

Product Catalog

2024



State of the Art Technology for
Low Voltage Circuit Breaker Modernization

URC Utility Relay Company
UTILITYRELAY.COM

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CHAGRIN FALLS, OH 44023
USA
888.289.2864

URC Utility Relay Company

10100 Queens Way • Chagrin Falls OH • 44023
USA

Phone: +1.440.708.1000

Toll Free: 888.289.2864

www.UtilityRelay.com

Based in the United States, Utility Relay Company is a leading designer and manufacturer of microcontroller based, true-RMS solid-state trip units and trip unit modernization/retrofit conversion kits and accessories for both AC and DC circuit breakers.

Utility Relay Company has been in business for nearly 30 years and focuses on low voltage equipment life extension and modernization by providing high quality, reliable and versatile trip unit kits along with industry-leading support.

+1.440.708.1000

Option 3 for Sales and Customer Service

URCSales@UtilityRelay.com

Interactive Kit Ordering Guide (KOG)

Due to the sheer number of circuit breaker kits and available options, Utility Relay Company provides an interactive Kit Ordering Guide (KOG) to simplify the process of finding the correct retrofit kit.

Orders can be placed 24/7 using the KOG.
Visit UtilityRelay.com to try the KOG out for yourself.

AC-PRO[®] MODERNIZATION KITS

COMPLETE PROTECTION MODERNIZATION KITS FOR LOW-VOLTAGE CIRCUIT BREAKERS

Pre-Engineered Kits

Our modernization/retrofit kits are pre-engineered with functionality and ease of installation as the priorities.

Kits Are Complete

Our modernization/retrofit kits are complete and include a detailed installation manual and all the required components including current transformers, actuator, copper details, brackets, hardware and wiring harness. Depending on the circuit breaker, OEM components can be re-used.

Trip Units 100% Tested

Each trip unit is calibrated, burned in at elevated temperature and final tested. A trip unit test report is included.

Thousands of Kits Available

Kits are available for the following manufacturers' breakers:

- General Electric
- Westinghouse / Cutler Hammer / Eaton
- ITE / ABB
- Siemens / Allis-Chalmers
- Federal Pacific / Federal Pioneer
- Sylvania / Unelec
- Roller Smith
- Square D / Merlin Gerin / Schneider
and more

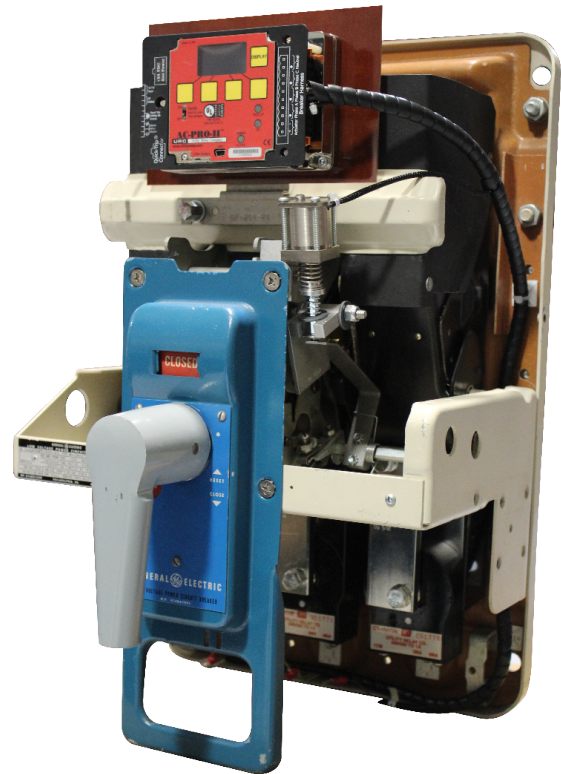
Kit Ordering Guide (KOG)

Due to the sheer number of available kits and multiple options, an interactive **Kit Ordering Guide** is available to simplify the process of finding the correct kit for a circuit breaker. The **KOG** can be accessed 24/7 for availability and pricing and orders can also be placed using the **KOG** if desired.

Availability

Small orders for most kits can be shipped within one to two days after the order is placed.

If a modernization/retrofit kit for a particular breaker is not listed in the KOG, please call us. A kit design may be in process or we can investigate the possibility of designing a kit.



AC-PRO[®] INSULATED CASE MODERNIZATION KITS

EXTEND CIRCUIT BREAKER LIFE AND UPGRADE WITH MODERN FEATURES

Our trip unit modernization kits allow you to extend the life of your circuit breakers and equip them with many modern safety, control, and monitoring features. Arc flash reduction and communications come standard and power monitoring and voltage protection are available with the Voltage Divider Module (VDM) add-on. Each kit comes complete with all the required components including brackets, hardware, and wiring harnesses, along with detailed installation manuals.

SCHNEIDER ELECTRIC & SQUARE D



Masterpact NW

- Replaces Micrologic for 800A – 4000A
- QUICK-TRIP[®] arc flash reduction and Modbus communications standard
- Power and voltage information available with VDM



SED

- Kits available for 800A to 4000A
- QUICK-TRIP[®] arc flash reduction and Modbus communications standard
- Power and voltage information available with VDM



CM

- Merlin Gerin 1250A – 3200A
- QUICK-TRIP[®] arc flash reduction and Modbus communications standard
- Power and voltage information available with VDM
- CTs are bus-mounted



Masterpact M

- Direct replacement for STR available for all frame sizes
- QUICK-TRIP[®] arc flash reduction communications standard
- Modbus communications, power and voltage information available with AC-PRO-MP-II



PE

- AC-PRO-II is panel or door mounted (not shown)
- CTs are bus-mounted
- QUICK-TRIP[®] arc flash reduction and Modbus communications standard
- Power and voltage information available with VDM



NX

- AC-PRO-II is panel or door mounted (not shown)
- CTs are bus-mounted
- QUICK-TRIP[®] arc flash reduction and Modbus communications standard
- Power and voltage information available with VDM

REV 1.25.2024

GENERAL ELECTRIC



Powerbreak

- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Power and voltage information available with the VDM
- Kits available for all frame sizes



Powerbreak II

- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Power and voltage information available with VDM
- Direct replacement kit available



THK

- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Power and voltage information available with VDM

EATON / CUTLER HAMMER / WESTINGHOUSE



SPCB

- Kits available for 600A to 2000A
- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Power and voltage information available with the VDM



SPB

- Kits for 800A to 4000A breakers
- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Power and voltage information



Magnum DS Family

- Kits for 800A to 6000A breakers
- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Power and voltage information

SIEMENS



SB

- Kits available for 400A to 5000A breakers
- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Power and voltage information available with the VDM



WL

- Kits available for 800A to 4000A breakers
- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Power and voltage information available with the VDM

REV 1.25.2024

ABB SACE



SACE Emax

- Kits for SACE Emax E1, E2, and E3 series
- Replaces OEM PR series trip units
- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Reuse OEM Actuator
- Replacement CTs included in kit



SACE F

- Kits for SACE F1, F2 and F3 series
- Replaces OEM AR and PR trip units
- QUICK-TRIP® arc flash reduction and Modbus communications standard
- Reuse OEM CTs and actuator

TO ORDER:

+1.888.289.2864

URCSales@UtilityRelay.com

KOG.UtilityRelay.com

URC Utility Relay Company



SACE EMAX

COMPLETE RETROFIT KITS FOR SACE EMAX SERIES BREAKERS.

ABB SACE air circuit breaker series launched in 1990, with many versions now out of production or obsolete. Modernize your gear and curb the cost of an expensive replacement with these state-of-the-art and cost-effective AC-PRO-II® retrofit kits from Utility Relay Company.

- Kits For SACE EMAX E1, E2 & E3 series
- Replaces OEM PR series trip units
- The AC-PRO-II® trip unit is installed where existing trip unit was located
- Reuse OEM Actuator
- Replacement CTs included in kit

Pre-Engineered Kits

Our retrofit kits are pre-engineered with functionality and ease of installation as the priorities.

Trip Units 100% Tested

Each AC-PRO-II® trip unit is factory calibrated, burned-in at elevated temperature, and final tested with a trip unit test report included.

Kits Are Complete

Our retrofit kits are complete and contain a detailed installation manual along with all of the required components including brackets, hardware and wiring harness.



TO ORDER

T: +1.888.289.2864

E: URCSales@UtilityRelay.com

Ask for our kits directly

AC20-SACE-E1

AC20-SACE-E2

AC20-SACE-E3

Options for voltage and power monitoring available

Sluggish Breaker® Detection

Be confident that your circuit breaker is operating as intended with Sluggish Breaker®. Included in each kit, this patented feature captures the breaker mechanism time and lets you know if it is opening slower than intended, indicating that servicing may be required. With so much depending on proper breaker operation, be sure to operate safely and efficiently with Sluggish Breaker®.

```
**Warning**
***Service Breaker***

Breaker is
Sluggish or Stuck
```

View Clear

Next

URC Utility Relay Company

ABB SACE F

COMPLETE RETROFIT KITS FOR SACE F1, F2 AND F3 BREAKERS.

ABB SACE air circuit breaker series launched in 1990, with many versions now out of production or obsolete. Modernize your gear and curb the cost of an expensive replacement with these state-of-the-art and cost-effective AC-PRO-II® retrofit kits from Utility Relay Company.

- Reuse OEM CTs and OEM Actuator
- The AC-PRO-II® trip unit is installed where existing trip unit was located
- Support for both AR and PR OEM units

Pre-Engineered Kits

Our retrofit kits are pre-engineered with functionality and ease of installation as the priorities.

Trip Units 100% Tested

Each AC-PRO-II® trip unit is factory calibrated, burned-in at elevated temperature, and final tested with a trip unit test report included.

Kits Are Complete

Our retrofit kits are complete and contain a detailed installation manual along with all of the required components including brackets, hardware and wiring harness.



TO ORDER

T: +1.888.289.2864

E: URCSales@UtilityRelay.com

Ask for our kits directly

AC20-SACE-F-AR1
For AR1 Replacement

AC20-SACE-F-PR1
For PR1 Replacement

Options for voltage and power monitoring available

About Utility Relay Company

Based in the United States, Utility Relay Company is a leading designer, manufacturer, and marketer of microcontroller based, true-RMS solid-state trip units and trip unit retrofit conversion kits for AC and DC power circuit breakers. Utility Relay Company's focus is providing high quality, reliable and versatile trip unit kits for low voltage circuit breakers.



REV 3.21.2022

URC Utility Relay Company

GE HPC SWITCH

COMPLETE RETROFIT KITS FOR GE HIGH PRESSURE CONTACT SWITCH.

The HPC switch is a superior switching device when compared to bolted pressure switches due to exceptional contact design and is based on the proven Power Break circuit breaker platform. Curb the cost of an expensive replacement with a cost-effective retrofit offered by Utility Relay Company. These kits provide Ground Fault (GF) protection only and cannot be used to convert non-GF HPC breakers to GF.

Kits Available for the Following Models:

- 800 AMP
- 1600 AMP
- 2000 AMP
- 2500-3000 AMP
- 4000 AMP

Pre-Engineered Kits

Our retrofit kits are pre-engineered with functionality and ease of installation as the priorities.

Trip Units 100% Tested

Each AC-PRO-II® trip unit is factory calibrated, burned-in at elevated temperature, and final tested with a trip unit test report included.

Kits Are Complete

Our retrofit kits are complete and contain a detailed installation manual along with all of the required components including brackets, hardware and wiring harness.



TO ORDER

T: +1.888.289.2864
E: URCSales@UtilityRelay.com

Ask for our kits directly

- AC20-HPC-800
- AC20-HPC-1600
- AC20-HPC-2000
- AC20-HPC-3000
- AC20-HPC-4000

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REV 3.21.2022

URC Utility Relay Company

FPE / SCHNEIDER H-FRAME

Upgrade your circuit breaker with a modern digital trip unit, complete with LSIG protection, communication capabilities and many more features. We offer over 250 Federal Pacific Electric (FPE) or Schneider Electric H-Frame kits to fit your exact needs, replacing SS, USD, USR, or USRCM trip units. Curb the cost of an expensive replacement with a cost-effective retrofit kit offered by Utility Relay Company.

- Kits with Manual & Auto-Reset Actuators
- New CTs included for every Kit
- USD full replacement kits
- Replaces electro-mechanical series overload/dashpot trip devices as well as SS, USD, USR and, USRCM trip units.

Pre-Engineered Kits

Our AC-PRO® and AC-PRO-II® retrofit kits are pre-engineered with functionality and ease of installation as the priorities.

Certified Kits

UL, CUL, CSA Certified Retrofit Kits for AC-PRO® and AC-PRO-II®. Each trip unit is factory calibrated, burned-in at elevated temperature, and final tested with a trip unit test report included.

Kits Are Complete

Our retrofit kits are complete and contain a detailed installation manual along with all of the required components including brackets, hardware and wiring harness.

Contact URC for the exact kit to fit your needs.

TO ORDER

T: +1.888.289.2864

E: URCSales@UtilityRelay.com



About Utility Relay Company

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REV 3.21.2022

EATON MAGNUM DS

COMPLETE RETROFIT KITS FOR MAGNUM DS BREAKERS.

Your Eaton & Westinghouse, circuit breakers are still mechanically robust, but the protection offered from 20+ year old trip units such as Digitrip and Ampctor no longer meet today's safety expectations - don't even mention the old series trip devices.

In addition to operating safely, you want to ensure your facility is running as efficiently as possible. Knowing what is happening at the low voltage equipment level is key. Forget real-time monitoring of your breaker status, Sluggish Breaker® detection, voltage and power metering, or the ability to review trip history with your Eaton solutions.

- Replaces OEM DigiTrip Series Trip Units
- The AC-PRO-II trip unit is installed where existing trip unit was located.
- Reuses Existing OEM CTs and Actuator

Pre-Engineered Kits

Our retrofit kits are pre-engineered with functionality and ease of installation as the priorities.

Trip Units 100% Tested

Each AC-PRO-II® trip unit is factory calibrated, burned-in at elevated temperature, and final tested with a trip unit test report included.

Kits Are Complete

Our retrofit kits are complete and contain a detailed installation manual along with all of the required components including brackets, hardware and wiring harness.



TO ORDER

T: +1.888.289.2864

E: URCSales@UtilityRelay.com

Ask for our kits directly

AC20-MDS 800-2000, 2500,

3200, 4000, 5000

About Utility Relay Company

Based in the United States, Utility Relay Company is a leading designer, manufacturer, and marketer of microcontroller based, true-RMS solid-state trip units and trip unit retrofit conversion kits for AC and DC power circuit breakers. Utility Relay Company's focus is providing high quality, reliable and versatile trip unit kits for low voltage circuit breakers.



REV 3.15.2024

EATON DS & DS II

COMPLETE RETROFIT KITS FOR DS BREAKERS.

Your Eaton & Westinghouse, circuit breakers are still mechanically robust, but the protection offered from 20+ year old trip units such as Digitrip and Amptector no longer meet today's safety expectations - don't even mention the old series trip devices.

In addition to operating safely, you want to ensure your facility is running as efficiently as possible. Knowing what is happening at the low voltage equipment level is key. Forget real-time monitoring of your breaker status, Sluggish Breaker® detection, voltage and power metering, or the ability to review trip history with your Eaton solutions.

- Replaces OEM PR series trip units
- The AC-PRO-II® trip unit is installed where existing trip unit was located
- Reuse OEM Actuator
- Replacement CTs included in kit

Pre-Engineered Kits

Our retrofit kits are pre-engineered with functionality and ease of installation as the priorities.

Trip Units 100% Tested

Each AC-PRO-II® trip unit is factory calibrated, burned-in at elevated temperature, and final tested with a trip unit test report included.

Kits Are Complete

Our retrofit kits are complete and contain a detailed installation manual along with all of the required components including brackets, hardware and wiring harness.



TO ORDER

T: +1.888.289.2864

E: URCSales@UtilityRelay.com

Ask for our kits directly

AC2M - With Actuator

AC2O - Without Actuator

600 800 1600 2000

3200 4000 5000

About Utility Relay Company

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REV 3.15.2022

AC-PRO-II®

FEATURE-RICH MODERN TRIP UNIT

AC-PRO-II® is the solution you need to modernize and extend the life of your low voltage circuit breakers. In addition to the standard functions of Long-Time, Short-Time, Instantaneous, and Ground Fault (LSIG) protection, AC-PRO-II® also includes:

- ❑ Scheduled Service Reminder
- ❑ Sluggish Breaker® Detection
- ❑ USB Communications
- ❑ RS485 Modbus RTU Communications up to 115.2 Kbaud
- ❑ QUICK-TRIP® Arc Flash Reduction
- ❑ Trip History Including Waveform Capture
- ❑ Over/Under-Voltage Alarm and Trip*
- ❑ Power and Power Demand Metering*
- ❑ Reverse Power Protection*
- ❑ Phase Loss* and Current Unbalance Protection
- ❑ Close E/O Breaker Control
- ❑ CT Auto-Polarity Correction
- ❑ Zone Block Output Signal
- ❑ LSI Protection for Neutral

**Requires VDM Option*

Everything You Need

AC-PRO-II® is compatible with hundreds of circuit breakers and Utility Relay Company has thousands of kits to fit your exact requirements.

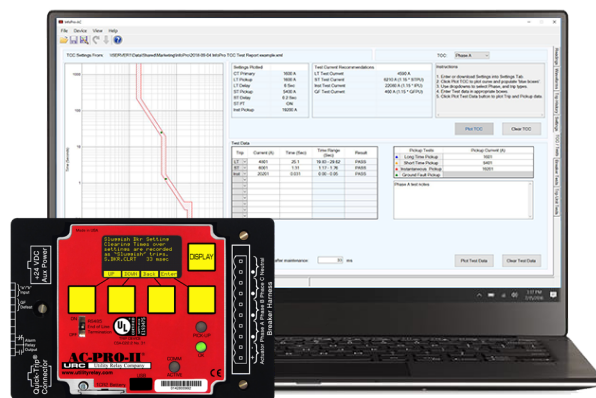


High-Quality Craftsmanship

AC-PRO-II® is made in America using first-rate components: conformal-coated circuit boards, contamination resistant membrane keyboard, and all metal, nickel-plated enclosure. The easy-to-read multi-line OLED display provides real time monitoring of 3-phase, neutral, and ground fault currents. The display portion can also be rotated to allow the trip unit to fit in a variety of different breaker configurations.

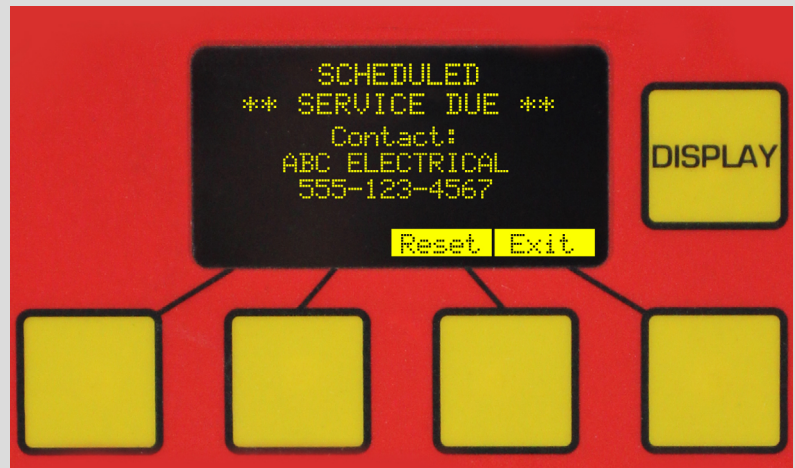
Programming

AC-PRO-II® was designed with ease-of-installation in mind. Settings are easily programmed using either the OLED multi-line display and “smart” buttons that change their function according to the information displayed, or via the USB port with our InfoPro-AC software. All settings are entered using simple parameters (no percentages or multipliers required).



Scheduled Service Reminder

Regular inspection and maintenance are critical for the proper function and longevity of circuit breakers. With AC-PRO-II's Scheduled Service Reminder, you can program a reminder date for breaker service. You can even enter company name and contact information so that on the reminder date, a "Service Reminder" screen will appear, and the service company can be called in to perform the preventative maintenance. In addition, the Scheduled Service Reminder can trigger an alarm relay operation and/or a communications alarm.



AC-PRO-II® screen with Scheduled Service Reminder message



QT2-Switch for QUICK-TRIP® operation

QUICK-TRIP® Maintenance Switch

The QUICK-TRIP® system is a manually controlled arc flash reduction system. It can reduce trip times when turned on and allows selective coordination between breakers when turned off. Additional components are required. Options include a basic cubicle door QT2-Switch with a pad-lockable switch and LED indicator, and/or cubicle door QT-Display*

*Interface module required

Energy and Power Data

Monitoring energy and power usage at the LV circuit breaker level can allow for better management of resources. AC-PRO-II® equipped with a Voltage Divider Module (VDM) measures the following data and makes it available on the OLED display as well as through RS485 Modbus RTU communications for use with Smart 1-Line® or other third party HMI package.

- Real and Apparent Power (KW, KVA)
- Power Factor (PF)
- Real and Apparent Energy (KWHr, KVAHr)
- Real and Apparent Power Demand (KWD, KVAD)

AC-PRO-II[®] with VDM

(Voltage Divider Module)

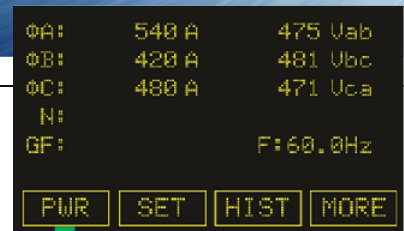
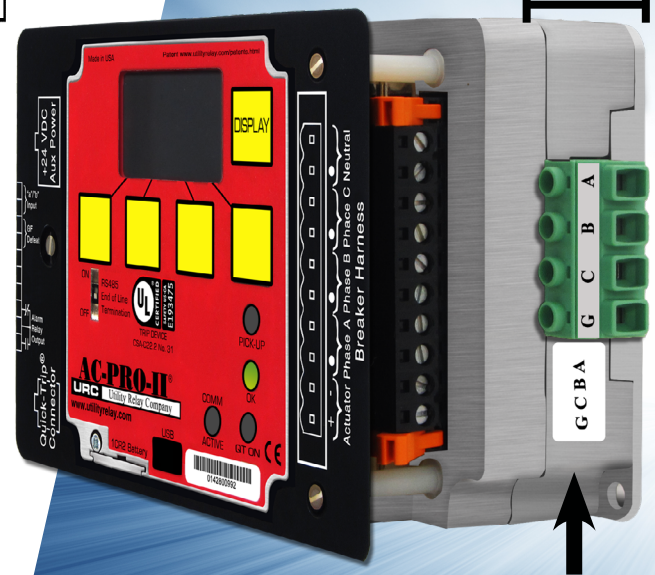
The AC-PRO-II[®] with VDM is available for applications where voltage and power information and/or voltage-based protection is desired.

In addition to all standard AC-PRO-II[®] features, the AC-PRO-II[®] with VDM features include:

- Voltage Metering
- Power Metering:
 - KW, KVA, KWHr, KVAHr, Power Factor
- Voltage-Based Protective Features (all can be turned ON or OFF in the field)
 - Under-Voltage Trip & Alarm
 - Over-Voltage Trip & Alarm
 - Phase Loss/Reverse Trip and Alarm
- Continuous Trip Unit Power

The VDM is rated for up to 600V three-phase power systems. In addition, the VDM provides continual power to the AC-PRO-II[®] when the breaker line side is energized, allowing the trip unit to communicate breaker status even if the breaker is open or not carrying sufficient current. For that reason, the VDM option is recommended if the trip unit will be incorporated into a communications system in order to avoid the possibility of intermittent communications.

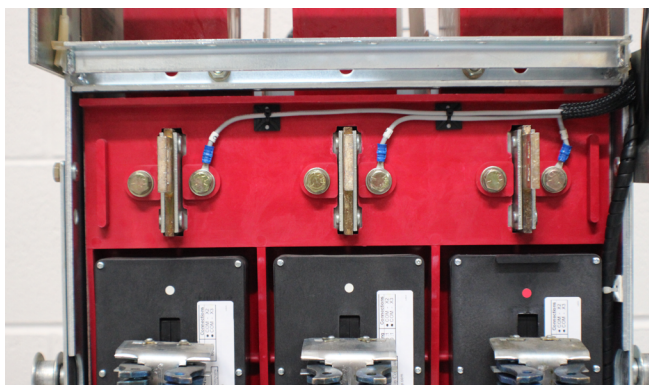
0.75in (19mm)



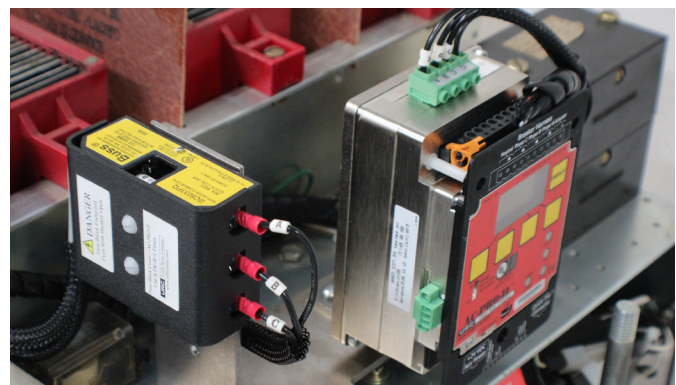
Main Reading Screen



Power Metering Screen



Line-side voltage connections on DS Breaker (Fingers Removed)



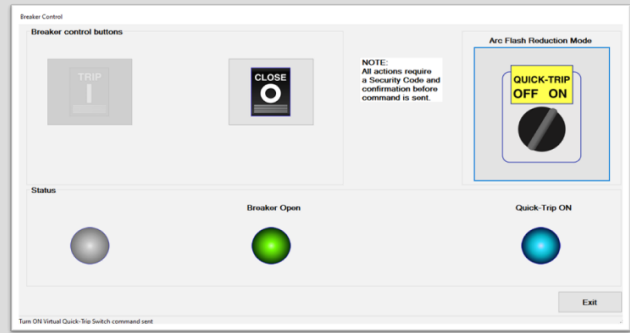
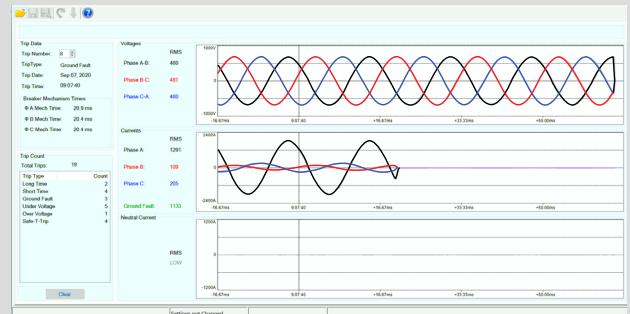
AC-PRO-II[®] with VDM and Fuse Block with cover on DS Breaker

InfoPro-AC Software

InfoPro-AC is a PC application that allows you to program, commission, control, and pull data from AC-PRO-II® trip units. The software is available at no charge at www.utilityrelay.com.

InfoPro-AC includes the following features:

- Provide a connection between AC-PRO-II® and a PC using USB
- Save AC-PRO-II® settings files for efficient commissioning
- Create test reports complete with results plotted on time-current curves (TCCs)
- Download and save waveforms, trip data, and breaker information
- Enable QUICK-TRIP® remotely
- Trip and Close breakers remotely

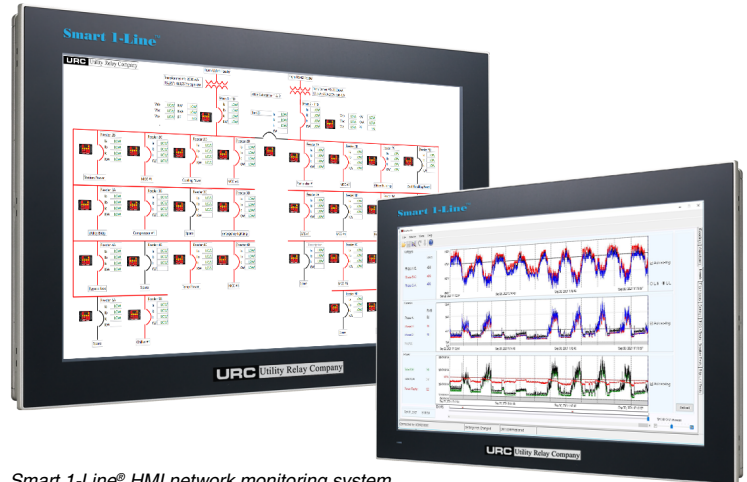


Waveform Capture (top) and the Breaker Control screen (bottom)

Smart 1-Line® HMI Network Monitoring System

Smart 1-Line® is Utility Relay Company's pre-engineered network monitoring system designed to simplify the installation and configuration of a local HMI.

Based on a rugged industrial computer with a solid-state drive and a 21.5" high-definition touchscreen, Smart 1-Line® is a turn-key solution for monitoring your AC-PRO-II® networks in one convenient location. It displays a field-configurable electronic one-line diagram with breaker readings, status, trending, remote breaker trip/close, and more.



Smart 1-Line® HMI network monitoring system

Completely Backwards Compatible

If you have an early generation AC-PRO® trip unit, know that AC-PRO-II® is completely backwards compatible, making upgrading easy. The CTs, actuators, and wiring harness from the original AC-PRO® can all be used with AC-PRO-II®.

AC-PRO-II® comes with a two-year limited warranty, found at www.utilityrelay.com/warranty.

ORDER ONLINE

Order your AC-PRO-II® kits today. Our online Kit Ordering Guide leads you step-by-step to the perfect kit to meet your needs.

kog.utilityrelay.com

URC Utility Relay Company

BREAKER-IQ®

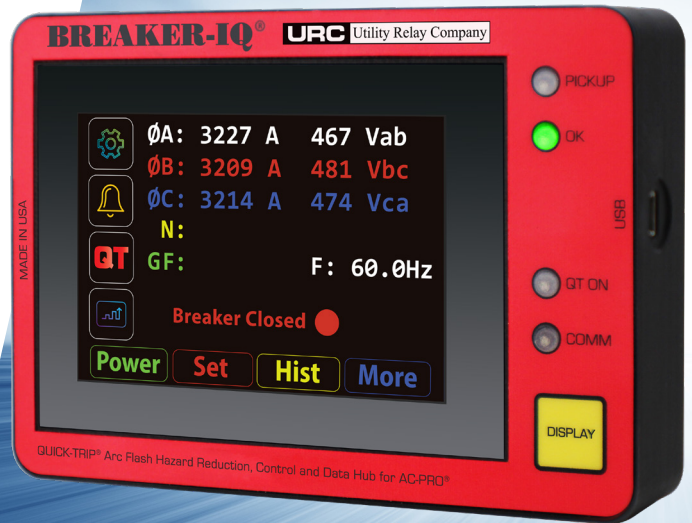
SAFETY, CONTROL, AND MONITORING

Safely view breaker status, engage and disengage the QUICK-TRIP® arc flash reduction system, trip and close breakers, and analyze data with the new BREAKER-IQ® - all without having to open the cubicle door.

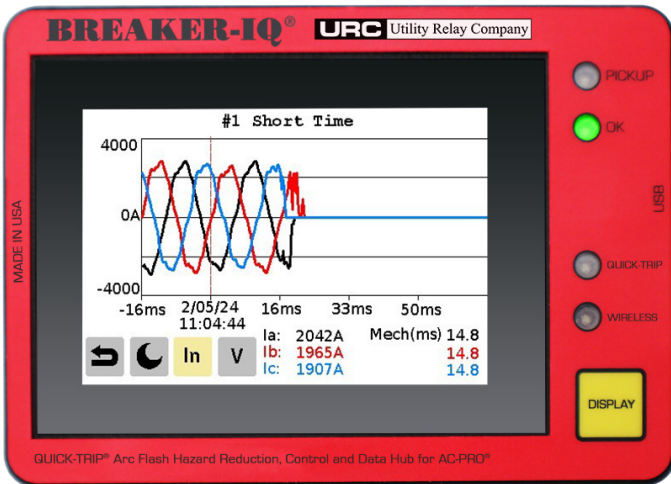
- ❑ Touchscreen for QUICK-TRIP® control or use with external QT switch (existing URC product)
- ❑ Delayed Trip and Close via included terminals for easy wiring (on door) into Close circuit
- ❑ User interface matches AC-PRO-II®
- ❑ Wireless communications
- ❑ USB ports
- ❑ 3.5" color touch screen
- ❑ Display is always ON
- ❑ Indication LEDs
- ❑ Cable Connection to AC-PRO-II®
- ❑ Backwards compatible with legacy AC-PRO®*

**Features limited to mimic AC-PRO® screen*

BREAKER-IQ® improves operator safety, reduces arc flash hazards, and enhances operational efficiency. By minimizing the need to physically access the circuit breaker, this innovative product contributes to a safer and more efficient operating environment.



External QT-Switch with pad-lock cover



BREAKER-IQ® on cubicle door.



NEW! NOW SHIPPING

REV 2.14.2024

888.289.2864 | UTILITYRELAY.COM | URCSALES@UTILITYRELAY.COM



BREAKER-IQ[®]

SAFETY, CONTROL, AND MONITORING

888.289.2864 | UTILITYRELAY.COM | URCSALES@UTILITYRELAY.COM

QUICK-TRIP®

ARC FLASH REDUCTION SYSTEM FOR AC-PRO-II® TRIP UNITS

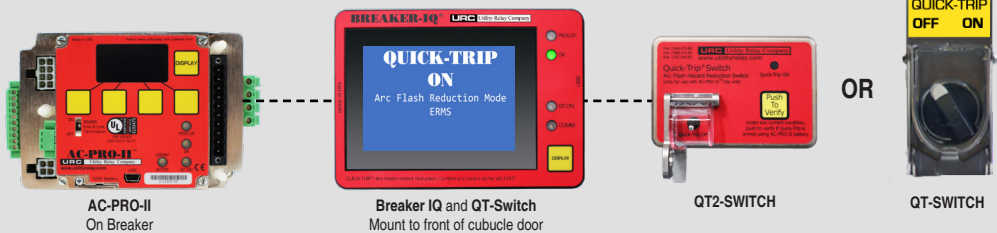
QUICK-TRIP® is a manually controlled arc flash reduction system designed to reduce trip times when turned on and to allow for selective coordination between circuit breakers when turned off. QUICK-TRIP® can be viewed as an energy reduction maintenance switch (ERMS) or as a reduced energy let-through (RELT) function.

QUICK-TRIP® improves worker safety, reduces equipment damage, reduces PPE requirements, and strengthens infrastructure preservation. Physical QUICK-TRIP® switches are pad-lockable and soft QUICK-TRIP® controls via AC-PRO®, BREAKER-IQ®, Smart 1-Line™ and InfoPro® are password protected.



Option 1:

QUICK-TRIP® with BREAKER-IQ® with or without choice of physical switch

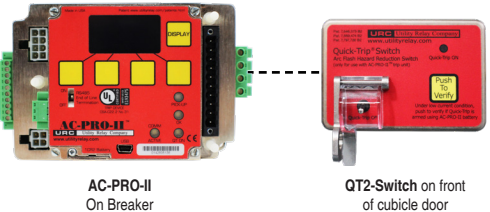


Ideal for circuit breakers that are behind a cubicle door and cubicles where circuit breakers with AC-PRO® could be racked in. A QT-SWITCH is only needed if a physical switch is desired or required by safety policies and practices.

Option 2:

QUICK-TRIP® with with physical QT2-SWITCH

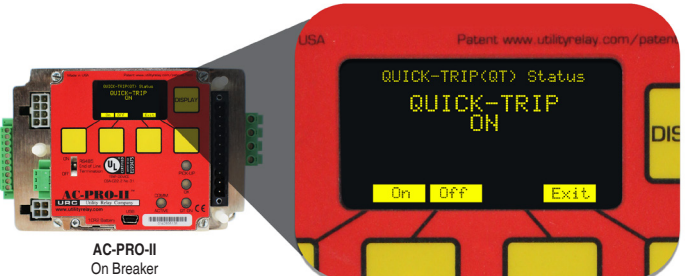
Only controls QUICK-TRIP® arc flash reduction and does not provide status visibility or any other control functionality without opening the cubicle door.



Option 3:

QUICK-TRIP® without BREAKER-IQ® and no physical switch

QUICK-TRIP® is engaged and disengaged directly via the AC-PRO® trip unit. Only for use on through-door breakers where a physical switch is not desired or required by safety policies and practices.



System Operation and Settings

Operation is simple and can be controlled either by using BREAKER-IQ®, QT/QT2-SWITCH, or simply the AC-PRO® trip unit itself. When enabled, two additional settings are activated in the AC-PRO-II® trip unit to provide enhanced protection:

- QT-Instantaneous
- QT-Ground Fault

These two individually programmable settings are designed to provide faster clearing times in the event of a fault.

Since arc flash potential is directly related to breaker clearing time, the addition of the QUICK-TRIP® allows a reduced fault-clearing time without opening the cubicle door to reprogram the trip unit.

Reduced breaker clearing time can mean significantly reduced arc flash potentials on downstream electrical equipment.

QT-Instantaneous: ranges from 150% to 1200% of the long-time PICK-UP setting and is adjustable in 100 amp steps.

QT-Ground Fault: ranges from a minimum of 20% to 200% of the CT rating with a maximum of 1200 amps and is adjustable in 10 amp steps. This setting is also selectable OFF.

This function adds ground fault protection to the breaker. Although this function may not be desirable during normal operating conditions, it can provide a critical layer of protection during maintenance periods due to many phase-to-phase faults often starting as phase-to-ground faults.

Incident Energy of an Arc Flash (cal/cm²)

The intensity of an arc is based on the following data:

- F = Amount of available fault current in kA (for the range of 15 to 50 kA)
- D = Distance from the electrode in inches (for distances 18 in and greater)
- t = Arc duration in seconds

NFPA-70E provides an equation as one method of determining the amount of incident energy (heat) a person would receive if an arc flash were to occur in a cubic box, such as a circuit breaker cubicle:

$$E_i = 1038.7 \times D^{-1.4738} \times t \times (.0093 \times F^2 - .3453 \times F + 5.9675)$$

- E_i = Incident Energy Level (cal/cm²) in a box not larger than 20 inches (much like a circuit breaker cubicle)

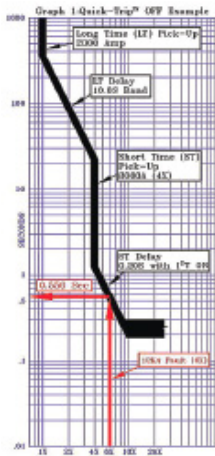
The Incident Energy Level determines the hazard risk category shown in the table to the right which further determines the PPE requirements for personnel working on the affected electrical equipment.

INCIDENT ENERGY LEVEL (E _i)	HAZARD RISK CATEGORY
0 to <4 cal/cm ²	1
4 to <8 cal/cm ²	2
8 to <25 cal/cm ²	3
25 to <40 cal/cm ²	4
>40 cal/cm ²	Dangerous

Practical Example

A technician needs to rack out a feeder breaker for maintenance. He or she is the minimum 18" away from any potential arc flash source in the cubicle. As the breaker is being racked out, a 12,000 amp arcing fault occurs inside the cubicle. The 2000A main breaker sees the fault and trips, clearing the fault in the feeder breaker cubicle. The two graphs illustrate the dramatic impact that the arc-clearing time has on the incident energy levels. Given that **F = 12kA** and **D = 18 in**.

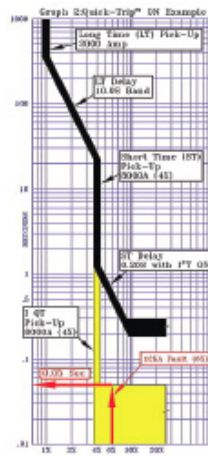
QUICK-TRIP Off



Graph 1: QUICK-TRIP® is OFF & shows the trip time characteristics of the main breaker

- The AC-PRO® will cause the main breaker to clear the 12kA fault in .556 seconds (based on a short-time delay of .2 seconds with I²T ON). The resulting arc duration will be t = .556
- The resulting incident energy is E_i = 25.8022
- The hazard risk category is a 4

QUICK-TRIP On



Graph 2: QUICK-TRIP® is ON & shows the trip time characteristics of the main breaker

- The AC-PRO® will now cause the main breaker to clear the 12kA fault in .05 seconds (based on the QT-Instantaneous PICK-UP setting of 8000 amps). The resulting arc duration will be t = .05
- The resulting incident energy is E_i = 2.3203
- The hazard risk category is a 1

AC-PRO-NW[®]

First released over 15 years ago, the MasterPact NW low voltage circuit breaker has a large install base throughout the country as well as around the world. When the Micrologic trip unit or Rogowski sensors fail, the only available solution is to track down OEM components, which is becoming increasingly difficult. Well, that has now changed.



AC-PRO-NW[®] brings all of the safety and reliability features you trust from URC to the MasterPact NW family of circuit breakers – LSIG protection, QUICK-TRIP[®] arc flash reduction, Sluggish Breaker[®] detection, communications, and optional power metering and voltage protection. New features include remote trip/close, delayed manual trip/close, wireless communications, scheduled service reminders, and more.

All of this designed with ease-of-installation in mind and supported by the best 24/7 technical support in the industry.

Standard Features Include:

- Replaces MicroLogic & Current Sensors
- QUICK-TRIP[®] Arc Flash Reduction
- Scheduled Service Reminder
- RS485, USB, & Wireless Communications
- Sluggish Breaker™ Detection
- Delayed Manual Trip/Close
- Optional Voltage Divider Module (VDM)
Provides Voltage, Power and Energy Features.

Everything You Need

AC-PRO-NW[®] retrofit kits come complete and ready to install.

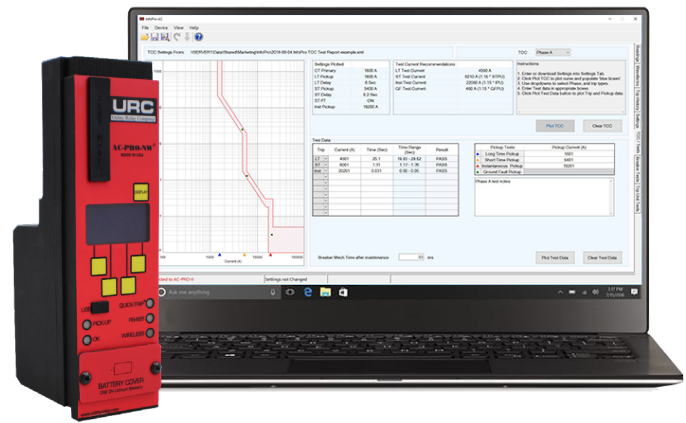


High-Quality Craftsmanship

AC-PRO-NW[®] is made in America using first-rate components: conformal-coated circuit boards, and contamination resistant membrane keyboard. The easy-to-read multi-line OLED display provides real time monitoring of 3-phase, neutral, and ground fault currents.

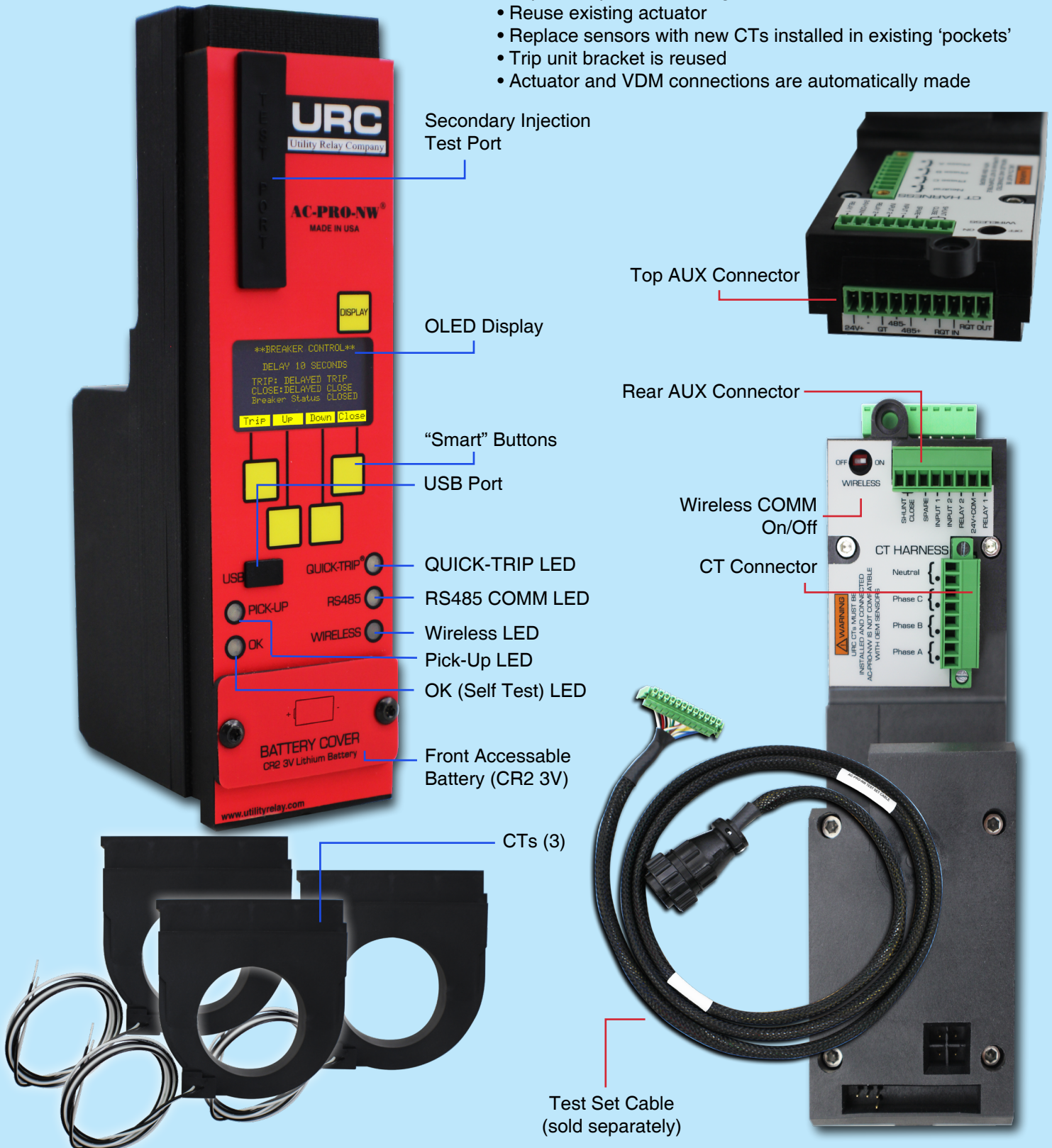
Programming

Programming AC-PRO-NW[®] is done by using either the OLED multi-line display and “smart” buttons that change their function according to the information displayed, or via the USB port with our InfoPro software. All settings are entered using simple parameters. (No percentages or multipliers required)



KIT OVERVIEW

- Trip unit replaces Micrologic
- Reuse existing actuator
- Replace sensors with new CTs installed in existing 'pockets'
- Trip unit bracket is reused
- Actuator and VDM connections are automatically made



Secondary Injection Test Port

Top AUX Connector

OLED Display

Rear AUX Connector

"Smart" Buttons

Wireless COMM On/Off

USB Port

CT Connector

QUICK-TRIP LED

RS485 COMM LED

Wireless LED

Pick-Up LED

OK (Self Test) LED

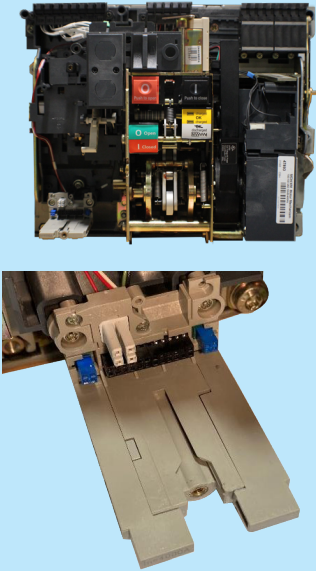
Front Accessible Battery (CR2 3V)

CTs (3)

Test Set Cable (sold separately)

INSTALLATION

1



Remove OEM Parts

1. Remove breaker cover
2. Disconnect trip unit top connector
3. Remove trip unit
4. Remove sensor and performer plugs
5. Existing trip unit bracket will be reused

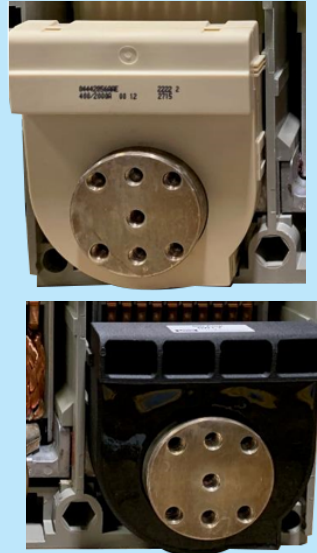
2



Replace Sensors & Wires

6. Remove Fingers and stabs
7. Loosen Arc Chute screws
8. Remove rear cover to access existing sensors
9. Remove sensors and wiring

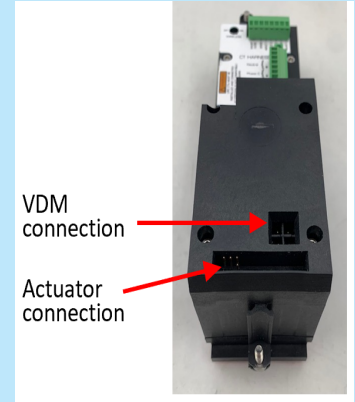
3



Install new CTs

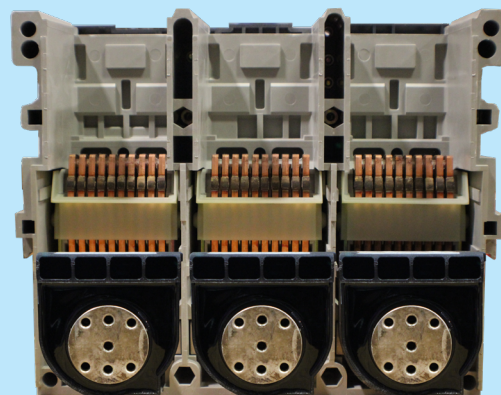
10. Install new CTs into existing sensor pockets
11. Route CT wires through existing channels
12. Reinstall back cover, stabs, and fingers

4



Install AC-PRO-NW

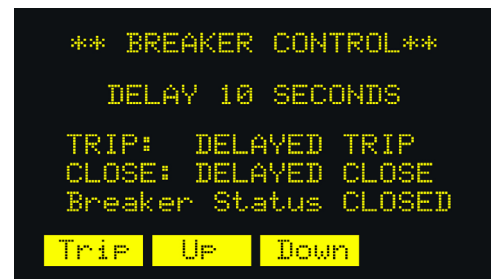
13. Plug in CT connector to rear of trip unit
14. Wire auxiliary connectors
15. Slide AC-PRO-NW onto OEM trip unit bracket
16. Actuator and VDM connections are automatically made
17. Secure AC-PRO-NW



Delayed Manual Trip/Close

Our patent-pending Delayed Manual Trip/Close feature allows you to set a countdown timer for tripping and closing* your circuit breakers. While the timer counts down, you can walk away and ensure no one is within the arc flash boundary when the operation takes place. If an arc flash incident does occur, personnel are safely out of harm's way.

*Closing requires E/O Breaker



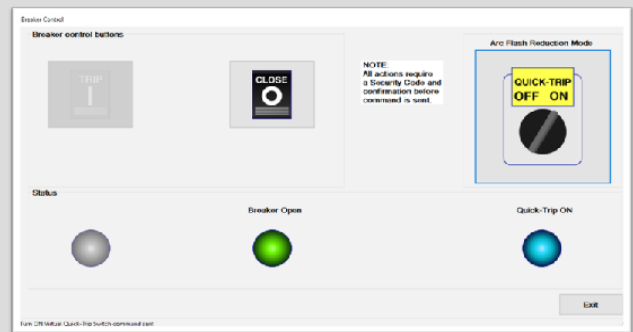
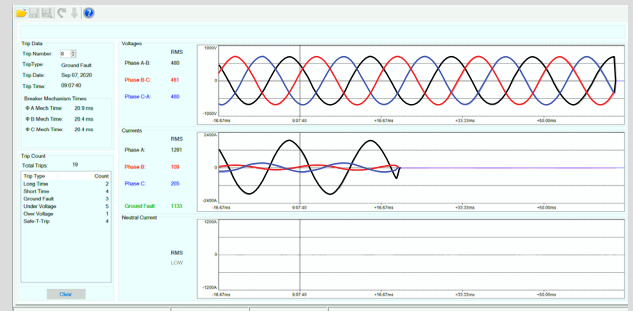
AC-PRO-NW[®] screen with Delayed Trip message

InfoPro Software

InfoPro is a Windows application that allows you to program, commission, control, and download data from AC-PRO-NW[®] trip units. The software is available at no charge at www.utilityrelay.com.

InfoPro includes the following features:

- Connect between AC-PRO-NW[®] and a PC via USB or wireless
- Save AC-PRO-NW[™] settings files for efficient commissioning
- Create test reports complete with results plotted on time-current curves (TCCs)
- Download and save waveforms, trip data, and breaker information
- Enable QUICK-TRIP[®] remotely
- Trip and Close breakers remotely



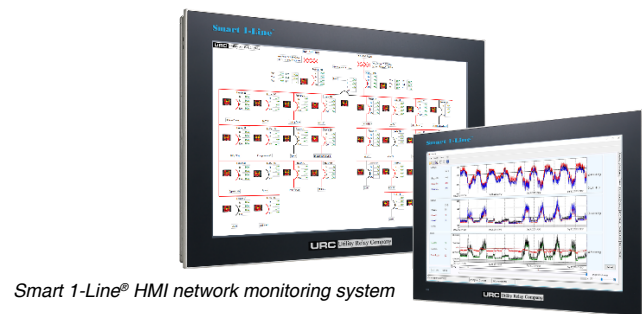
Waveform Capture (top) and the Breaker Control screen (bottom)

Soft QUICK-TRIP[™] and Breaker Control

AC-PRO-NW[®], in conjunction with Info-Pro, allows you to remotely engage or disengage QUICK-TRIP[®], trip the breaker, and close E/O breakers. These features add additional layers of safety by letting you stand further away from the switchgear while performing risky breaker operations. Simply use our Smart 1-Line[®] HMI system or

Monitor with Smart 1-Line[®]

Our turn-key solution for monitoring your AC-PRO-NW[®] networks. Smart 1-Line[®] is Utility Relay Company's pre-engineered network monitoring system designed to simplify the installation and configuration of a local HMI. Display a field-configurable electronic one-line diagram with breaker readings, status, trending, remote breaker trip/close, and more.



Wireless Communications

Communicate with AC-PRO-NW[®] wirelessly or using our USB dongle with InfoPro software. This programmable feature reduces installation time and can be a more convenient way to communicate with your circuit breakers. Wireless communications can be enabled by using the AC-PRO-NW[®] screen and buttons or a physical switch on the back of the unit.

ORDER ONLINE

Order your AC-PRO-NW[®] kits today.
Our online Kit Ordering Guide leads you step-by-step
to the perfect kit to meet your needs.
kog.utilityrelay.com

ZERO-Hertz®

MICRO-CONTROLLER BASED DC TRIP UNIT

The premier multifunction DC protective relay.

Standard trip unit functions:

- Long-Time
- Short-Time
- Instantaneous
- Ground Fault
- Reverse Current

All functions, except for long time, are selectable ON/OFF during programming



Programming

Settings are programmed using the ▲, ▼, and **SAVE** buttons on the front of the trip unit. All settings and last trip data are stored in non-volatile memory.

Security is provided by a security key, which must be plugged in to the top of the trip unit before any trip settings can be changed.

16-Character LCD

The large backlit display provides continuous current metering when the trip unit is in service. Last trip data and trip settings can be reviewed at any time by pressing the **REVIEW** button.

The ◆ button on the front of the trip unit is provided to adjust the LCD's contrast.

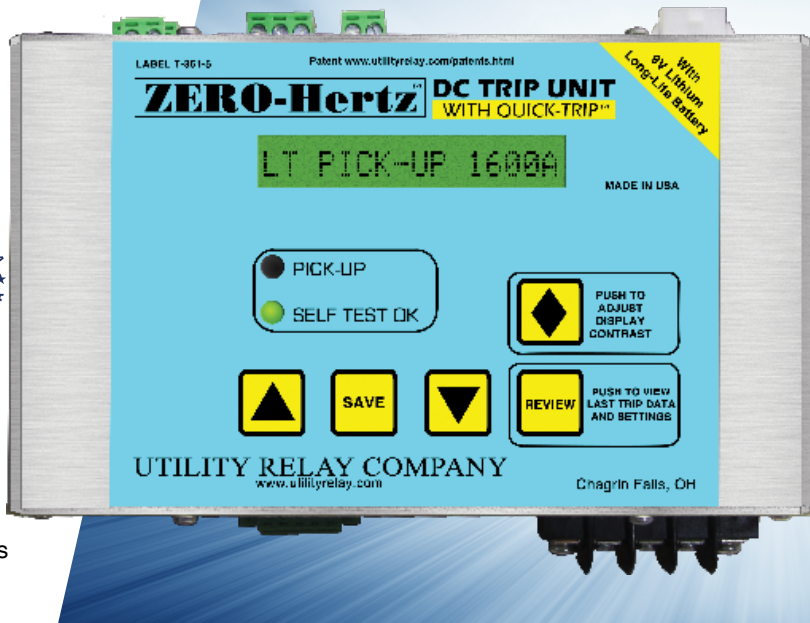
Last Trip Data

The trip unit retains the data from the most recent trip in non-volatile memory. This information includes the type of trip and current at the time of the trip. This information can be reviewed at any time by pressing the **REVIEW** button.

Continually pressing the **REVIEW** button will display a trip counter, which indicates the number of times the trip unit has operated on each function. The present trip unit settings will also be displayed. Last trip data and the trip counter can be cleared at any time.

“PICK-UP” Indication

The red LED on the front of the trip unit illuminates when current reaches or exceeds the Long-Time PICK-UP value.



QUICK-TRIP®

The QUICK-TRIP® system can help reduce the arc flash hazard on downstream equipment for times when personnel must work on energized equipment. The QUICK-TRIP® system can be turned on and off without opening the cubicle door and adds the following features:

- QT-Instantaneous setting
- QT-Ground fault setting
- Door mounted switch with lockable clover

“SELF-TEST OK” LED

The green LED indicates that the trip unit is operating properly.

This feature:

- Continuously monitors the trip unit
- Verifies that an actuator or trip relay is connected
- Verifies proper transducer connection when using transducers
- Monitors software routines
- Monitors micro-controller and A/D converter

Flexible Control Power Input

Universal control power input accepts:

- AC volts: 75-265
- DC volts: 90-340

Alarm Relay

User Configurable Form C Relay

Rating: 5A 30VDC
5A 125VAC

DC Shunt Input (Optional)

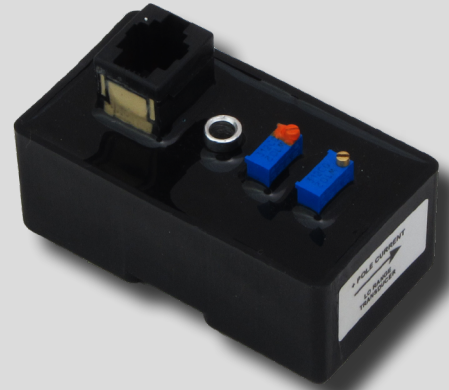
This allows signal input to the ZERO-Hertz® directly from a DC metering shunt. The shunt input is used instead of the transducers. Terminals are available for connection directly to either a 50mV or 100mV shunt mounted in the switchgear. In this application the trip unit is typically also mounted in the switchgear as a panel relay and the ZERO-Hertz® trip output is wired in the breaker's trip circuit.

Maximum recommended operating system voltage is 1000 VDC. DC bus isolation is 3750 VDC for 60 seconds. No calibration is required when using the optional shunt input.

Transducers

The transducers provide the signal input for the ZERO-Hertz® trip unit. They are mounted directly on the bus of the breaker and must be calibrated after installation.

The calibration procedure involves injecting a known test current in each individual pole of the breaker and adjusting the transducer's gain. Calibration is complete when the appropriate current is displayed on the trip unit's LCD ammeter. Calibration can be performed using either a DC or AC high-current test set. (NOTE: If testing with an AC high-current test, specify 50 Hz or 60 Hz when ordering).



RS485 Communications Port

The optional communications port uses the industry standard MODBUS TRU protocol. Multiple trip units can be daisy-chained together using a single twisted pair shielded cable.

Information monitored over communications includes: (K-Line, FB, FBK,KA,KB,KC), and **Federal Pioneer** (H2, H3)

- DC Current
- Last trip data
- Trip counter
- Alarm conditions
- Trip unit settings

Retrofit Kits

ZERO-Hertz® is provided as a complete retrofit kit, including all necessary mounting hardware and documentation.

Complete kits are available from stock for **GE** (AK, AKR, AL, MC-5, MC-6), **Westinghouse** (DB, DBL, DMD, DR-150), **I-T-E**

Secondary Injection Test Set

The model B-290 test set is designed to test both the transducer input and the shunt input version of the ZERO-Hertz®. The test set can quickly test PICK-UP settings and multiple test points and trip times on the current curve.



AC-PRO-MP-II[®] AC-PRO-MP[®]

FEATURE-RICH MODERN TRIP UNIT

AC-PRO-MP[®][-MP-II] is a plug-in, direct replacement trip unit for ST and STR trip units on Schneider Electric, Square D, and Merlin Gerin Masterpact M and MP breakers, as well as other rebranded versions such as the Moeller IZM.

AC-PRO-MP[®][-MP-II] is user programmed to replace any version of STR-18M, 28D, 38S, 58U, or 68U* trip units on IEC or UL rated breakers. AC-PRO-MP[®][-MP-II] has the same protective functions, settings, and time-current-curves as the original ST or STR.

The original features of the STR trip unit are still provided:

- LSIG protection
- Instantaneous on Closing (DINF)
- Over Temperature Trip
- Time-Current Curves (TCC)
- Information and Alarms

Additional advanced features include:

- Patented QUICK-TRIP[®] arc flash mitigation
 - QUICK-TRIP[®] on/off switch is easily accessible on the face of the trip units
 - QUICK-TRIP[®] instantaneous and ground fault settings are standard for arc flash reduction
- Patented Sluggish Breaker[®] detection
 - Helps determine if breaker mechanism needs service
- Date and time stamp of trip events
- No rating plug required
 - The required rating plug value is a programmed setting
- Neutral Overload Protection



Additional features only available on AC-PRO-MP-II[®]

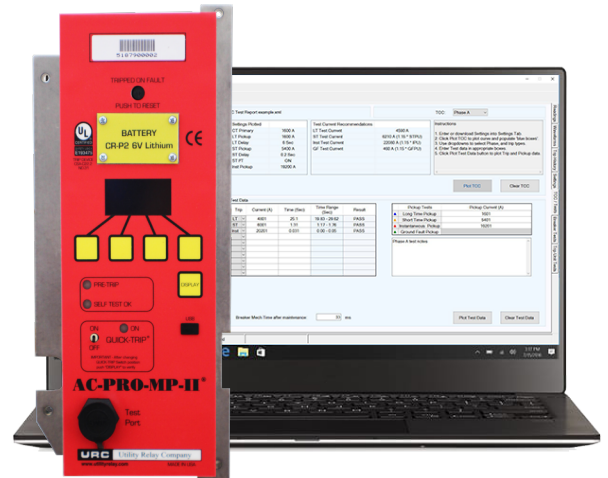
- Voltage Metering (line-to-line) rated for up to 600V three-phase systems
- Power and energy metering (KW, KVA, KWHr, Power Factor)
- Modbus RTU communications via RS-485 network

Programming AC-PRO-MP[®][-MP-II]

AC-PRO-MP[®] was designed with ease-of-installation in mind. Settings are easily programmed using either the OLED multi-line display and “smart” buttons that change their function according to the information displayed, or via the USB port with our InfoPro-MP-II software. All settings are entered using simple parameters (no percentages or multipliers required).



*AC-PRO-MP[®][-MP-II] can replace 68U trip units if the breaker was supplied with CT sensors (2 wires) but NOT Rogowski sensors (4-wires).



SELF-TEST Features:

AC-PRO-MP®(-MP-II) continuously monitors:

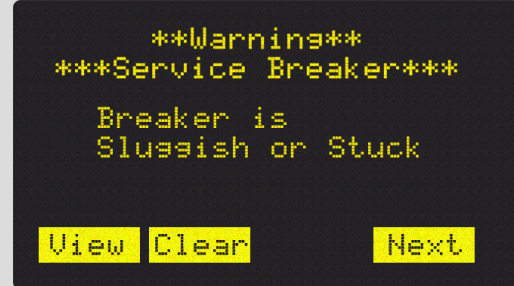
- The actuator connection
- Proper execution of the software routines
- The micro-controller and A/D converter

Last Trip Data

AC-PRO-MP®(-MP-II) retains all of the trip data for the last 8 trip events, including waveforms. This data includes a date and time stamp of each event from the internal real time clock, the trip type, and detailed information of the phase, neutral, and ground fault currents.

Sluggish Breaker® Detection

Our patented Sluggish Breaker® detection determines if a circuit breaker opens quickly enough by capturing the mechanism time of every trip. Think of Sluggish Breaker® as a check engine indicator on your vehicle. If something is wrong with your circuit breaker, causing the mechanism's operating time to be excessive, AC-PRO-MP®(-MP-II) will alarm, indicating that maintenance is required.



Secondary Injection Testing

The model B-291-MP Secondary Injection test set is a single-phase test set specifically designed for testing the operation of AC-PRO-MP®(-MP-II). The test set performs actual phase and ground fault tests, not simulated tests.

SAFE-T-TRIP® Remote Tripping Device

The handheld SAFE-T-TRIP® device allows an operator to safely trip a breaker without standing directly in front of the switchgear. When needed, SAFE-T-TRIP® plugs into the USB port on the front of AC-PRO-MP®(-MP-II).

Note that SAFE-T-TRIP® helps capture the “first trip” for Sluggish Breaker® detection by using AC-PRO-MP®(-MP-II) to trip the breaker prior to removing the breaker from the cubicle.

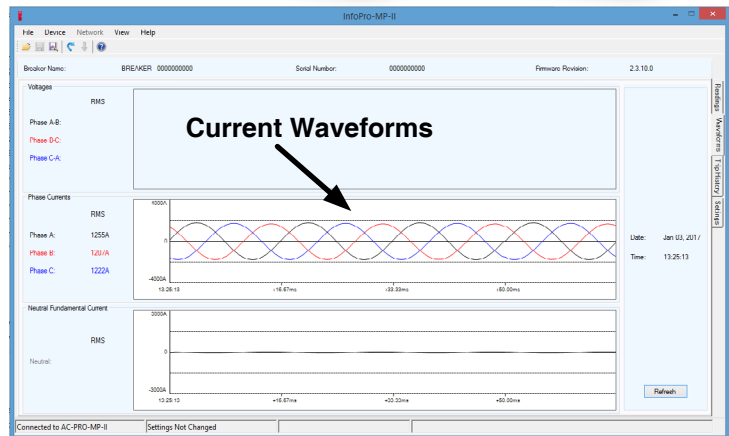


InfoPro-MP-II Software:

- Software provides direct computer to trip unit interface communication using the USB port on AC-PRO-MP®(-MP-II)
- Provides an easy method to view the data provided by AC-PRO-MP®(-MP-II) and also to download information into the trip unit

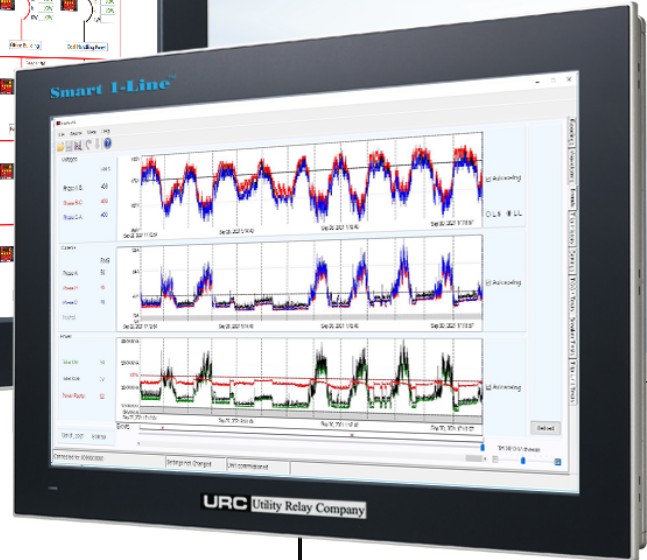
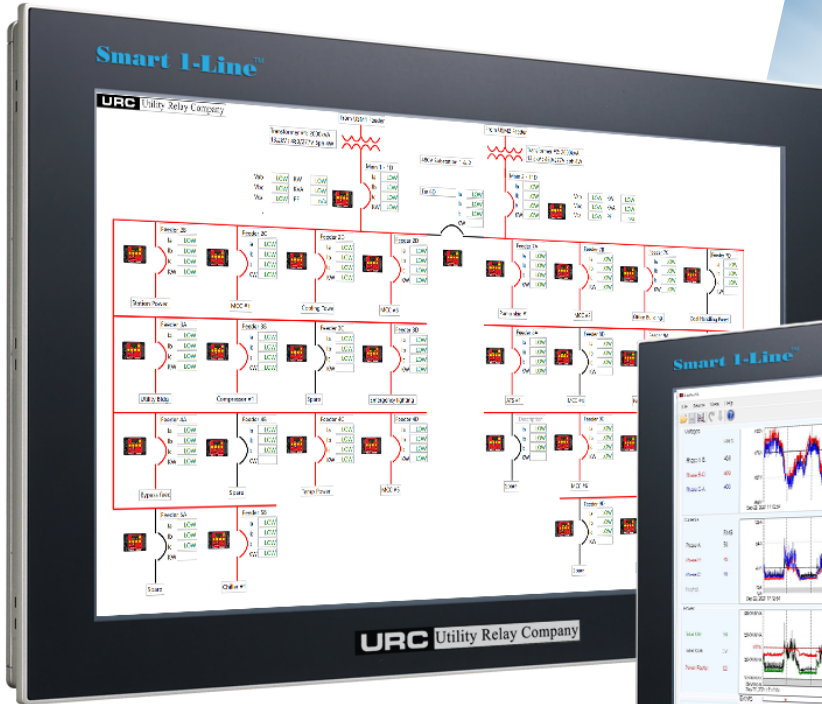
InfoPro-MP-II features:

- View the trip history from the last 8 trip events, including waveforms
- View and save the trip history and settings
- View metering data and alarm status
- Review and change settings
- View on-demand waveforms
- Firmware updates



Note:

InfoPro-MP-II software is for units with front test ports. InfoPro-MP software should be used for units with side test ports.



Smart 1-Line®

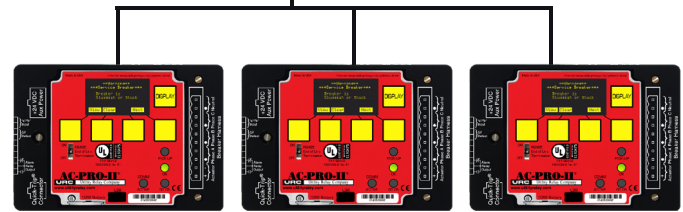
A pre-engineered network monitoring system designed to simplify the installation and configuration of a local HMI.

Based on a rugged Industrial computer with a solid state drive and a 21.5" high-definition touchscreen, Smart 1-Line® is URC's modern turn-key solution for monitoring your AC-PRO-II® and AC-PRO-NW® networks at one convenient location. It displays a field configurable electronic one-line diagram with breaker readings, status, trending, remote breaker control, and more. Improve safety and increase productivity with Smart 1-Line®.

The Smart 1-Line® features include*:

- Turn-key solution for monitoring URC products via Modbus communications
- Designed for switchgear or control room
- Real-time monitoring of current, voltage, power, energy, breaker status, waveforms, alarms, and more
- Field configurable to match one-line drawing
- Remote breaker trip, close, and QUICK-TRIP® control
- Trending of historical data

* Features may vary depending on type of URC trip units installed



Visit URC Online for more about the Smart 1-Line features



REV 2.15.23

TEST SET

SECONDARY INJECTION TEST SET FOR AC-PRO-II® & AC-PRO® TRIP UNITS

The Model B-292 Secondary Injection Test Set is a single-phase test set specifically designed for testing the operation of the AC-PRO® and AC-PRO-II® micro-controller based trip units manufactured by Utility Relay Co.

The test set can test pick-up and time delays of the various protection functions by driving current into the trip unit on the secondary side of the CT circuit.

The test set will test 60, 50, 40 or 25 Hertz AC-PRO® trip units. (The AC-PRO-II® can be set for either 50 Hertz or 60 Hertz).

The test set will test the AC-PRO® or AC-PRO-II® trip system with the exception of the CTs and associated wiring harness.

For complete details, see the B-292 Instruction Manual at: www.utilityrelay.com/PDFs/Product_Manuals/I-AC2-PRO-TS_r1.1_reduced2.pdf

Specifications

Dimensions:

22.1" L X 17.9" W X 10.4" H
560 mm L X 455mm W X 265mm H

Weight:

40 lbs (18.1 kg)

Power Requirement:

120 VAC - 60 Hertz, 3 A
220 VAC - 50 Hertz, 1.5 A *(Available upon Request)*

Current Output:

Single-phase, 0 -13A.

Frequency:

25, 40, 50 or 60 Hertz.

Current Display:

0.01 Amp Resolution

Time Display:

0.01 Second Resolution

Case Information:

Ultra high impact polypropylene shell.
Chemical-Resistant
Corrosion-Resistant
Crush-Proof



MP TEST SET

SECONDARY INJECTION TEST SET FOR AC-PRO-MP® & AC-PRO-MP-II® TRIP UNITS

The Model B-291-MP secondary injection test set is a single-phase test set specifically designed for testing the operation of the AC-PRO-MP family of microcontroller based trip units manufactured by Utility Relay Co.

The B-291-MP test set can test pick-up and time delays of the various protection functions by driving current into the AC-PRO-MP and AC-PRO-MP-II on the secondary side of the CT circuit.

This test set supports AC-PRO-MP and AC-PRO-MP-II trip units programmed for 60 or 50 Hertz operation.

The test set will test the AC-PRO-MP and AC-PRO-MP-II trip system with the exception of the CTs and associated wiring harness.

Specifications

Dimensions:

22.1" L X 17.9" W X 10.4" H
560 mm L X 455mm W X 265mm H

Weight:

40 lbs (18.1 kg)

Power Requirement:

120 VAC - 60 Hertz, 3 A
220 VAC - 50 Hertz, 1.5 A *(Available upon Request)*

Current Output:

Single-phase, (up to 40xCT rating)

Frequency:

50 or 60 Hertz.

Current Display:

0.01 x CT Rating Resolution

Time Display:

0.01 Second Resolution

Case Information:

Ultra high impact polypropylene shell.
Chemical-Resistant
Corrosion-Resistant
Crush-Proof



ZERO-Hertz TEST SET

SECONDARY INJECTION TEST SET FOR ZERO-Hertz TRIP UNITS

The Model B-290 test set is specifically designed for secondary injection testing of the ZERO-Hertz DC trip unit.

Pick-up and multiple points on the time-current curves can be quickly tested using this test set. The test set can perform pick-up and time delay trip tests for either the transducer inputs or the shunt inputs depending on the model ZERO-Hertz DC trip unit.

The ZERO-Hertz DC trip unit is micro-controller based and includes a 16-character liquid crystal display (LCD). The trip unit provides the following protection functions:

- Long Time (LT)
- Short Time (ST)
- Instantaneous (I)
- Ground Fault (GF) (Transducer input only)
- Reverse Current (RC)



Specifications

Case Information:

8 x 8 x 16 inches

Weight:

8 lbs (3.6 kg)

Power Requirement:

120 VAC, 1 AMP

Time Display:

.001 second resolution
LCD Time Display with Reset

Inputs:

Transducer Input with
current direction switch

Shunt Input with
current direction switch



InfoPro® Software

DESIGNED TO SIMPLIFY USE OF URC TRIP UNITS

The InfoPro® software applications provide computer access to the USB connected trip unit. The following capabilities and trip unit parameters can be reviewed, changed etc. by using the InfoPro® application.

Features include:

- Trip unit settings
- Current, Voltage & Power readings on demand
- Waveforms on demand
- Data on the last 8 trips including the waveforms
- Saved Trip Data and protection parameters
- Download protection parameters
- Trip Unit Firmware upgrades
- Plotting Time Current Curves (TCC) with Test results
- Input and document breaker test results and more!

InfoPro® is available to our customers free of charge and is compatible with the following trip units through their specific software version:

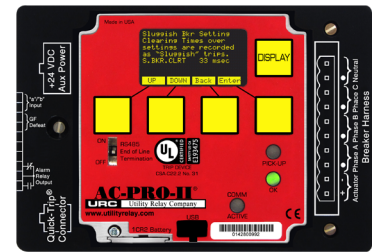
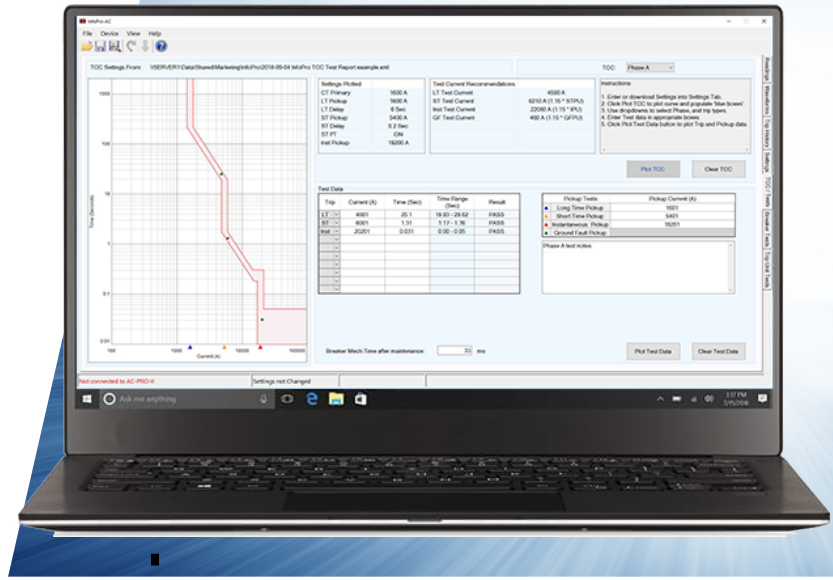
- InfoPro-AC®.....for AC-PRO-II®
- InfoPro-MP®*.....for AC-PRO-MP®
- InfoPro-MP-II®*..for AC-PRO-MP® & AC-PRO-MP-II®

*InfoPro-MP® is compatible ONLY with units with side test ports
 *InfoPro-MP-II® is compatible ONLY with units with front test ports

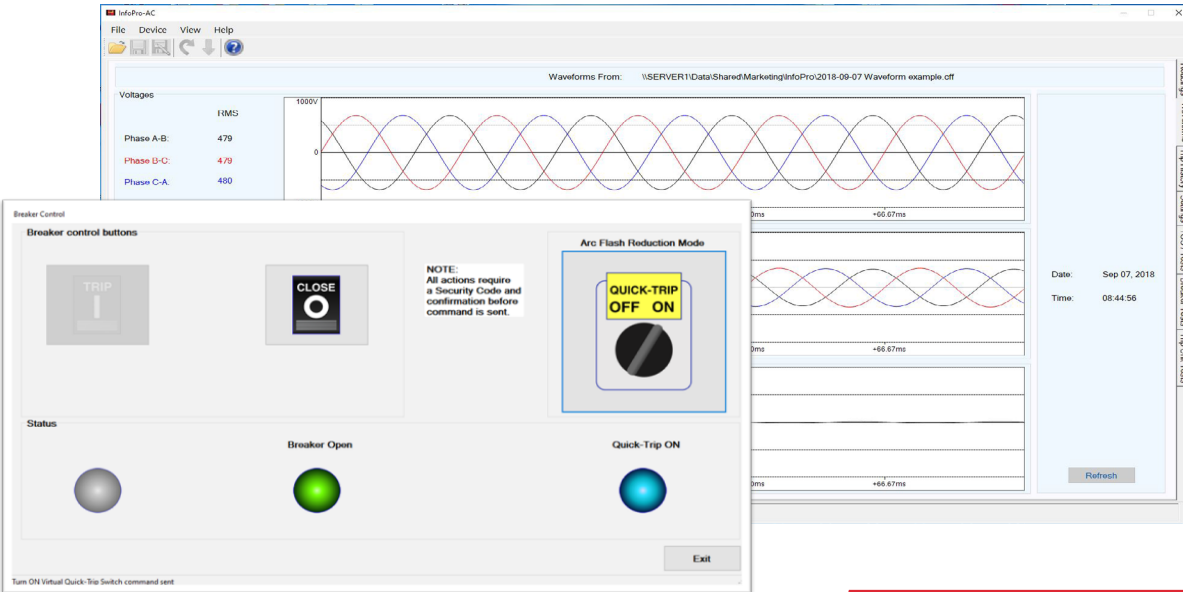
Specifications:

- Requires a computer with USB connection
- Designed for Windows (Windows 10 recommended)

Screen Shown: InfoPro-AC® TCC/Tests



Screens Shown: InfoPro-AC® Waveform and Breaker Control



Tabs

- Readings
- Waveforms
- Trip History
- Settings
- TCC/Tests
- Breaker Tests
- Trip Unit Tests

Settings Conversion Calculator

MODERNIZATION MADE EASY

The Utility Relay Company AC-PRO-II Settings Conversion Calculator allows a breaker's existing trip unit settings to be converted to similar settings for AC-PRO-II trip units. There are drop down boxes in the Yellow fields that can be selected by choosing the Existing Trip Unit, the New AC-PRO-II Trip Unit along with Existing Sensor, Plug Ratings and Pickup Settings, etc. The Settings Conversion Calculator fills in the Green fields for new comparable settings.

Start Your Modernization

The Settings Conversion Calculator is intended to be used as a starting point to match existing settings. Converted settings may not exactly match existing. Final settings should be determined by a Protection Engineer or other Qualified Person. Settings affect Safety, Equipment (assets), Processes, etc. The process of determining settings requires additional information such as application-specific studies. These studies can include Short Circuit, Protection/Coordination, Arc Flash, etc. Simply converting existing settings may not be adequate or appropriate. URC is not responsible for determining adequacy, appropriateness or results of improper settings.

The Settings Conversion Calculator is compatible with:

- ABB MPS-3/4/5
- ABB ITE SS-3/4/5
- Amptector I-A
- Amptector II-A
- Digitrip 510 DS/DSII
- Digitrip 510 SPB
- Siemens Static Trip II
- Siemens Static Trip III
- Schneider / Square D SE Micrologic Series B
- GE MVT PLUS/PM AKR
- GE MVT PLUS/PM PBII
- GE MVT PLUS/PM R/TP,TC,TR
- GE MVT PLUS/PM WavePro
- GE MVT RMS-9 AKR
- GE MVT RMS-9 TP,TC,TJH,THK
- GE ECS
- GE SST AK-15/25
- GE SST AKR-30
- GE SST AK/AKR-50
- GE SST AKT/AKRT-50
- GE SST AK-75
- GE SST AKR-75
- GE SST AK/AKR-100
- GE Versatrip (MOD1)
- GE Versatrip MOD2
- More on the way!

More trip units are continually being added. Looking for a specific trip unit? Let us know what other trip units you would like included.

E: URCSales@UtilityRelay.com
T: +1.888.289.2864

Version: G6d1

URC Utility Relay Company			
AC-PRO/AC-PRO-II Retrofit Conversion Calculator			
Phase / Ground Protection		Choose Drop Down Data in Highlighted "Yellow" Cells Below	
Choose Existing Trip Unit	Digitrip 510 DS/DSII	Retrofit Trip Unit	AC-PRO-II
Existing Sensor (S) / Tap Setting	800 (Replace CTs)	New Sensor (S)--Pri/Sec Rating	1175 1
Existing Plug (P) rating	250	Comparative Settings	
Existing Long Time Pickup (LTP)	1.00	New Long Time Pickup Amps	250
Existing Long Time Delay (LTD)	10	New Long Time Delay Seconds	8.0
Existing Short Time Pickup (STP)	3.00	New Short Time Pickup Amps	800
Existing Short Time Delay (STD)	0.4	New Short Time Delay Seconds	0.3
Existing I ² t Ramp	ON	New I ² t Ramp	ON
Existing Instantaneous Pickup (I)	OFF	New Instantaneous Pickup Amps	OFF
Existing Ground Fault Pickup (GF)	E	New Ground Fault Pickup Amps	230
Existing Ground Fault Delay (GFD)	0.40	New Ground Fault Delay Seconds	0.3
Existing GF I ² t Ramp	OFF	New Ground Fault I ² t Ramp	OFF

DISCLAIMER: URC is not responsible for determining adequacy, appropriateness or results of improper settings.

PLEASE NOTE: If "#N/A" or "#VALUE!" appear in **New Settings**, please check your dropdown values.

The Settings Conversion Tool is intended to be used as a starting point to match existing settings. Converted settings may not exactly match existing. Final settings should be determined by a Protection Engineer or other Qualified Person. Settings affect Safety, Equipment (assets), Processes, etc. The process of determining settings requires additional information such as application-specific studies. These studies can include Short Circuit, Protection/Coordination, Arc Flash, etc. Simply converting existing settings may not be adequate or appropriate.



utilityrelay.com/SettingsConversion

CTs

CURRENT TRANSFORMERS

Utility Relay Company manufactures many of our CTs at our Chagrin Falls, Ohio facility. Each CT is ratio and polarity tested several times during production. Whether made at our facility or custom made for us by our suppliers, URC completely controls the design and performance of each CT.

Phase CTs



Typical 1600/800 AMP PHASE CT

- Primary ratings available range from 100A up to 6000A.
- Each Utility Relay CT is tapped for added versatility.
- The standard secondary rating is 1.0A.



DS Breaker Style
1600/800 AMP PHASE CT



CT Turns Counter Testing

Split Core Neutral CTs



Typical Split-Core Neutral CT

Utility Relay Company manufactures split core CTs for use as neutral CTs in 4 wire systems. The split cores make it very easy to install the CT on existing bus or cable. Each split core has phenolic plates with punch outs to match standard sizes/shapes of cable or bus-work.

- URC split core CTs are designed for use as neutral CTs only
- Each split core is dual tapped at full and half with a standard 1.0A secondary tap.
- The split core CTs are available from 225A to 4000A

ACTUATORS

ACTUATORS FOR USE IN UTILITY RELAY COMPANY RETROFIT KITS FOR LOW VOLTAGE BREAKERS

Utility Relay Company (URC) manufactures actuators for use with our series of AC-PRO® and ZERO-Hertz® retrofit kits. Each actuator is built and tested at our Chagrin Falls, Ohio facility. URC manufactures many types and variations of actuators for use on different breakers but they fall into two general categories; manual-reset and auto-reset. The type of actuator supplied with a kit is specified at the time of order.

Why is an Actuator Needed?

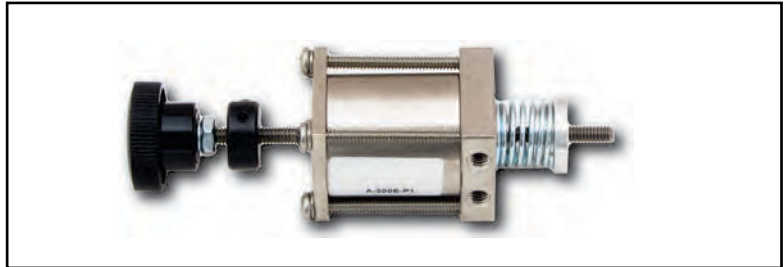
The AC-PRO® or ZERO-Hertz® trip unit series need a way to convert the electrical trip signal into a mechanical force that is used to trip the breaker. The actuator provides this force through stored energy in a spring. This energy is stored in the spring by:

- The manual resetting operation for the manual-reset actuator.
- The breaker linkage for the mechanical auto-reset actuator.
- The breaker line side voltage for the electrical auto-reset actuator.

Once reset, the actuator is held in the reset position by the magnetic force from a permanent magnet. When the trip unit applies the trip signal to a coil inside the actuator, the magnetic force is counteracted and the spring is released, pushing out a plunger and tripping the breaker.

OEM Actuators

One of the three actuator types on this sheet is included with each complete retrofit kit sold by Utility Relay Company. In addition, URC trip units can sometimes use existing OEM actuators. If you are interested in one of those applications please contact URC for more information.

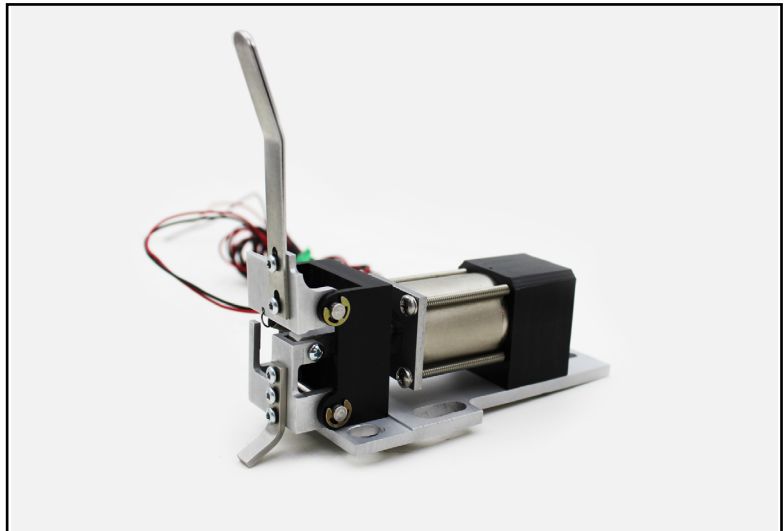


Manual-Reset Actuators

For most breakers, URC offers the option of a manual-reset actuator. After a trip event, the manual-reset actuator stays in the trip position and keeps the breaker trip free. This requires a person to go to the breaker, open the cubicle door, pull or push on a knob to reset the actuator and then ideally review the last trip data saved in the trip unit. After the overload/fault condition is addressed and the actuator is reset, the breaker can be closed. The advantage is that human intervention is required before the breaker is closed again. The disadvantage is that the person resetting the actuator must wear the appropriate PPE

Mechanical Auto-Reset Actuators

For most breakers, URC offers the option of a mechanical auto-reset actuator. The mechanical auto-reset actuator includes a linkage system that connects to the breaker mechanism and resets the actuator as the breaker opens. The advantage is that no one has to open the cubicle door to reset the actuator before the breaker can be closed again after the overload/fault condition is addressed.



Notes:

Notes:

UTILITYRELAY.COM

URC Utility Relay Company

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