- 14	signal, if a UVR is installed
LIVR		- 12 11	37.5		Lf(+) Control power signal Nf(-)
Aux switch, N.O., 52a, 53	4.	1 1	101		
Aux switch, N.C., 52b, 53	和	7	52%		
Aux switch, N.O., 52a, 54	±1		500		
Aux switch, N.C., 52b, 54	老	-	826		
Charging motor Motor cut-off switch			SEM		L/(+) Control power signal N/(-)

Technical Data for Current Transformers

3-Phase Metering CTs, Guide Frame Mounted Frame Size I & II

		ANSI Metering @ 60 Hz			Ηz		Secondary Winding Resistance	Thermal S/T	
Catalog Number	Current Ratio	B-0.1	B-0.2	B-0.5	B-0.9	B-1.8	Relay Accuracy	(ohms @ 75° C	kA - 1 sec
WLG1005MCT3	100:5	1.2	-	_	-	-	C5	0.011	12
WLG1505MCT3	150:5	1.2	-	_	-	-	C7	0.019	16
WLG2005MCT3	200:5	1.2	-	-	-	-	C9	0.030	18
WLG2505MCT3	250:5	1.2	-	-	-	-	C12	0.038	22
WLG3005MCT3	300:5	0.6	0.6	-	-	-	C15	0.045	28
WLG4005MCT3	400:5	0.6	0.6	1.2	-	-	C20	0.060	36
WLG5005MCT3	500:5	0.6	0.6	1.2	-	-	C25	0.075	46
WLG6005MCT3	600:5	0.3	0.3	0.6	1.2	1.2	C21	0.178	28
WLG8005MCT3	800:5	0.3	0.3	0.6	0.6	1.2	C29	0.237	36
WLG10005MCT3	1000:5	0.3	0.3	0.6	0.6	1.2	C35	0.296	46
WLG12005MCT3	1200:5	0.3	0.3	0.3	0.6	0.6	C20	0.241	70
WLG15005MCT3	1500:5	0.3	0.3	0.3	0.3	0.6	C25	0.301	88
WLG16005MCT3	1600:5	0.3	0.3	0.3	0.3	0.6	C27	0.321	94
WLG20005MCT3	2000:5	0.3	0.3	0.3	0.3	0.3	C34	0.402	100
WLG25005MCT3	2500:5	0.3	0.3	0.3	0.3	0.3	C20	0.468	100
WLG30005MCT3	3000:5	0.3	0.3	0.3	0.3	0.3	C21	0.524	100
WLG32005MCT3	3200:5	0.3	0.3	0.3	0.3	0.3	C20 🛦	0.560	100





Frequency: 50 - 400 Hz

Insulation Level:

0.6 kV; BIL 10 kV full wave

Insulation System:

Cast in polyurethane resin, red or black, Temperature Class 130° C

Continuous Thermal Current Rating Factor: 1.33 @ 30° C ambient; 1.00 @ 55° C ambient

Thermal Short-time Rating: (see table)

Regulatory Agency Approvals:

UL & CUL

Flexible Leads:

UL 1015, CSA approved, #16 AWG, 36" long (minimum), with wire markers

Approximate Weight: 20 lbs.

Tolerance on Dimension (unless otherwise noted):

± 0.06 for dimension under 6"

± 0.09 for dimension between 6" & 18"

Notes:

For external metering. Up to 2 CTs per guide frame (one load side, one line side) Mounts inside the guide frame.

3-Phase Metering CTs, Guide Frame Mounted Frame Size III

Catalog Number	Current Ratio	Metering Accuracy	Relay Accuracy	Secondary Winding Resistance (ohms @ 75° C	Thermal S/T kA - 1 sec
WLG20005MCT3	2000:5	0.3 B1.8	C20	0.27	188
WLG25005MCT3	2500:5	0.3 B1.8	C20	0.34	236
WLG30005MCT3	3000:5	0.3 B1.8	C20	0.62	178
WLG32005MCT3	3200:5	0.3 B1.8	C20	0.67	190
WLG40005MCT3	4000:5	0.3 B1.8	C20	0.84	237
WLG50005MCT3	5000:5	0.3 B1.8	C20	1.05	297

Frequency: 50 - 400 Hz Insulation Level:

0.6 kV; BIL 10 kV full wave

Insulation System:

Cast in polyurethane resin, red or black,

Temperature Class 130° C

Continuous Thermal Current Rating Factor: 1.33 @ 30° C ambient; 1.00 @ 55° C ambient

Regulatory Agency Approval:

UL and CUL

Flexible Leads:

UL 1015, CSA approved, #16 AWG, 36" long (minimum), with wire markers

Approximate Weight: 33 lbs.

Tolerance on Dimension (unless otherwise noted):

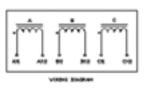
±0.06 for dimension under 6"

±0.09 for dimension between 6" & 18"

±0.125 for dimension over 18"

Notes

For external metering. Up to 2 CTs per guide frame (one load side, one line side) Mounts inside the guide frame.





Technical Data for Current Transformers

Neutral Sensors for Modified Differential Ground Fault Frame Size I & II

Catalog Number	Current Ratio	Accuracy	Secondary Winding Resistance (ohms @ 75° C	Thermal S/T kA - 1 sec
WLGMDGFCT2	3200:2.67	0.3% at 45VA resistive burden	3.10	

Flexible Leads:

UL-1015, CSA approved, #16 AWG, 36" long

(minimum), with wire markers

Frequency: 50 - 400 Hz

Insulation Level:

0.6 kV; BIL 10 kV full wave

Insulation System:

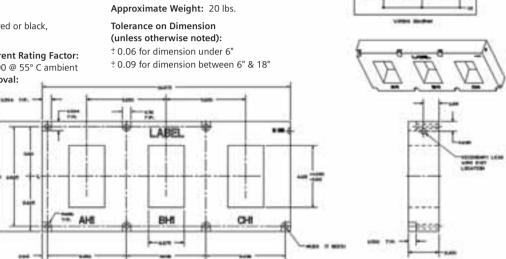
Cast in polystyrene resin, red or black,

Temperature Class 130° C

Continuous Thermal Current Rating Factor:

1.33 @ 30° C ambient; 1.00 @ 55° C ambient Regulatory Agency Approval:

UL and CUL



Neutral Sensors for Modified Differential Ground Fault Frame Size III

Catalog Number	Current Ratio	Accuracy	Secondary Winding Resistance (ohms @ 75° C	Thermal S/T kA - 1 sec
WLGMDGFCT3	5000:4.17	0.3% at 45VA resistive burden	1.94	224

Frequency: 50 - 400 Hz

Insulation Level:

0.6 kV; BIL 10 kV full wave

Insulation System:

Cast in polyurethane resin, red or black,

Temperature Class 130° C

Continuous Thermal Current Rating Factor:

1.33 @ 30° C ambient; 1.00 @ 55° C ambient

Regulatory Agency Approval:

UL and CUL

Flexible Leads:

UL 1015, CSA approved, #16 AWG, 36" long

(minimum), with wire markers

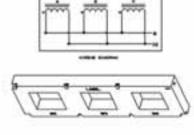
Approximate Weight: 33 lbs.

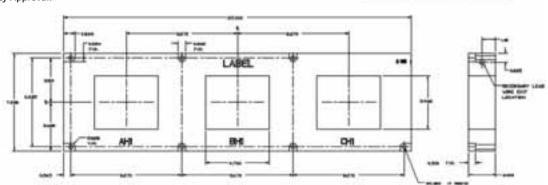
Tolerance on Dimension (unless otherwise noted):

±0.06 for dimension under 6"

±0.09 for dimension between 6" & 18"

±0.125 for dimension over 18"





Technical Data for Current Transformers

Neutral Sensors for Metering, 5A Secondary

		ANSI Metering @ 60 Hz			lz		Secondary Winding Resistance	Thermal S/T	
Catalog Number	Current Ratio	B-0.1	B-0.2	B-0.5	B-0.9	B-1.8	Relay Accuracy	(ohms @ 75° C	kA - 1 sec
WLG100NMCT23	100:5	1.2	_	_	_	-	C5	0.011	12
WLG150NMCT23	150:5	1.2	_	-	-	-	C7	0.019	16
WLG200NMCT23	200:5	1.2	-	-	-	-	C9	0.030	18
WLG250NMCT23	250:5	1.2	-	-	-	-	C12	0.038	22
WLG300NMCT23	300:5	0.6	0.6	-	-	-	C15	0.045	28
WLG400NMCT23	400:5	0.6	0.6	1.2	-	-	C20	0.060	36
WLG500NMCT23	500:5	0.6	0.6	1.2	-	-	C25	0.075	46
WLG600NMCT23	600:5	0.3	0.3	0.6	1.2	1.2	C21	0.178	28
WLG800NMCT23	800:5	0.3	0.3	0.6	0.6	1.2	C29	0.237	36
WLG1000NMCT23	1000:5	0.3	0.3	0.6	0.6	1.2	C35	0.296	46
WLG1200NMCT23	1200:5	0.3	0.3	0.3	0.6	0.6	C20	0.241	70
WLG1500NMCT23	1500:5	0.3	0.3	0.3	0.3	0.6	C25	0.301	88
WLG1600NMCT23	1600:5	0.3	0.3	0.3	0.3	0.6	C27	0.321	94
WLG2000NMCT23	2000:5	0.3	0.3	0.3	0.3	0.3	C34	0.402	100
WLG2500NMCT23	2500:5	0.3	0.3	0.3	0.3	0.3	C20	0.468	100
WLG3000NMCT23	3000:5	0.3	0.3	0.3	0.3	0.3	C21	0.524	100
WLG3200NMCT23	3200:5	0.3	0.3	0.3	0.3	0.3	C24	0.560	100
WLG4000NMCT23	4000:5	0.3	0.3	0.3	0.3	0.3	C20	1.000	150
WLG5000NMCT23	5000:5	0.3	0.3	0.3	0.3	0.3	C20	1.600	150

Frequency: 50 - 400 Hz

Insulation Level:

0.6 kV; BIL 10 kV full wave

Insulation System:

Cast in polyurethane resin, red or black, Temperature Class 130° C

Continuous Thermal Current Rating Factor:

1.33 @ 30° C ambient; 1.00 @ 55° C ambient

Thermal Short-time Rating: (see table)

Regulatory Agency Approval: UL and CUL

Terminals are brass screws No. 10-32 with one flatwasher and lockwasher

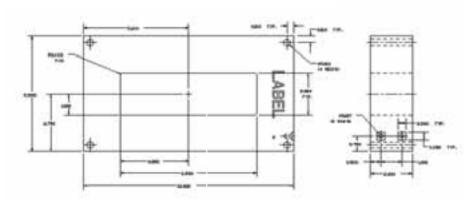
Approximate Weight: 7.5 lbs.

Tolerance on Dimension (unless otherwise noted):

±0.06 for dimension under 6"

±0.09 for dimension between 6" & 18"





Technical Data for Voltage Transformers

VT / PT Connections for the WL Breaker when equipped with Metering (WLMETER, WLMETERP)

The metering module ("Meter Function") can be set to expect 3W or 4W (LL/LG) connections and will adjust the amplitude and phase of the signal as necessary.

The trip unit settings which

- must be made are:
 1) VT Primary Voltage (240V, 480V, 600V)
 2) VT Secondary Voltage (100V, 110V, 120V)
 3) VT Connection (Wye / LG, 2015 / LL)
- Delta / LL)

Three VTs must be used at all times.

All three VTs should be rated for the nominal system L-L voltage (e.g. 480V) and may have either 100V, 110V or 120V secondary voltages.

The following ratios and suggested and equivalent VTs can be used: 240:120 = 2:1 (ITI Part # 460-240 or 468-240) 480:120 = 4:1

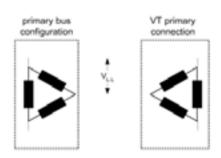
(ITI Part # 460-480 or 468-480) 600:120 = 5:1

(ITI Part # 460-600 or 468-600)

VT Accuracy: Each Metering Module presents a purely resistive (unity power factor) load to the transformer. Assuming no other devices connected to the VT, a ITI type 486 VT can safely feed 10 metering modules and and still resistation 0.0% maintain 0.6% accuracy assuming the wiring from the VT to the individual metering

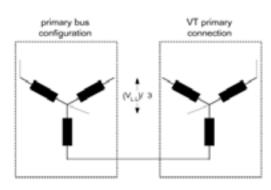
modules is twisted pair and

kept to a minimum length.



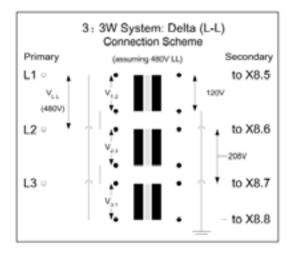
Metering VT Settings: Delta/Wye : Delta

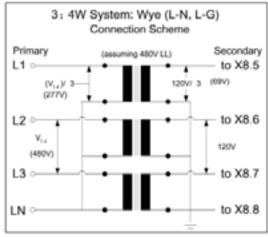
VT Primary: 480 (for example) VT Secondary: 120 (for example)



Metering VT Settings: Delta/Wye : Delta VT Primary: 480 (for example)

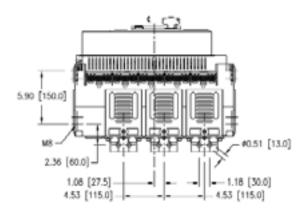
VT Secondary: 120 (for example)

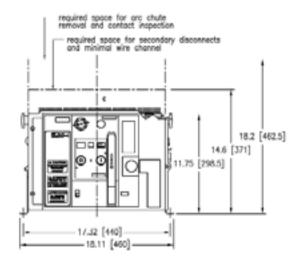


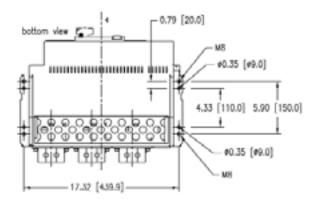


Note: Required primary and secondary overcurrent protection (fusing) not shown for clarity.

Frame Size I Fixed Mounted Circuit Breaker

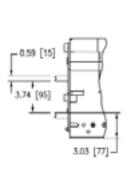




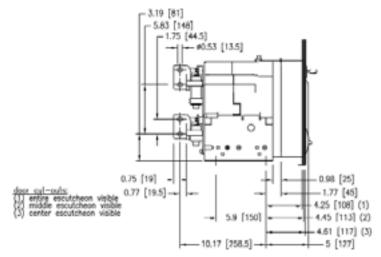


Outline Drawings

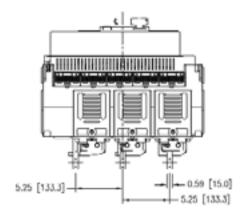
Frame Size I
Fixed Mounted Circuit Breakers
Vertical Bus Connectors



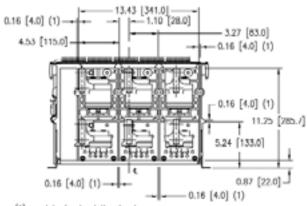
Bus Stubs (standard)



Vertical Bus Connectors (optional)



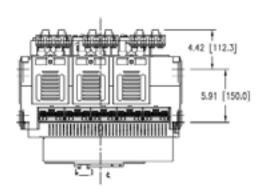
Top View (with optional vertical connectors)

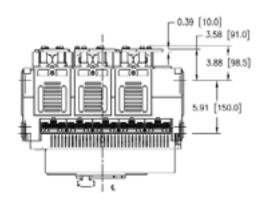


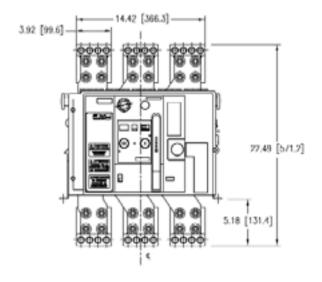
(1) = slots for insulation barriers

Back View (with optional vertical connectors)

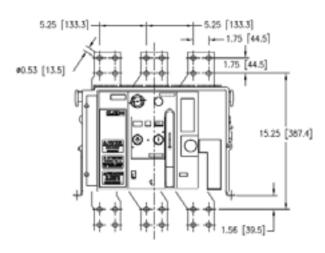
Frame Size I
Fixed Mounted Circuit Breakers
Front Connectors







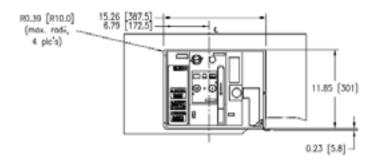
Front Connectors with Pressure Wire Main Connectors



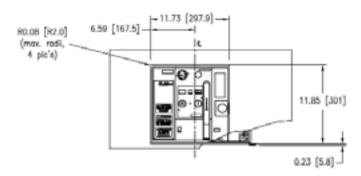
Front Connectors

Outline Drawings

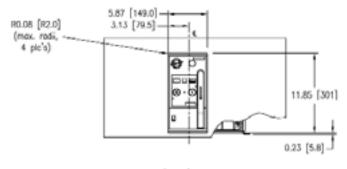
Frame Size I
Fixed Mounted Circuit Breakers
Door Cut-outs



Door Cut-out



Door Cut-out (middle escutcheon visible)



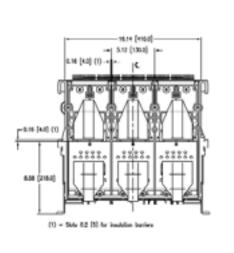
Door Cut-out (center escutcheon visible)

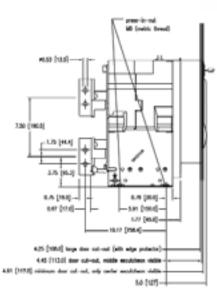
Outline Drawings

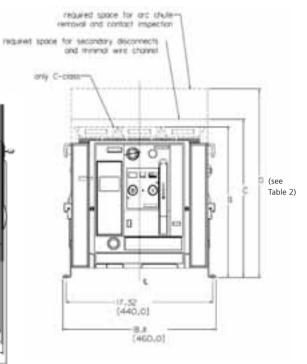
Frame Size II
Fixed Mounted Circuit Breaker
(with optional vertical bus connectors)

menupling class	roted oursett	dimension A
54.	mgx. 1600 A	0.39 (10)
5/1.	mex. 2000 A	0.59 [5]
S/L	max, 3000 A	tie (30)
c	800 - 3000 A	E8 (30)

Table 1

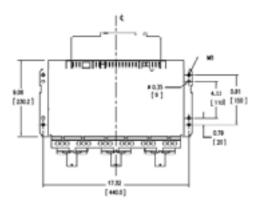






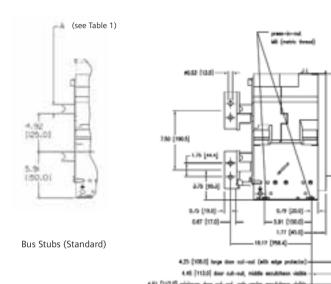
#Herupting closs | Dimension B | Dimension C | Dimension D | S/L | S.85 (402.5) |8.70 (475.0) |22.30 (566.5) | C | 17.80 (452.0) |8.70 (475.0) |25.20 (640.0)

Table 2

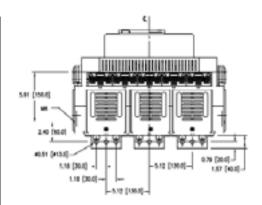


Outline Drawings

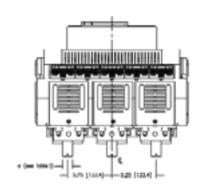
Frame Size II Fixeded Mounted Circuit Breaker Alternate Bus Connectors



Vertical Bus Connectors (optional)



Bus Stubs (standard)

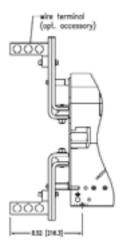


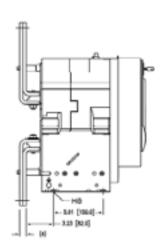
Vertical Bus Connectors (optional)

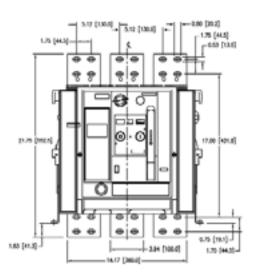
menupling class	roted ourself	dmenson A
SA.	mgx. 1600 A	0.39 (0)
5/1.	mex. 2000 A	0.59 [5]
S/L	max. 3000 A	Lie (30)
c	800 - 3000 A	LB [30]

Table 1

Frame Size II
Fixed Mounted Circuit Breaker
Front Connectors





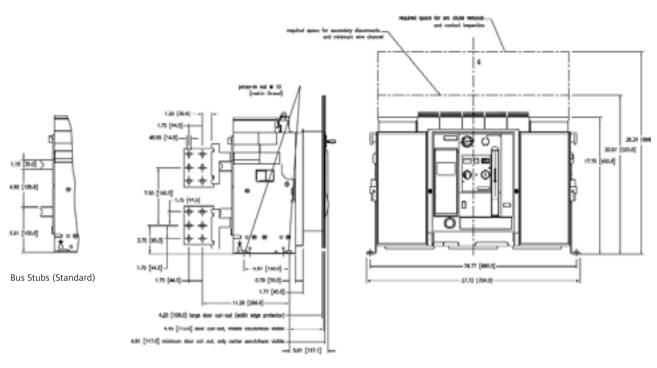


Front Connectors with Pressure Wire Main Connectors

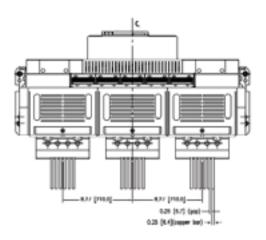
rated current	dimension a
max. 1600 A	0.39 [10]
max. 2000 A	0.59 [15]
max. 3000 A	1.18 [30]

Outline Drawings

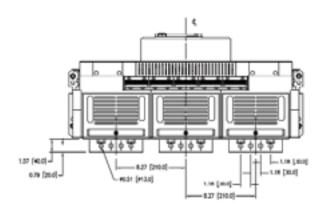
Frame Size III Fixed Mounted Circuit Breaker



Frame Size III
Fixed Mounted Circuit Breaker
Alternate Bus Connectors



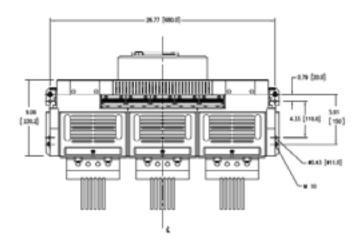
Top View (with optional vertical connectors)

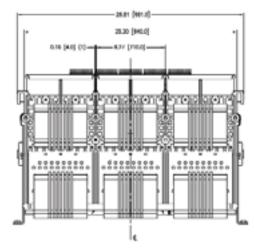


Top View (with standard bus stubs)

Outline Drawings

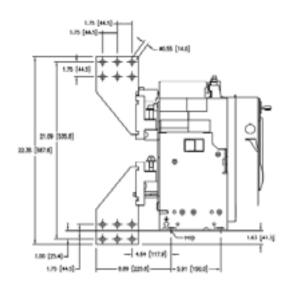
Frame Size III Fixed Mounted Circuit Breaker

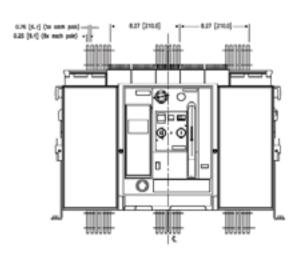




Outline Drawings

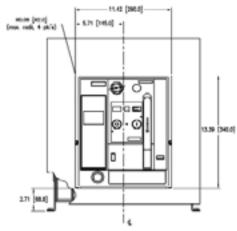
Frame Size III
Fixed Mounted Circuit Breaker
Front Connectors



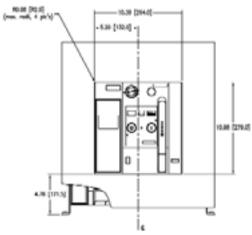


Outline Drawings

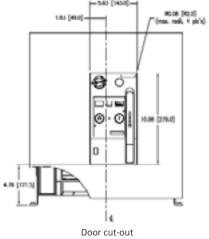
Frame Size II & Frame Size III Fixed Mounted Circuit Breaker Door Cut-outs



Door Cut-out with Edge Protector (cut-out dimensions shown are with the edge protector installed)

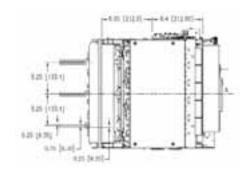


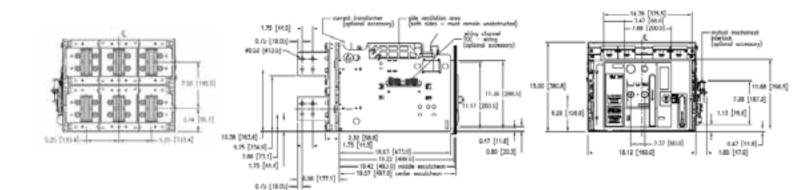
Door Cut-out (middle escutcheon visible)

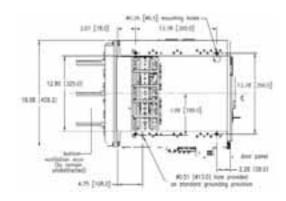


Door cut-out (center escutcheon visible)

Frame Size I UL 489 Draw-out Circuit Breaker

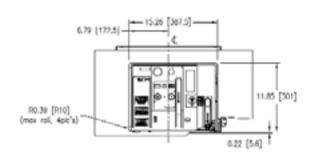




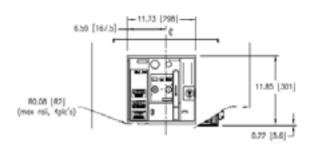


Outline Drawings

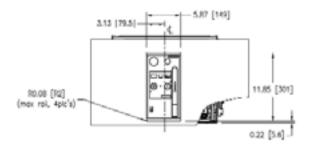
Frame Size I UL 489 Draw-out Circuit Breaker



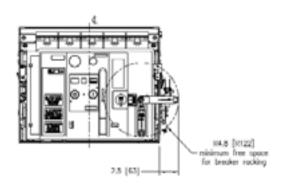
Door Cut-out with Edge Protector (cut-out dimensions shown are with the edge protector installed)

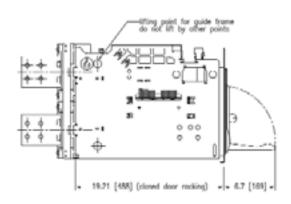


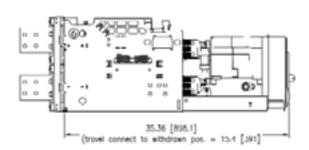
Door Cut-out (middle escutcheon visible)



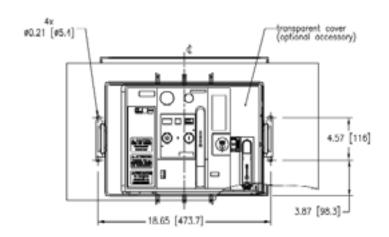
Door cut-out (center escutcheon visible)

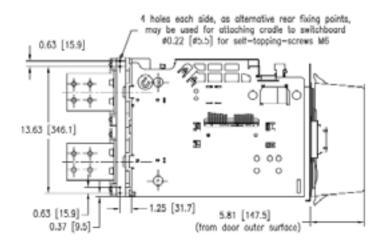






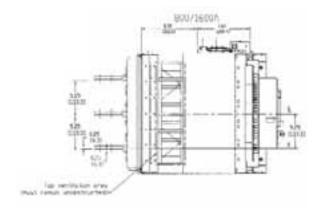
Frame Size I UL 489 Draw-out Circuit breaker Plexiglas Cover



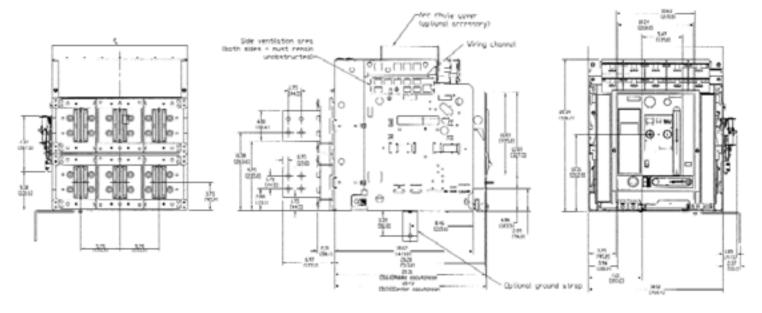


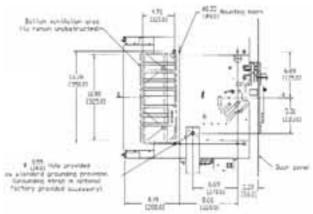
Outline Drawings

Frame Size II 800A,1600A, 2000A, 3200A N, S, H and L-Class



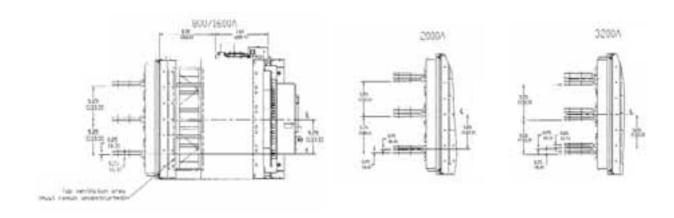
Note: The main bus stabs shown here are for the 800A and 1600A Frame Size II breakers. See page 1/33 for other frame ratings and horizontal bus configuration.



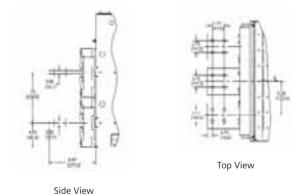


Frame Size II 800A, 1600A, 2000A, 3200A

Vertical Main Bus Stabs



Horizontal Main Bus Stabs ^①



Main bus stabs

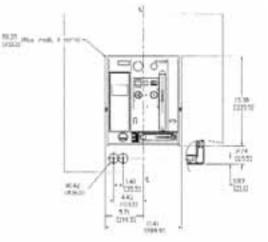
Independant of installation type, vertical main bus stabs are provided as standard. Horizontal main bus stabs are available as an option, up to 2000A.

As standard, the main stabs are up to 5000A with vertical mounting.

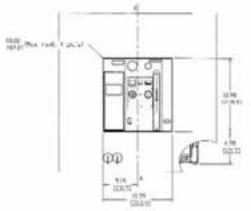
① Horizontal Main Bus Connectors are only available for N, S, or H-Class breakers and can only be ordered as a factory installed Z-Parameter as part of an assembled guide frame catalog number order.

Outline Drawings

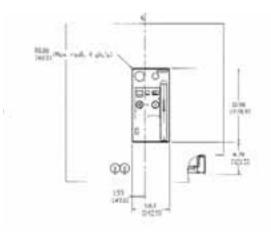
Frame Size II 800A, 1600A, 2000A, 3200A N, S, H and L-Class



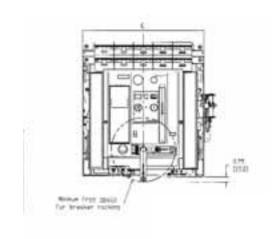
Door Cut-out with Edge Protector (Cut-out dimensions shown are with the Edge Protector installed)

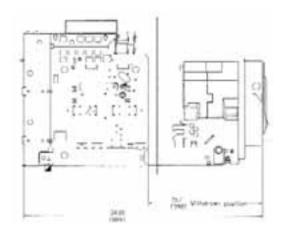


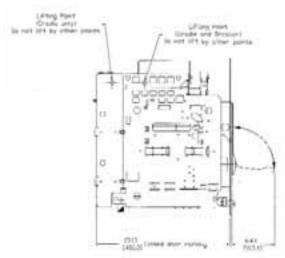
Door Cut-out with the Middle Escutacheon Visible



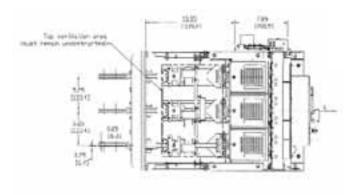
Minimal Door Cut-out (Only the center escutacheon is visible)

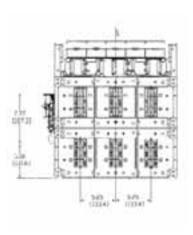


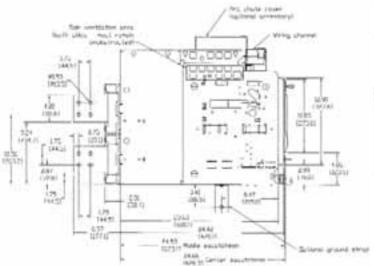


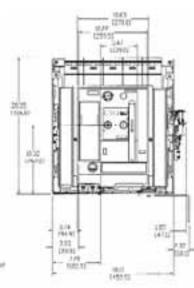


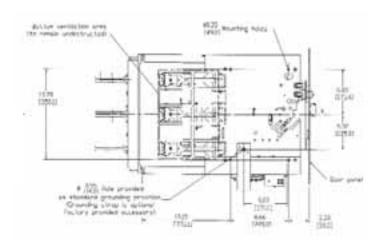
Frame Size II 800A, 1600A, 2000A F-Class (with fuses)





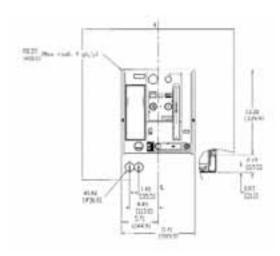




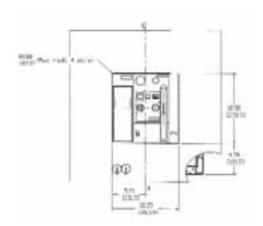


Outline Drawings

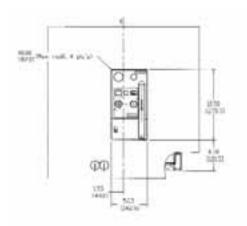
Frame Size II 800A, 1600A, 2000A F-Class (with fuses)



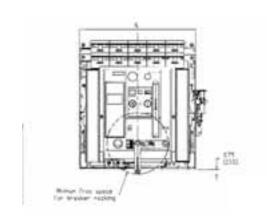
Door Cut-out with Edge Protector (Cut-out dimensions shown are with the Edge Protector installed)

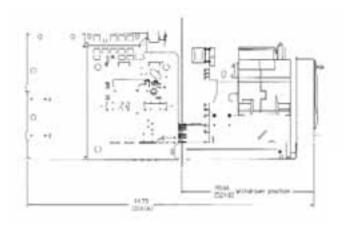


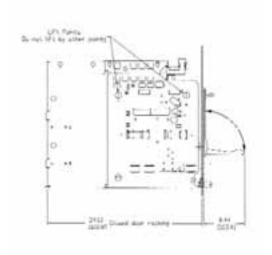
Door Cut-out with the Middle Escutcheon Visible



Minimal Door Cut-out (Only the center escutcheon is visible)

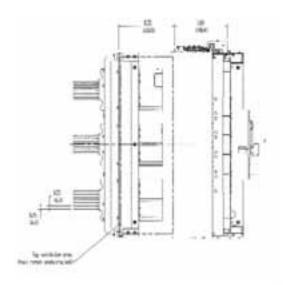


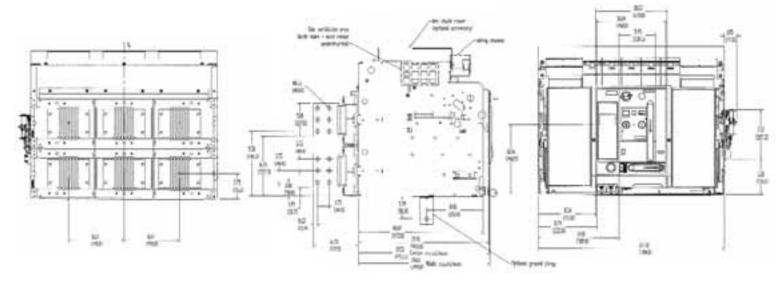


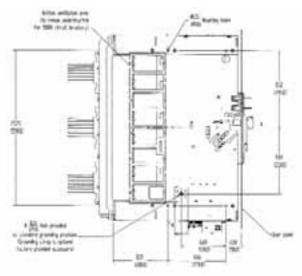


Outline Drawings

Frame Size III 3200A, 4000A, 5000A H, L and M-Class

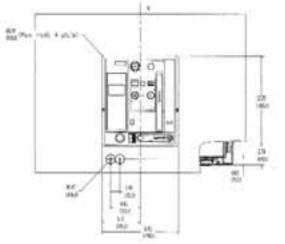




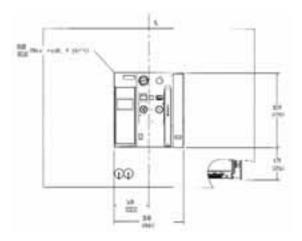


Outline Drawings

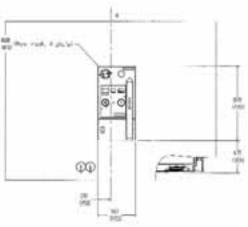
Frame Size III 3200A, 4000A, 5000A H, L and M-Class



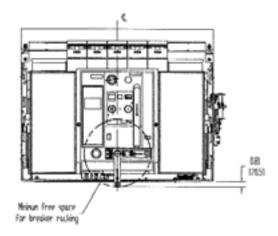
Door Cut-out with Edge Protector (Cut-out dimensions shown are with the Edge Protector installed)

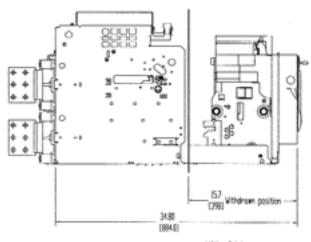


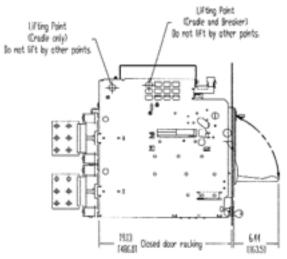
Door Cut-out with the Middle Escutcheon Visible



Minimal Door Cut-out (Only the center escutcheon is visible)

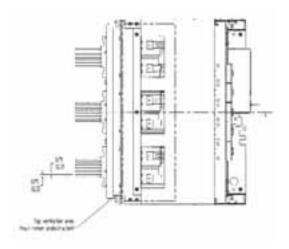


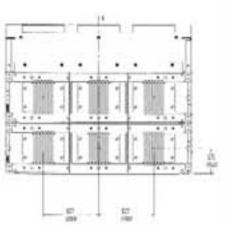


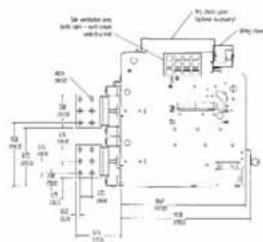


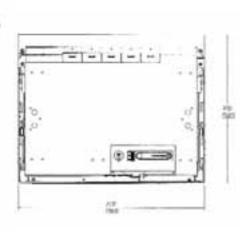
Outline Drawings

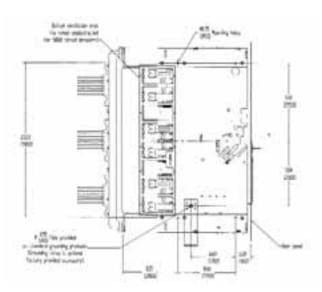
Frame Size III - Fuse Carriage and Fuse Carriage Guide Frame 3200A, 4000A, 5000A F-Class





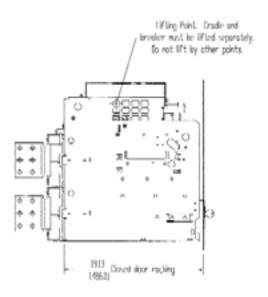


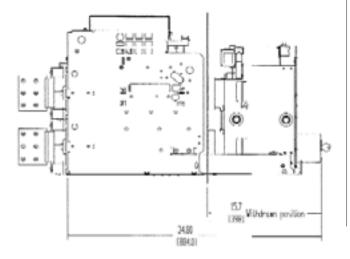


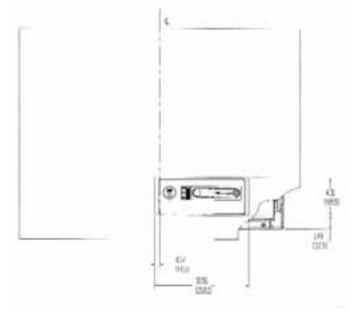


Outline Drawings

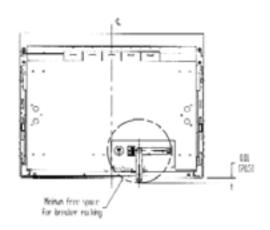
Frame Size III - Fuse Carriage and Fuse Carriage Guide Frame 3200A, 4000A, 5000A F-Class







Door Cut-out with Edge Protector



2

Communication-capable Circuit Breaker

Advantages through Communication	2/2
Connection Diagram	2/4
Communication Modules	2/5
I/O CubicleBUS Modules	2/7
Breaker Data Adapter	2/8
Supervisory Software WinPM.Net™	2/10





WL Circuit Breaker

Advantages through communication

Modern circuit breakers with integrated communications open up new opportunities to simplify commissioning, plant startup, remote configuration, diagnostics, testing, maintenance and power management.

This results in a range of savings and productivity improvements in industrial plants, buildings and infrastructure projects. The following describes the main advantages.

Start-up and Configuration

- Minimize plant downtimes for necessary expansions.
- Simple start-up test
- Simplified commissioning and start-up with good documentation options
- Fast and reliable local configuration via PROFIBUS, MODBUS or the Ethernet/Intranet/Internet with intelligent configuration software (see picture, top riaht)
- Communication enables faster and more reliable connection than conventional point-topoint wiring

Operator Control and Monitoring

- Increased transparency in power distribution through transmission of breaker status information, alarm signals and setpoints (e.g. overcurrent, overvoltage, phase unbalance -see picture, right)
- Fault management enables a fast response to critical events. With additional components, key messages (e.g. trip signals and diagnostics) can be transmitted by SMS* to the cell phone of plant personnel
- Option for the central readout of parameters and their automatic transmission to interchangeable circuit breakers minimizes fault liability and shortens downtimes
- Effective diagnostics management, by determination of the precise cause of a fault and recording of the phase current.
- Remote control of the circuit breaker enables both the manual and automatic switching on and off of plant equipment

Power Management

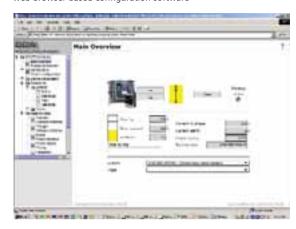
- Balancing demand peaks and valleys helps minimize energy costs. Remote breaker control enables efficient power management and demandbased load curtailment.
- Analysis of the archived power values (trending) enables creation of a power consumption profile. This can be the basis for future power procurement (see picture on the bottom right)
- The quality of the delivered power (power factor, harmonics, voltage disturbances) can be logged and documented. This enables effective power quality management.
- · Cost allocation makes power consumption more transparent for commercial analysis. Energy costs can be clearly assigned and optimized.
- · Information on plant capacity utilization and network quality serve as the basis for sensible plant expansions.
- Power costs can be divided among cost centers, which permits more accurate allocation of costs to individual production sectors

Maintenance and Service

- Standard and optional features provide information for maintenance (e.g. number of breaker operations, operating hours, contact erosion estimations) enables timely and calculated planning of necessary maintenance. When used in conjunction with a preventative maintenance program, reduces the risk of costly plant failures and permanent damage to sensitive plant equipment
- The central control of maintenance work and the ability to SMS* key information has the capability to significantly reduce maintenance and service costs.

You can now communicate important fault and maintenance information to the cell phones of plant personnel using optional components and a PLC or computer.

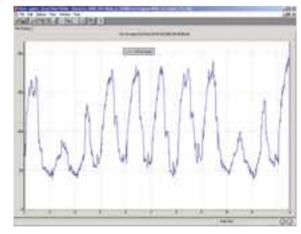
Simple startup and configuration of circuit breaker with web browser-based configuration software



Integration of the circuit-breaker in operator control and monitoring system produces transparency in power distribution



Circuit breakers with communication capability deliver data for a wide range of power management applications



*Short Message Service (SMS) is the transmission of short text messages to and from a mobile phone, fax machine, and/or IP address.

WL Circuit Breaker

Connection Diagram

- 1 Breaker Data Adapter (BDA)
- 2 Browser-capable input and output device (e.g. notebook)
- 3 WL Circuit Breaker
- 4 COM16 MODBUS module or COM 15 PROFIBUS module
- Breaker Status Sensor (BSS)
- 6 Electronic Trip Unit
- 7 Metering function or Metering function PLUS
- 8 Zone Selective Interlocking (ZSI) module
- Digital output module with relay or optocoupler outputs
- Digital output module with relay or optocoupler outputs, remotely configurable
- 11 Analog output module
- 12 Digital input module
- 13 WinPM.Net on PC
- 14 PLC (e.g. SIMATIC S7)
- 15 BDA Plus

MinPM Nest Ethernet / Internet / Intranet Web Client Ethernet 9500 Meter (Ethernet Gateway MODBUS Master PLC or Supervisory Software MODBUS Optional **BDA Plus*** College BUS WL Circuit Breaker th COM 16 The Siemens 8DA Plus or meters, 9330, 9350, 95/9600 can be used as a gateway to enable Ethernet communication to the WL Circuit Breaker.

Features

- Industry standard MODBUS or PROFIBUS communication available on all WL breakers from 200A to 5000A.
- The high modularity of the WL Circuit Breakers and accessories allows simple retrofitting of all communication components.
- The ability to connect additional input and output modules to the breakerinternal CubicleBUS of the WL opens up a range of opportunities to reduce secondary device count and wiring and to increase functionality implemented in switchgear.
- Innovative software products for local configuration, operation, monitoring and diagnostics of WL Circuit Breakers using MODBUS, PROFIBUS or via Ethernet/Intranet/Internet.
- Complete integration of WL Circuit Breakers in all Totally Integrated Power and Totally Integrated Automation Solutions.

WL Circuit Breaker

Communication Modules General

The demands on power distribution with regard to communication capability, data transparency, flexibility and integration are constantly on the increase. In order to ensure that WL Circuit Breakers are able to fulfill these demands, WL Circuit Breakers have a consistent and modular communication architecture.

CubicleBUS forms the backbone of this architecture. CubicleBUS is a breaker-internal system bus that connects all intelligent components in the WL Circuit Breaker and enables easy connection of external components to the circuit breaker. CubicleBUS is already incorporated and connected in all complete circuit breakers with ETU745, ETU748, ETU755, and ETU776 trip units.



The modular design of the system allows the retrofitting of communication functions at any time. This also allows trouble-free and local upgrading of a WL Circuit Breaker that does not yet have commun-

ication capability. All modules on the CubicleBUS directly access the available data of the circuit breaker, thus ensuring the fastest possible access to information and response to events. The

connection of additional CubicleBUS modules to the CubicleBUS allows implementation of costeffective solutions in the switchgear.

Breaker Status Sensor (BSS)

The switches that sense the status of the circuit breaker are mounted on or connected to the Breaker Status Sensor (BSS). The BSS provides the following data on the CubicleBUS:

- OPEN / CLOSE
- Trip Status
- Closing Spring Charged
- Ready to close
- Undervoltage release

In addition, the BSS contains a temperature sensor which

measures and communicates the temperature in the circuit breaker.

If optional communications is specified, the BSS is already integrated in the circuit breaker and is connected and fully operational. As a retrofit part, the BSS is a simple Click & Place device that can be easily inserted in the correct position and connected to the preassembled

cable.



Metering Function/ Metering Function PLUS

The integrated metering function can be installed on all ETU745, ETU748, ETU755, and ETU776 trip units and provides a viable alternative to external multi-function measuring instruments in many applications.

Metering Function can measure the following:

- Currents
- Voltages

- Power
- Energy
- Power Factor
- Frequency

All metered quantities are delivered as real time values with min/max recording. The metering module also contains additional alarm setpoint and protective relay functions (e.g. trip on overfrequency or

undervoltage, and alarm on reverse power or over ampere demand).

The Metering Function PLUS has two additional wave form buffers and supports harmonic analysis. With the two independent wave form buffers, the current and voltage waveforms can be recorded, and allows detailed diagnostic triggering on events.

If the Metering Function / Metering Function PLUS is ordered together with the circuit breaker, it is already installed and ready for operation. As a retrofit part, the metering function is simply attached to the ETU and connected to the CubicleBUS.



COM16 MODBUS Module or COM15 PROFIBUS Module

The COM16 MODBUS module or COM15 PROFIBUS module enables direct connection of the circuit breaker to MODBUS and PROFIBUS systems.

With the COM15 or COM16, ETU parameters can be changed and the breaker can be open and closed remotely. The position of the circuit breaker (connected, test, disconnected) is detected by switches on the COM15/16 and communicated.

A temperature sensor integrated in the COM15/16 measures and communicates the temperature around the circuit breaker. An integrated clock adds a time stamp to all events and min/max values

and can be synchronized via communications. If communications is specified, the module (and the breaker status sensor) are already installed, connected and fully functional. As a retrofit part the COM15/16 simply needs to be snapped into position in the secondary disconnect block mounting rail and wired into the system.



WL Circuit Breaker

Data that can be Transmitted via MODBUS, PROFIBUS or the Breaker Data Adapter (BDA)

All WL Circuit Breakers with ETU745, ETU748, ETU755, ETU776 (**Cubicle**BUS Integrated) Transmittable Circuit Breaker Data BSS BDA BSS COM16/15 **Application Options** Transmission of Circuit Breaker Data to MODBUS via COM16 or PROFIBUS via COM15 and Integration in Higher-level Visualization Systems Possible e.g. Power Management Systems, such as WinPM.Net, etc. Transmission of Circuit Breaker Data and Software (i.e. HTML Pages incl. Data) to a Local Output Device or Remotely Controlled via the Ethernet/Intranet/Internet (No Integration Option in Higher-level Visualization Systems) e.g. for monitoring, diagnostics, maintenance and configuration of individual circuit breakers Use of the Functionality of all CubicleBUS Modules e.g. programming of the configurable digital output modules, status interrogation of digital input modules, diagnostics, testing Communicated Circuit Breaker Data when No Metering Function is Installed Device Identification: Communication address, circuit breaker order no., circuit breaker characteristic data (Size, no. of poles, rated current module etc.), ID numbers, trip unit type, free text for equipment identifier and comments •1 **Breaker Status:** Open/closed signal, spring store mechanism, tripped, ready-to-close, Circuit breaker position (connected, test, disconnected and removed) for drawout circuit breakers, MODBUS / PROFIBUS write protection on/off, free user input **Control Commands ①** Open/closed circuit breakers, enable/disable free user output Reset trip signal Clear event and trip log •1 Reset the min/max measured values, reset maintenance information **History** Readout of event log, readout of trip log •1 Number of L, S, I trips and total trips, estimate of contact erosion Number of switch operations under load and total operations, operating hours 1 **Event Signaling**Trip signal with identification of the current causing the trip Alarm signaling (e.g. overload) with incoming / outgoing information All named event signaling with time stamp **Configuration of Protective Functions** Readout of protective function parameters
Change the settings of the protective function parameters through communication Parameter set changeover option (set A to set B) **Metered Values** Phase currents, each with min/max value Temperature in the circuit breaker with min/max value Temperature in the cubicle with min/max value All named measured values with time stamp Additional Circuit Breaker Data Transmitted when the Metering Function is Installed Metering Function Metering Function PLUS Additional Event Signaling Setpoint signaling (e.g. over / underfrequency, over / undervoltage) Configuration of the Extended Protective Functions and Setpoints: Readout parameters of the extended protective functions Change the settings of the extended protective functions Readout and set setpoint values **Additional Metered Values** Voltages, power, energy, power factor, frequency each with min/max value Harmonic analysis Recording of currents and voltages by triggered events in the waveform buffer

① Only possible in connection with the COM16 / COM15 module (MODBUS or PROFIBUS connection not required)

⁽²⁾ Only possible with ETU755 and ETU776.

WL Circuit Breaker

I/O CubicleBUS Modules

Digital Output Module with Rotary Switch

6 binary signals based on the breaker status (causes of trip and warnings) can be output using this module to external signaling devices or used to control other specific plant equipment. Digital output modules are available with or without rotary switches. With rotary switch modules, you can choose between two signal blocks each with 6 defined assignments and an additional response delay.

All digital output modules are available either as an optocoupler output (NO contact, 150 mA) or a relay output version (Form C, up to12 A). Two modules of this type may be connected to a WL Circuit Breaker.



Digital Output Module, Configurable

The configurable output module is available for more sophisticated applications.

With this module, many protective or setpoint events can be configured to actuate one of the six available outputs. Three of the outputs can be assigned up to six events in a logical-OR operation. The module can be configured either with the WL configuration software, BDA/BDA Plus or via WinPM.Net.

As with the output modules with rotary switch, an optocoupler and a relay version are available. One module of this type can be connected to a WL Circuit Breaker



Analog Output Module

The analog output module can be used to output the following measured values of the circuit breaker to analog display devices on the cubicle door:

- amps
- volts
- powerpower factor
- average, Hz, volts, power

Four 4-20-mA/0-10V interfaces are available for this purpose. The measured values to be output are selected with a rotary switch. This analog output module means there is no need for additional transformers requiring conventional installation

and wiring in the main bus. Two modules of this type may be connected to a WL Circuit Breaker.



Digital Input Module

The digital input module supports connection of 6 additional binary signals (24V DC) within the circuit breaker system. This enables the status of a switch or a cubicle door to be communicated.

With the digital input module on the CubicleBUS, it is also possible to automatically switch the two different protective parameter sets held in the ETU755 and ETU776 trip units very quickly. This allows, the automatic changing of the parameters of a tie breaker in

the event of a power supply

One module each of this type can be implemented for the input of the six digital signals and for the automatic switch-over of the parameters.



ZSI Module

If WL Circuit Breakers are arranged in several levels and minimal delays are desired, it is advisable to use the ZSI module.

The circuit breakers are interconnected by these modules. In the event of a short circuit, all circuit breakers communicate to determine and isolate the exact short circuit location. Thus, only the closest upstream circuit breaker will be opened.



WL Circuit Breaker

Breaker Data Adapter

Breaker Data Adapter (BDA)



Breaker Data Adapter (BDA) and Breaker Data Adapter Plus (BDA Plus)^①

The BDA is the first circuit breaker configuration device based on an integrated web server for the configuration, operation and monitoring of WL Circuit Breakers.

Since the configuration software and web pages are embedded in the BDA, the full communications functionality of the WL breaker can be used with a web browser (running on a laptop or PC) to access the user interface embedded in the BDA. With the BDA connected to the breaker via CubicleBUS, the web server accesses the data in the breaker and puts it into a web-based format for display in the browser.

The BDA comes equipped with a magnet that mounts on the rear of the device that allows it to be temporarily attached to a metal surface such as a cubicle door. This makes the BDA ideally suited for use as a portable "online"

Breaker Data Adapter Plus (BDA Plus)



configuration & diagnostic tool. In addition, the BDA can also be used "offline" to create parameter files that can be downloaded into the ETU. The BDA includes a parameter documentation function making it simple to print a listing of all WL system parameters.

The BDA Plus has all the functions of the BDA as well as having a 10-Base-T Ethernet interface for direct connection to a local-area network. Depending on the local network configuration, the BDA allows access to the all WL Breaker parameters through a plant or corporate intranet. With a correctly configured firewall, the BDA can be accessed from anywhere on Earth via the Internet. This opens up virtually unlimited geographic options for the remote configuration and diagnostics of WL Circuit Breakers. The BDA comes equipped with DIN-rail mounting hardware for more permanent installations.

The ways of connecting and using the BDA are detailed below.

Breaker Data Adapter – device parameters



Breaker Data Adapter - diagnostics



BDA in Offline Mode (or BDA Plus)

In offline mode, the BDA is connected to the laptop PC via the RS232 connection or via a "crossover" ethernet cable. In this mode, all the WL Breaker parameters can be set and stored in files on the PC for later download into the circuit breaker.

Since no power is supplied through the COM interface of the notebook, the BDA needs to be connected to an external power supply (24V DC).



1) PC requirements: Microsoft® Internet Explorer version 5.0 or 6.0 with Java.

at Power Supply

[®]Microsoft is a registered trademark of the Microsoft Corporation

WL Circuit Breaker

Breaker Data Adapter

BDA as Local WL Circuit Breaker Interface (or BDA Plus)

In this mode the BDA is used as the local interface to the WL Breaker by temporarily connecting it directly to the ETU.

With a single BDA you can configure all WL Circuit Breakers in a system one after another and store the configuration data on a notebook for further processing. The BDA can also be used to read out all diagnostic data of the circuit breaker.

An additional class 2, 24V DC power supply is necessary to power the BDA should the WL Breaker not be supplied with auxiliary power (24V DC supply on the CubicleBUS).



BDA Plus as Interface to the Ethernet

With the BDA Plus, it is possible to access the circuit breaker data over a 10-Base T Ethernet connection. Circuit breaker data is delivered to a PC formatted in dynamic HTML web pages. If it is desired to display data from more than one breaker is a lineup of switchgear "24/7" over a local area network or Intranet, a BDA Plus is required for each WL Breaker, and each BDA Plus needs its own unique IP address. Each

individual breaker can be accessed by entering the BDA-specific IP address in the address line of the browser. Settings via the BDA and BDA Plus are password protected to protect against unauthorized access.

When placed behind a correctly configured firewall, the BDA can be accessed from anywhere on Earth via the Internet.



WL Circuit Breaker

Supervisory Software WinPM.net

General

WinPM.Net web-enabled software is a complete energy information management solution for your business solution for your business allowing you to process, analyze, store and share energy usage and power quality data across your entire enterprise. It offers control capabilities, comprehensive power quality and reliability analysis and can help you reduce energy-related costs. WinPM.Net allows you to manage intelligent metering and protective devices, analyze data, and decide on new courses of action. Its cutting edge flexibility and compatibility means you can add one piece at a time, at your own pace, while still maintaining your original investments. Interface to your existing systems through industry-standard protocols and add components as needed. You can access information from any desktop workstation, locally or around the world.

Applications Summary

Power Quality and Reliability Analysis

Pinpoint the sources of transients, harmonics, or sags—whether external or internal to your facility—and decide on the best corrective actions. By monitoring circuits 24 hours a day, you can develop strategies to avoid interruptions.

Cost Allocation and Sub-billing

Track energy-related costs by building, feeder, or tool. Match virtually any billing structure and use comprehensive multi-year scheduling and time-of-use activity profiles.

Load Studies and Asset Management

Trend and track power usage data to take full advantage of your electrical distribution system capacity and avoid over-design. Create usage profiles so you can distribute loads and avoid demand peaks.

Demand and Power Factor Control

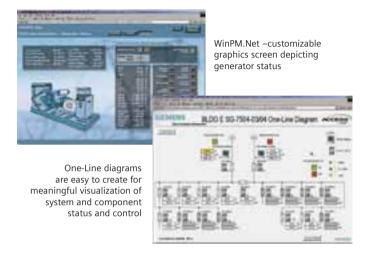
Eliminate penalties through automated power factor correction, load shedding, or peak shaving.

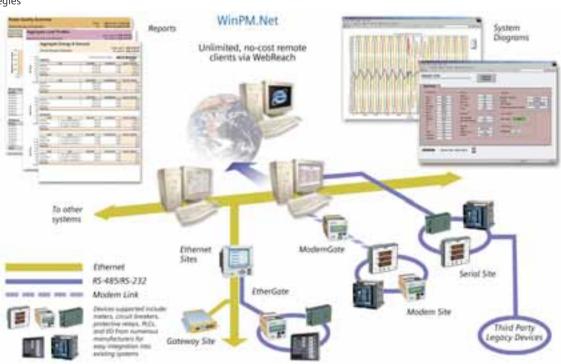
Equipment Monitoring and Control

Meter all your utilities including gas, steam, air and water. Set up alarms for pending problems, pre-alarm on impending or imminent conditions. Interface with other energy management and SCADA systems through multiple communication channels and protocols.

Preventive Maintenance

Base your maintenance schedule on actual operating history.





WL Circuit Breaker

3

3/2

Standards and Certificates





Anney

Standards and Certificates

WL Low Voltage Power Circuit Breakers are designed to comply with the following standards:

ANSI / IEEE: C37.13, C37.16/ 16A, C37.17, C37.50, C37.100, C37.90, C37.90.1, C37.90.2

ANSI / UL: 1066

Note: In this document, "ANSI certified" means the product meets the requirements of UL1066 and ANSI C37.

WL Insulated Case Circuit Breakers are designed to comply with the following standards:

The circuit breaker frame, trip unit, and guide frame are in conforminty with the standards:

UL 489 CSA C22.2 No. 5-02 NMX-J-266-ANCE-2002

The accessories are in conformity with the standards:

UL 489

NMX-J-266-ANCE-2002

The molded case switches are in conformity with the standards:

UL 489

NMX-J-266-ANCE-2002

Circuit breakers should be installed per the National Electric Code® (NEC®), NFPA 70 and/or other local installation codes.



Contact your local Siemens Sales Office for more information about applicable standards and certificates.

NEC and National Electric Code are registered trademarks of the National Fire Protection Association.

WL Circuit Breaker



Siemens Energy & Automation, Inc. 3333 Old Milton Parkway Alpharetta, GA 30005

1-800-964-4114

seainfo@sea.siemens.com

www.sea.siemens.com/power

© 2005 Siemens Energy & Automation, Inc. All Rights Reserved

Siemens is a registered trademark of Siemens AG. Product names mentioned may be trademarks or registered trademarks of their respective companies. Specifications are subject to change without notice.