

## MLi-W Integral motorized levering-in system



# A smart, safe integrated solution for switchgear



MLi-W is the new integral motorized levering-in system for IEC W-VAC<sub>i</sub> medium voltage circuit breakers and W-SLC contactors, which allows remote racking—providing a smarter and safer solution for switchgear.

### System overview

The MLi-W system allows the operator to move the W-VAC<sub>i</sub> breaker or the W-SLC contactor inside of the panel, between the connected-test-disconnected positions from a remote pendant control station. This remote operation enhances safety by removing the operator from a potential arc flash exposure point. In addition, the MLi-W provides improved control and operational capability of the switchgear, resulting in a faster reconfiguration of the system.

As an option, the MLi-W system can be applied in conjunction with a remote mounted marshalling panel, so that the breaker's controls and breaker racking can be accomplished outside of the room, allowing operators to establish a zero-energy condition without entering the arc flash protection boundary in the switchgear room. System isolation for remote equipment can also be accomplished from a remote location.

MLi-W has two different controller options available to operate the system, which can be chosen according to operational needs.

The MLi-W system is installed in the W-VAC<sub>i</sub> and W-SLC cradles, without any dimensional changes on the breaker or the cassettes. Because of this, the system can be used in the standard UX switchgear and also can be applied in OEM panel solutions. It is available for all W-VAC<sub>i</sub> and W-SLC ratings and can be supplied in different control voltages.

### Arc flash and personnel injury

Electric arcs result from thermal ionization that occurs when a current flow is interrupted by the separation of conductors. Thermal ionization can generate temperatures as high as 35,000 °F (19,427 °C), when conductor materials melt into metal vapor and the surrounding air is ionized.

When an electric arc occurs inside of medium voltage switchgear, gas expansion, due to the high temperatures, increases the pressure inside of the panel compartments. It can create a violent explosion, resulting in toxic gases, molten debris, metal shrapnel and a flash of light (arc flash).

Many arc flash incidences with medium voltage switchgear occur during the process of inserting and removing (racking) power circuit breakers in switchgear cubicles.

The Eaton Power Xpert® UX is an arc-resistant switchgear, classified according to the IEC as an IAC AFLR panel, which means that the operator is protected on any side of the panel against an arc fault. Despite this fact, the best way to limit exposure to an arc flash during the process of racking power circuit breakers is to remove the operator from the front of the switchgear or put more distance between the operator and the possible point of exposure.

The MLi-W system enables remote operation, which reduces the likelihood that the operator will be close to the arc.

For non-arc resistant switchgear designs or racking with the door open, the MLi-W becomes an even more important safety device because the operator can be moved away for a possible arc flash event occurring during power breaker racking.

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# Controller options

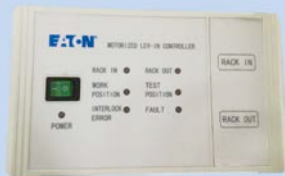


## Digital controller

The digital controller uses a CPU to manage and supervise all of the controls/interlockings of the MLI-W system.

Features:

- Safety operation
- Motor protection against damages
- Indication of failures
- Breaker position indicator
- Possibility to be assembled in panel far from the breaker
- Easy to install
- Friendly operation/interface

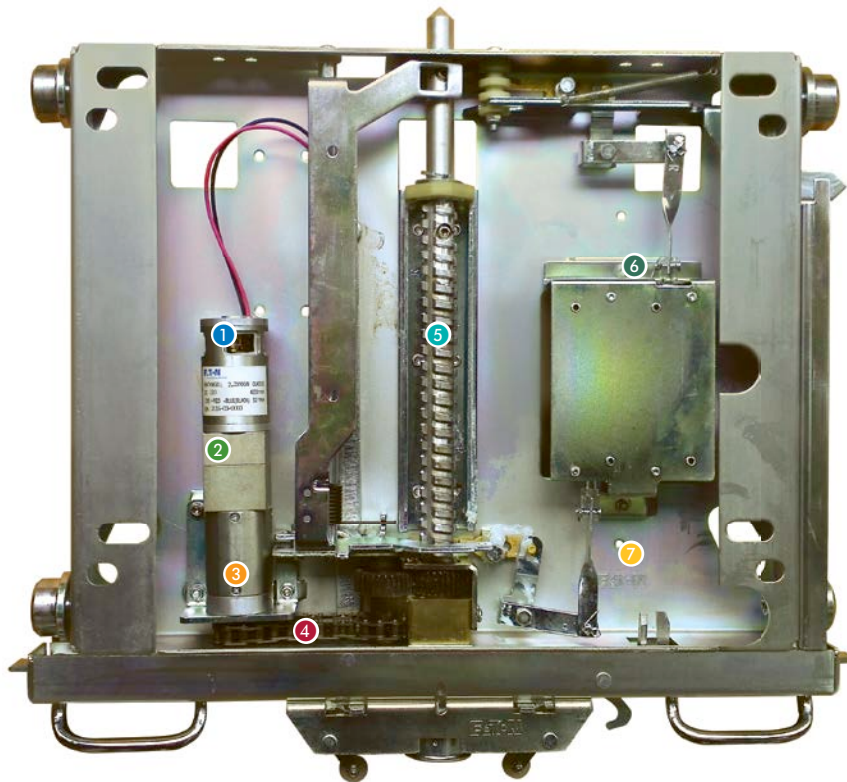


## Analog controller

The analogic controller uses relays to manage and supervise all of the controls/interlockings of the MLI-W system.

Features:

- Safety operation
- Motor protection against damages
- Indication of failures
- Breaker position indicator
- Possibility to be assembled in panel far from the breaker
- Easy to install
- Friendly operation/interface



- 1 Motor
- 2 Clutch
- 3 Gear Box
- 4 Chain Drive Gear System
- 5 Levering-In Screw
- 6 S8/S9 Position Indicator Switch
- 7 Cradle Base

## Features

- Integrated solution without any additional space needed in the panel
- Permanently installed racking-in motors eliminate the need to lift, manipulate and align the heavy, bulky equipment
- Available in four different control voltages (24, 48, 125 and 220 Vdc/Vac)
- Two controller options, with all necessary indications and interlocking, provide a safer operation
- Easy operation
- Controls can be integrated into the switchgear's secondary control circuits

## Benefits

Safety:

- Increase the safety of the complete system and protect the operator from the dangers of a potential arc flash

Reliability:

- 2000 motorized insertion operations certified
- EMC (electric field) certified
- High and low temperature variation test certified
- Assures zero energy and safe system isolation for lockout/tagout

Compact solution:

- Compact Motor-Clutch-Gear Box design, which fits inside of the existing W-VAC/i breakers without any outside size changes

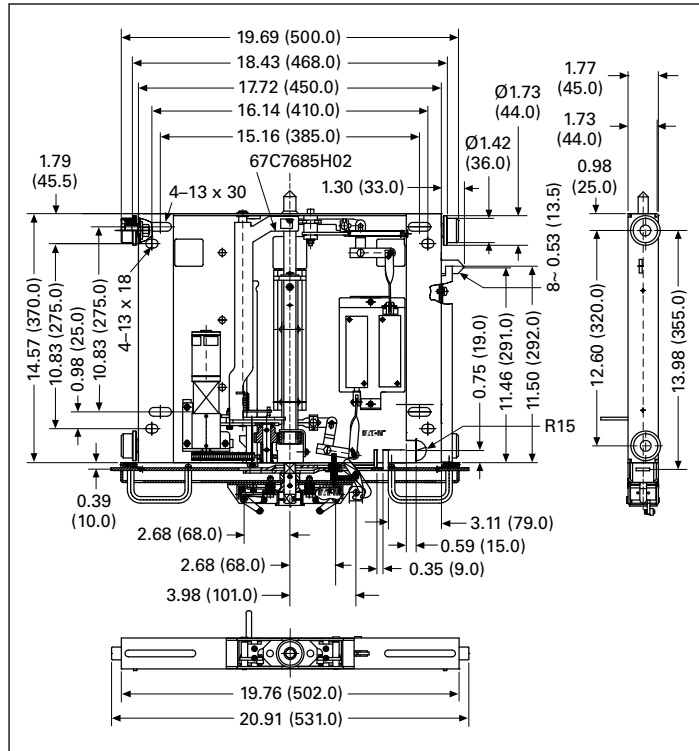
Factory-built and/or field-upgradable

Operational:

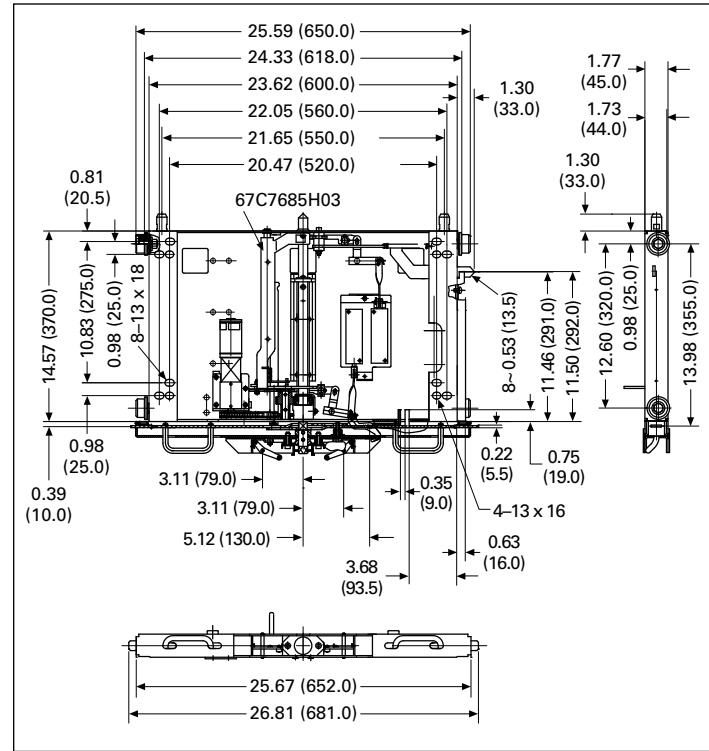
- Increase the user's degree of control
- Allow remote and automated operations
- Increases production time via implementing isolation of remote systems

Description	Rated Voltage U <sub>r</sub>	
	12/17.5 kV	24 kV
Width	600, 800, 1000 mm	800, 1000 mm
Travel	200 mm	300 mm
Motor voltage	24/48/60/110/125/220/250 Vdc, 120/220/230/240 Vac	24/48/60/110/125/220/250 Vdc, 120/220/230/240 Vac
Door interlock	No door interlock / lever door interlock / pin door interlock	No door interlock / lever door interlock / pin door interlock

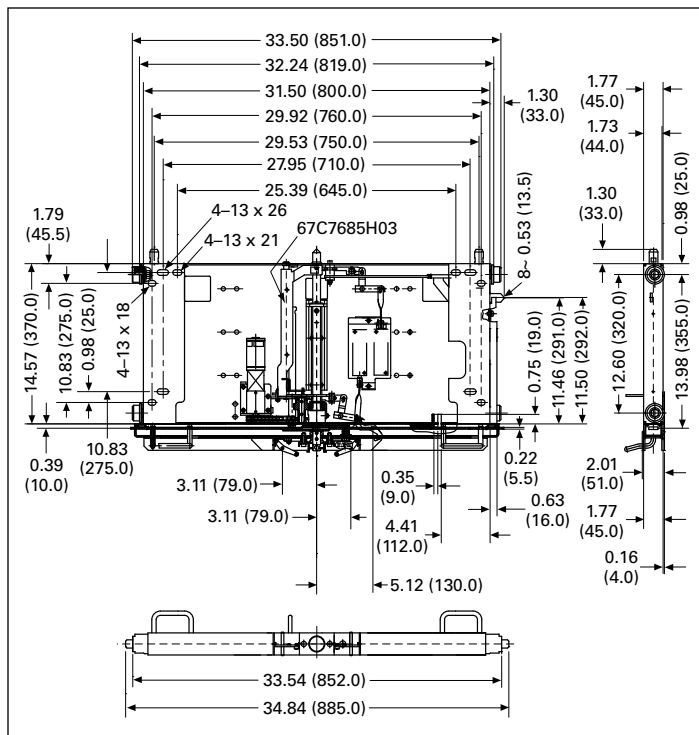
## Dimensions in inches (mm)



600 mm



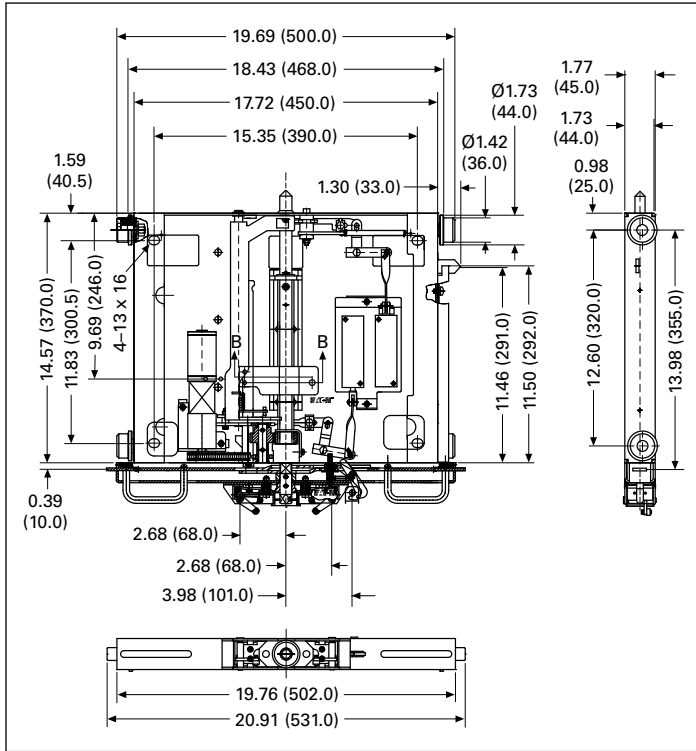
800 mm



1000 mm

Description	Rated Voltage U <sub>r</sub>
Width	600 mm
Travel	200 mm
Motor voltage	24/48/60/110/125/220/250 Vdc, 120/220/230/240 Vac
Door interlock	No door interlock / lever door interlock / pin door interlock

## Dimensions in inches (mm)



600 mm

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