



# Features and benefits guide

Type WL low voltage metal-enclosed switchgear  
Powerful ideas • Reliable solutions



## WL Low Voltage Switchgear

Answers for industry.

**SIEMENS**

# This changes everything.



You want lower operating costs, less downtime and better communication. You want to work with fewer parts, in less space. With more sophisticated capabilities. But easier operation. You need the freedom to make field modifications, or take advantage of fast-track opportunities. And you want it all with the assurance of fit-and-forget reliability.

It's a complicated request. To meet it, Siemens relied on a simple concept, the Tangram. An ancient Chinese game in which a few simple components provide endless possibilities.

Siemens took this concept of Tangram-like modularity and applied it to a new breed of switchgear. Suddenly you have unlimited possibilities with steadfast reliability.

It's called Type WL LV Switchgear.

And it changes everything.



# Competitive advantages.



**Reliable** – This highly engineered, reliable design offers enhanced operations. The Extended Instantaneous Protection breaker function provides the full withstand rating of the breaker frame, and still allows the breaker to be applied up to the maximum Interrupting Rating. Highly accurate internal Rogowski CTs provide precision protection and metering – saving money on downtime, field service, and increasing customer satisfaction.



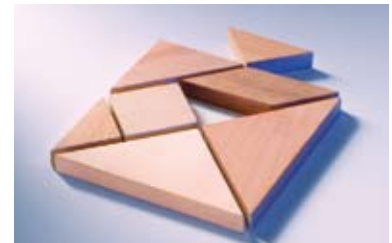
**Compact** – The compact size and modular configurations save real estate, offering the smallest gear footprint without energy-wasting heat sinks.



**Easy to use** – Integrated racking handles, pull-apart, front-mounted terminal blocks, and simple selection and application tools – reduce installation time and errors, enhance flexibility, and minimize training.

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**Modular and flexible** – Front-mounted common plug-in accessories, field upgradeable trip units, field changeable contacts, and arc chutes reduce inventory, allow for quick field modifications, forgive breaker changes, and support the most cost-effective configuration.



**System solution** – Monitor and control the system through Internet, MODBUS, or PROFIBUS communications. The WL breaker supports energy management through advanced metering and quality analysis, allows cellular alarm paging to maintenance personnel, and offers complete ratings and accessories – meeting every need with one design.



**Safety** – Features such as a visible, ready-to-close indicator, customizable interlocking, and mechanical trip indication, offer peace of mind. Dynamic Arc Flash Sentry (DAS), zone selective interlock, bus differential relaying, and arc resistant enclosure are available as recommended options.



# Easy to use. Easy to choose.

Siemens Type WL low voltage metal enclosed switchgear is the latest example of how Siemens continues to deliver products that exceed customer expectations. Siemens Type WL low voltage metal-enclosed switchgear is designed, constructed, and tested to provide superior power distribution, power monitoring, and control. Extensive "Voice of the Customer" research was utilized to help define and develop a low voltage switchgear product that provides exceptional performance and capabilities.

At the heart of the Type WL low voltage switchgear is the world class Siemens WL breaker. The WL breaker has a proven performance track record in European applications. The release of the ANSI (UL1066) version makes this proven technology and quality available in Siemens Type WL low voltage switchgear.

Once again, Siemens fulfills its commitment to providing "Powerful Ideas" and "Reliable Solutions."

Siemens Type WL low voltage switchgear can be utilized for the following applications:

- Industrial
  - Heavy assembly
  - Semiconductor
  - Petrochemical
  - Automotive
  - Biotech
  - Pharmaceutical
- Institutional
  - Water treatment
  - Airports
  - Universities
  - Medical facilities
  - Correctional facilities
- Utility and co-generation
- Commercial
  - Distribution centers
  - Large warehouses
  - Large office buildings
- Critical power
  - Data Processing
  - Continuous industrial process
  - Hospitals
- Equipment ratings
  - 635 VAC maximum
  - 3 Phase, 3-Wire,
  - 3 Phase, 4-Wire
  - 50/60 Hz
  - 6000 amp maximum horizontal bus
  - 5000 amp maximum vertical bus

## ■ Enclosure options

- NEMA 1 Indoor
- NEMA 3R Outdoor Walk-in
- NEMA 3R Outdoor Non Walk-in

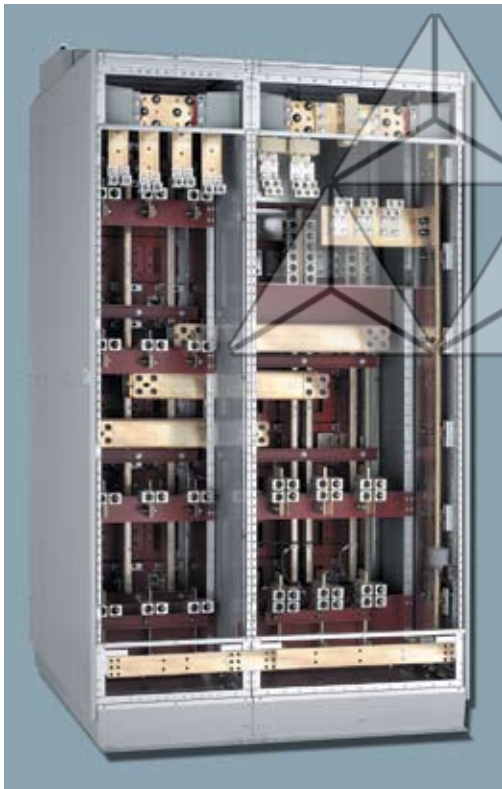
Siemens WL breakers can be manually or electrically operated, fused or unfused, and are available in various rating classes.

## ■ Industry standards compliance:

- ANSI C37.13 – Low voltage AC power circuit breakers used in enclosures
- ANSI C37.16 – Preferred Ratings, Related requirements and application for low voltage power Circuit Breakers and AC Power Circuit Protectors
- ANSI C37.17 – Trip devices for AC and general purpose DC Low Voltage Power Circuit Breakers
- ANSI C37.20.1 – Metal-enclosed Low Voltage Power Circuit Breaker Switchgear







- Dedicated control and communication connection points
- Breakers ship in gear as a standard
- No heat sinks on breaker or bus
- No front breaker door ventilation
- Ability to intermix all breaker frame sizes in the same vertical section
- Seismic qualification to all major building code standards – UBC, CBC, IBC, SBC, BOCA, and IEEE 693
- Modular design for maximum configuration flexibility
- Switchgear can be tipped on its back
- Ergonomic, easy to maintain breakers
- Breaker racking handle integral to the breaker
- Breaker can be racked into connect, test, or disconnect position with breaker door closed
- All breaker settings and displays clearly visible with breaker door closed
- Field installable “drop in place” accessories and trip units
- Field upgradeable trip units
- Same accessories work for entire breaker line
- MODBUS, PROFIBUS, and Ethernet communication available
- Rogowski coil current sensors to provide high metering accuracy and prevent saturation at high current levels
- Field installable ground fault protection
- Field installable zone selective interlock

- ANSI C37.50 – Test procedure for low voltage AC power circuit breakers used in enclosures
- ANSI C37.51 – Conformance testing of metal-enclosed Low Voltage AC Power Circuit Breaker Switchgear Assemblies
- UL 1066 – Low voltage AC and DC power circuit breakers used in enclosures
- UL1558 – Metal-enclosed Low Voltage Power Circuit Breaker Switchgear
- NEMA SG3 – Low Voltage power circuit breakers
- NEMA SG5 – Power Switchgear Assemblies
- Optional CSA C22 No. 31 (cUL labeling)
- Optional IEEE C37.20.7 – Guide for Testing Metal-enclosed Switchgear Rated up to 38 kV for Internal Arcing Faults

■ Switchgear equipment features and benefits:

- Silver-plated copper bus standard (optional tin-plated copper bus)
- Bolted bus construction (no welding)
- Three levels of horizontal bus through 5000 amps
- Two levels of horizontal bus at 6000 amps
- Insulated/isolated bus through 6000 amps
- 100kA bus bracing standard – 150kA and 200kA optional
- Power cable termination area (rear) segregated from control and communication wiring termination area (front)
- Front accessible vertical and horizontal wiring channels
- Easy access to control and communication connections from the front of the equipment



# Technical overview:

## WL Low Voltage Metal-enclosed Switchgear

### Available trip units



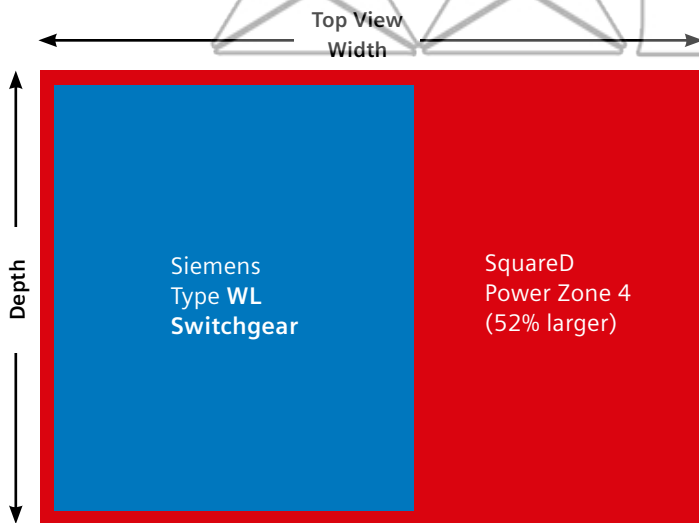
Functions	ETU725	ETU727	ETU745	ETU748	ETU776
Overload protection (long time)	●	●	●	●	●
Short-time delayed short-circuit protection	●	●	●	●	●
Instantaneous short-circuit protection	●	●	●	●	●
Protection of neutral conductor	—	●	●	●	●
Ground fault protection	—	●	■	■	■
ZSI (zone-selective interlocking)	—	—	■	■	■
LCD 4 lines	—	—	■	■	●
LCD graphic	—	—	—	—	●
Communication via MODBUS or PROFIBUS	—	—	■	■	■
Metering functions	—	—	■	■	■
Selectable parameter sets	—	—	—	—	●
Dynamic Arc Flash Sentry (DAS)	—	—	—	—	●
Parameters programmable via communications or locally	—	—	—	●	●

● standard ■ optional

# For a better fit.

Our Type WL switchgear uses less space than any other switchgear on the market. Everything about it is designed for ease of use, easy access, and versatility. You can intermix all breaker frame sizes as well as the main, tie, and feeder breakers in the same section. Our switchgear features three levels of bolted copper bus (no welding) up to 5000A and two levels up to 6000A.

## Low Voltage Switchgear footprint comparison



Floor space comparison shown using the following configuration:

- 4000A incoming, cable fed
- 480Y/277V 3-phase, 4-wire system
- 100 KAIC
- 1 – 4000A main breaker
- 1 – 2000A feeder
- 1 – 1600A feeder
- 4 – 800A feeders

## Low Voltage Switchgear floor space comparison

	Width inches (mm)	Depth inches (mm)	Floor space (ft <sup>2</sup> )	Size comparison to Siemens
Siemens Type WL	54 (1372)	70 (1778)	26.3	—
Square D Power Zone 4	80 (2032)	72 (1839)	39.9	52% larger
Cutler-Hammer Magnum DS	66 (1676)	67 (1702)	38.1	25% larger
GE AKD-10	82 (2083)	67 (1702)	38.1	44% larger

## Low Voltage Switchgear floor space comparison

Frame Rating	800A, 1600A					2000A				3200A					4000A, 5000A			
	N	S	H	L	F	S	H	L	F	S	H	L	M	F	H	L	M	F
IR - 240 VAC	50	65	85	100	200	65	85	100	200	65	85	100	150	200	85	100	150	200
IR - 480 VAC	50	65	85	100	200	65	85	100	200	65	85	100	150	200	85	100	150	200
IR - 600 VAC	50	65	65	85	200	65	65	85	200	65	65	85	85	200	85	85	85	200
Short Time 0.5s	50	65	65	85	—	65	65	85	—	65	65	85	100	—	85	100	100	—

# Communication is everything.

Type WL low voltage switchgear always keeps watch and always keeps in touch. It can monitor a variety of breaker, switch, meter, relay, and motor control functions in your distribution system – continually checking for power quality issues and reporting back to you.

As a result, you can manage the true energy costs of any process in real time today...and can plan for expansion and preventive maintenance tomorrow. Outages and potential outages are diagnosed instantly. And, if a serious event occurs, the WL breaker can even call maintenance personnel to alert them, using cellular paging alarms.



## Keep costs low while keeping your options open

The metering and monitoring components that make all of this possible can be ordered separately. These affordable upgrades require minimal wiring. They're just another way that Type WL switchgear keeps costs low while keeping your options open.

## Cost-effective entry into communication

The standard, knob-based ETU745 and ETU748 breaker trip units offer all options for future retrofit applications (communication, display, ground fault protection) and are equipped with an integrated CubicleBus. These trip units are priced only slightly above the base model ETU725 and the ETU727.

The ETU776 trip unit features a easy-to-use keypad and large high contrast back-lit graphical display.

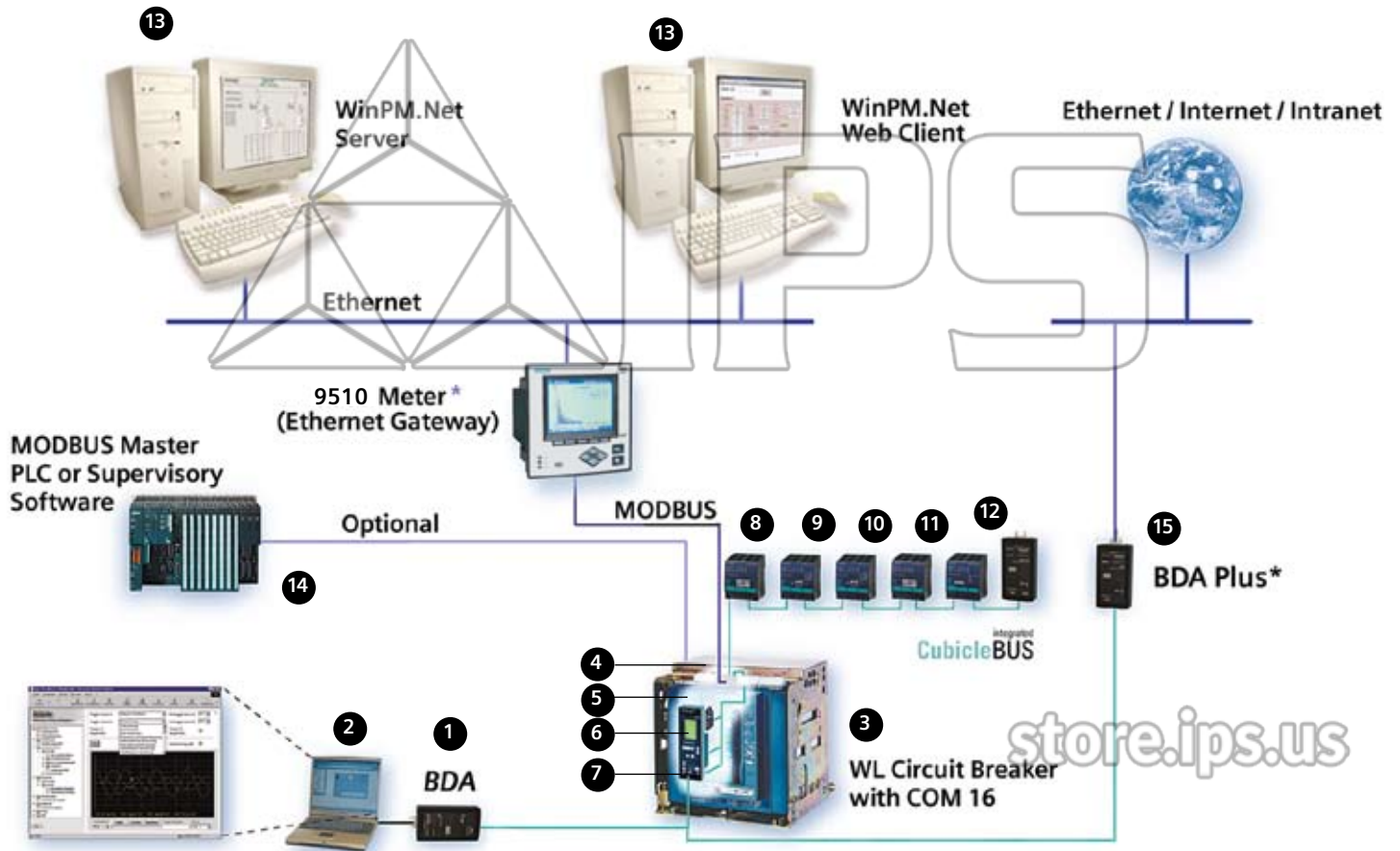
## Cost advantages by modularity

Metering Function PLUS with triggerable wave-form and harmonic analysis, COM 16 MODBUS module, COM 15 PROFIBUS module, and all CubicleBUS I/O modules can be ordered separately. This allows maximum flexibility and cost saving.

## Minimal wiring effort if upgraded later

Any communication option, I/O, or metering function is available factory installed but can also be upgraded easily at a later stage.





\* The Siemens BDA Plus or meters, 9330, 9350, 9510, 9610 can be used as a gateway to enable Ethernet communication to the WL Circuit Breaker.

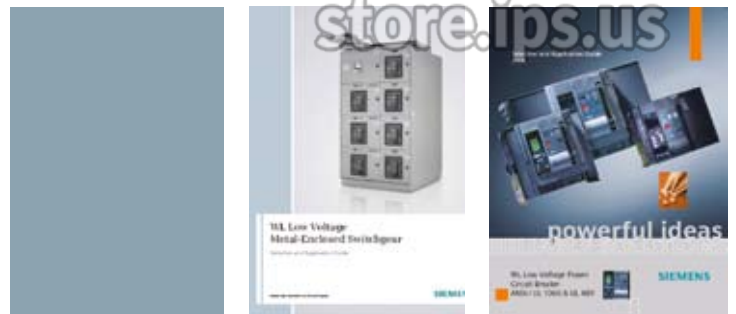
### Connection Diagram

- |  |  |
|--|--|
| <b>1</b> Breaker Data Adapter (BDA)                              | <b>9</b> Digital output module with relay or optocoupler outputs                         |
| <b>2</b> Breaker-capable input and output device (e.g. notebook) | <b>10</b> Digital output module with relay or optocoupler outputs, remotely configurable |
| <b>3</b> WL Circuit Breaker                                      | <b>11</b> Analog output module   |
| <b>4</b> COM 16 MODBUS module or COM 15 PROFIBUS module          | <b>12</b> Digital input module   |
| <b>5</b> Breaker Status Sensor (BSS)                             | <b>13</b> WinPM.Net on PC  |
| <b>6</b> Electronic Trip Unit                                    | <b>14</b> PLC (e.g. SIMATIC S7)  |
| <b>7</b> Metering function PLUS                                  | <b>15</b> BDA Plus   |
| <b>8</b> Zone Selective Interlocking (ZSI) module                |  |

Interrogate or set up parameters of the WL breaker using MODBUS, PROFIBUS, Ethernet, or the World Wide Web.

The advanced metering, quality, diagnostics, and relaying capabilities of these highly configurable trip units can be communicated through MODBUS or PROFIBUS. You can also operate and monitor the breakers remotely via the world wide web using WinPM.Net supervisory software and BDA Plus, our unique direct Internet connection.

# You just found the perfect fit.



## Type WL Switchgear

The switchgear that fits virtually every application. And any requirement. No other product on the market today offers more flexibility or greater reliability. It really is the perfect fit.

Now all you have to do is follow through.

Call 1-800-964-4114 today or visit us at [www.usa.siemens.com/switchgear](http://www.usa.siemens.com/switchgear)

## Available WL Switchgear support tools:

- Selection and Application Guide  
Order #: LVSA-00100-0808

## Available WL Breaker support tools:

- WL Low Voltage Power Circuit Breaker Selection & Application Guide  
ANSI/UL1066 & UL489  
Order #: CBSA-00001-0804

Notes



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Siemens Industry, Inc.  
Building Technologies Division  
5400 Triangle Parkway  
Norcross, GA 30092  
1-800-964-4114

[info.us@siemens.com](mailto:info.us@siemens.com)

[www.usa.siemens.com/switchgear](http://www.usa.siemens.com/switchgear)

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