Universal Recloser Control (URC)

Reliable reclosing for electrical distribution systems

Advanced Protection, Monitoring, Control, &
Communications in One Integrated Package

URC Applications

The URC is suitable for new applications, or as a retrofit of existing recloser controls including:

- Distribution feeder reclosers, such as Kyle®/Cooper 3, 3A, 4, 4A, 4C, 5, 6, FXA, or FXB (includes 14pin or equivalent connector)
- Medium and high voltage systems (12-69kV)
- Single to multiple recloser/ breaker applications
- Other recloser & breaker manufacturers
- Coordination with substation feeders using traditional recloser curve coordination or UCA GOOSE messaging

A versatile and flexible solution for any application

URC Applications

The URC is suitable for controlling both pole mounted and substation (ground) reclosers, including multiple reclosers:

Pole Mount Recloser

Substation Recloser

Key Features

Robust features put the URC ahead of the competition:

- Large front programmable pushbuttons
- Multiple recloser support in single cabinet
- Optional HiZ down conductor detection
- Battery-backup and charger
- High-speed Ethernet port
- No-charge firmware upgrades
- Expandable I/O accessory boards
- FlexLogic™ & FlexElements™ programmable control system
- Rugged weatherproof enclosure NEMA4
- Customized to customer requirements

Protection Features

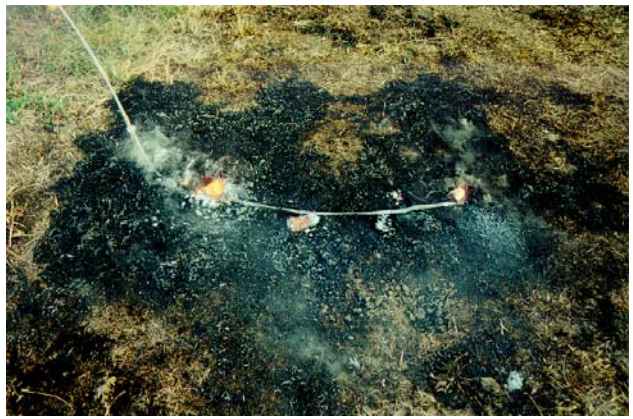
The URC protects your assets with:

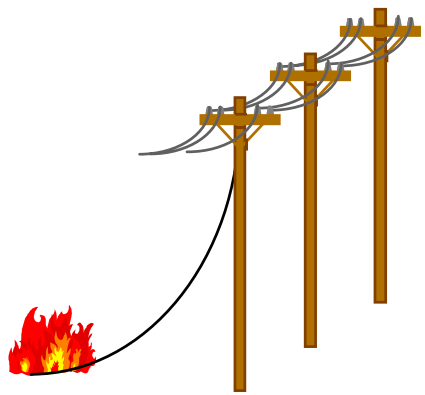
- Phase, neutral, ground or sensitive ground and negative sequence IOC/TOC
- Selectable time current characteristics: IEEE, IEC, GE IAC, I2t, definite time, 4 user programmable with selection of 41 different recloser type curves
- High impedance fault detection (HI-Z) (optional)
- Phase, neutral and negative sequence directional elements
- Phase under and overvoltage
- Negative sequence overvoltage
- Auxiliary under/overvoltage and neutral overvoltage
- Under and overfrequency
- Reverse power
- Breaker failure
- Cold load pickup
- Synchcheck
- FlexElements (user programmable elements)
- Multiple setting groups

Flexible protection characteristics help protect your equipment

Down Conductor Detection Option

- Ability to detect 80-85% of faults
- Requires additional 8Z module
- User configurable to TRIP or ALARM on various conditions, plus detailed oscillography captured:
  - **DOWN CONDUCTOR**
    Conductor has fallen to the ground and is arcing
  - **ARCING CONDUCTOR**
    Conductor has not fallen to the ground, but is arcing and comes in contact with grounded object or conductor is sagging
  - **ARCING SUSPECTED**
    Intermittent conditions, such as tree limb contact, motor arcing, loose connections, etc.





Secure and reliable detection of potential hazardous conditions

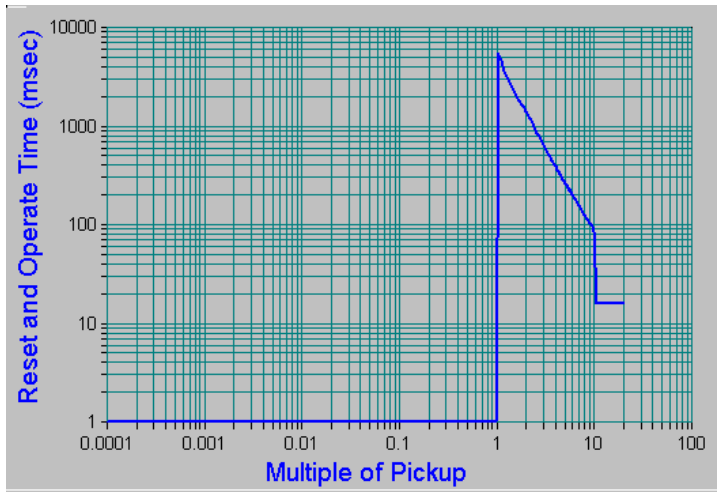
Control Features

The URC provides user-programmable control functions which include:

- Programmable four-shot autoreclosing with programmable sequence coordination
  - Programmable initiate signal
  - Independent dead time setting for each shot
- Programmable logic system (FlexLogic™) including gates, latches, timers, counters, and digital elements
- 12 user programmable pushbuttons (Trip, Close, Hot-Line-Tag, Block Reclose, Block Neutral/Ground OC, Local/Remote, etc.)

Recloser Type Curves

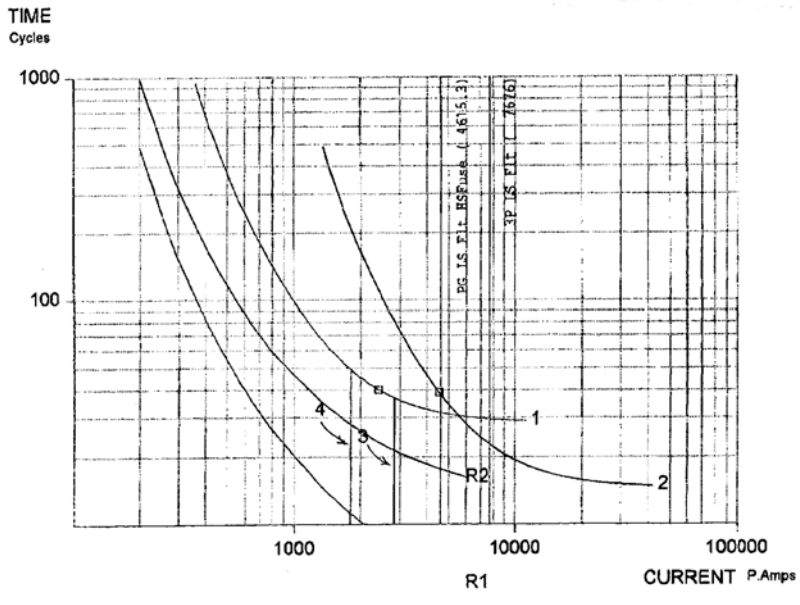
- Use URPC software to initialize and modify FlexCurves
- Each FlexCurve (A, B, C, D) can be initialized to the appropriate Recloser type curve and downloaded to URC as part of the setting file
- Each FlexCurve can be modified for:
  - Minimum Response Time
  - High Current Trip Ratio & Time
- FlexCurves can be saved and opened using URPC Software



Flexible reclosing capabilities set the URC apart

Sequence Coordination via FlexLogic

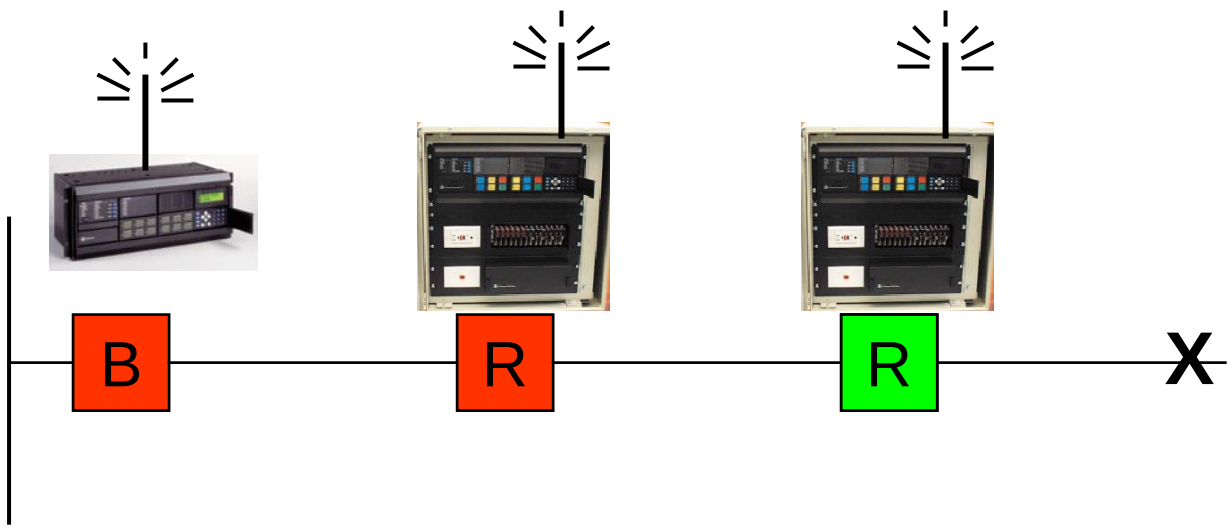
- Programmable to allow for Fast and Slow Curves
- Use 2 Phase TOC and 2 Neutral TOC elements
- For Example:
  - Phase TOC1 & Neutral TOC1 programmed for Fast Curve (FlexCurves A & B)
  - Phase TOC2 & Neutral TOC2 programmed for Slow Curve (FlexCurves C & D)
  - Switch between Fast and Slow curve based on Downstream device operation or OC detection by URC (program via FlexLogic)



"Intelligent" Sequence Coordination

The URC provides capability for sequence coordination via wireless Ethernet radios:

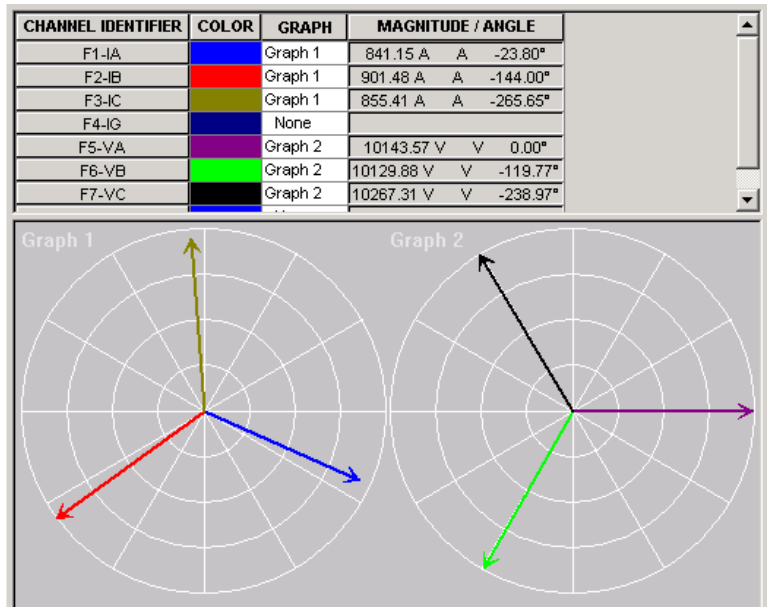
- UCA protocol (requires Ethernet option) enables multiple URC control cabinets to communicate with each other providing intelligent sequence coordination via GOOSE messaging
- Also coordinate with upstream F60 or F35 relay in substation breaker (B)

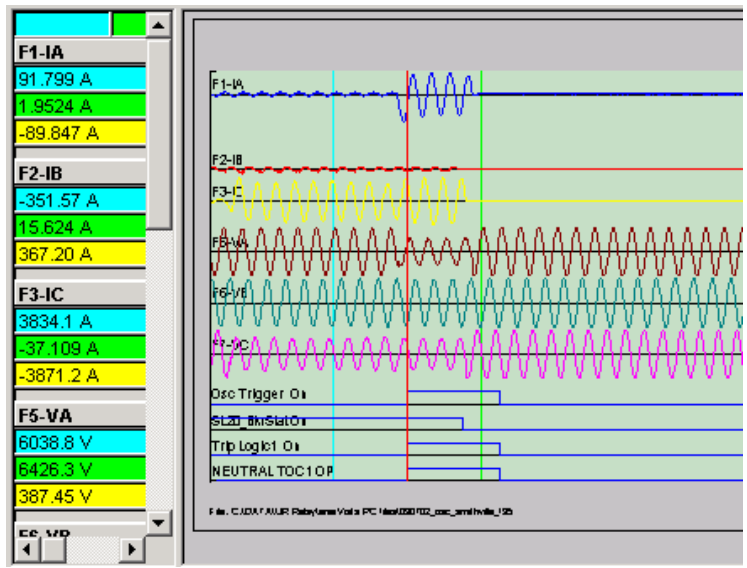


Monitoring Features

The URC provides:

- Ia, Ib, Ic, In, Ig
- Van, Vbn, Vcn, Vab, Vbc, Vca
- Current & Voltage Phasors
- Symmetrical Components (I, V)
- Watts, Vars, VA (per phase and total)
- PF (per phase and total)
- Current & Voltage Harmonics (up to 25th) – F60R only
- Energy & Frequency
- Demand Recording (Ia, Ib, Ic, P3, Q3)
- 16 Channel Data Logger
- 64 Samples/ Cycle Oscillography
- 1024 Event Recorder
- Breaker/Recloser Arcing Current (per phase)
- Fault Location & Fault Reports





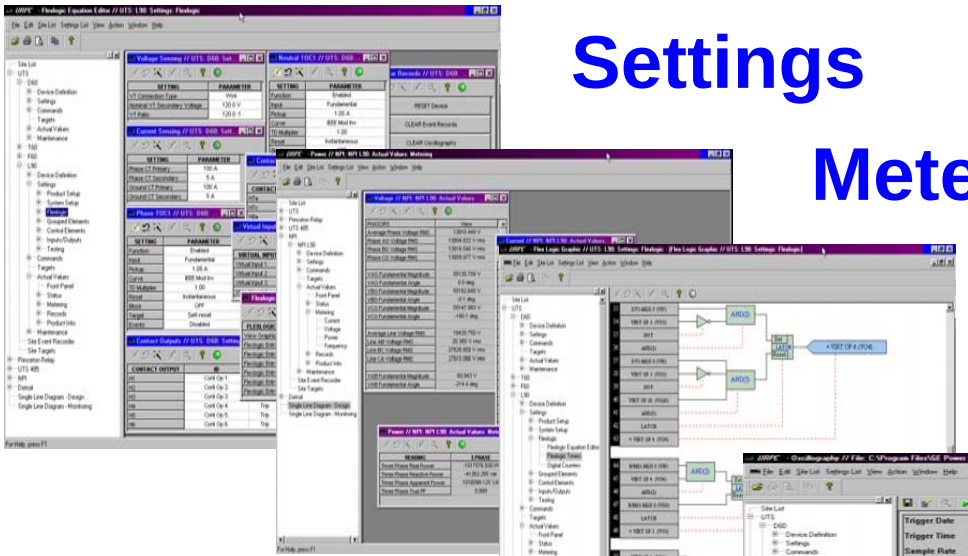
Convenient Mounting Hardware

The URC comes with a rugged housing and mounting bracket:

- Optional climate control
- Steel Enclosure
- Sealed against the elements
- Cabinet is NEMA 4 rated

Environmentally hardened shells provide safety and security

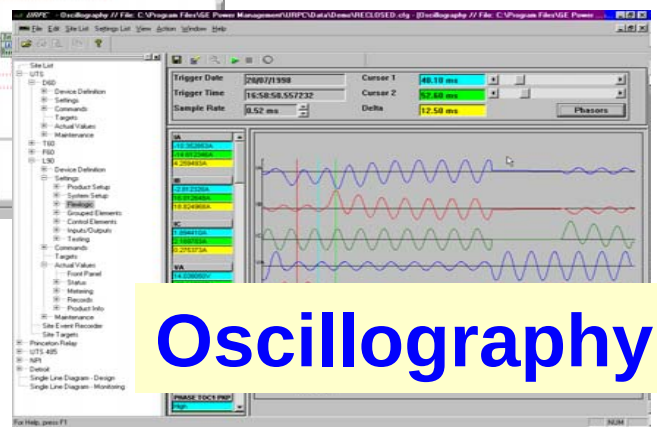
URPC – Windows Program



Settings

Metering

FlexLogic™



Oscillography

User-friendly software provides access to vital data & settings

Communications

The URC's flexible communication protocols and multiple ports facilitate system integration:

- RS485 port(s) support DNP3.0 (certified) or ModBus RTU
- MMS/UCA2, ModBus TCP/IP, and DNP 3.0 TCP/IP on 10BaseF/10BaseT option
- Simultaneous communication to SCADA RTU, PC or modem
- Front RS232 PC connection for settings, maintenance, reporting, monitoring by personnel

Designed for seamless integration to minimize installation time and costs

URC Front Panel Features

Programmable LED indicators

Target Reset

LED indicators

Front RS232 PC interface

Front mounted 120 Volt AC power supply

RJ45 Ethernet Port for PC interface (optional)

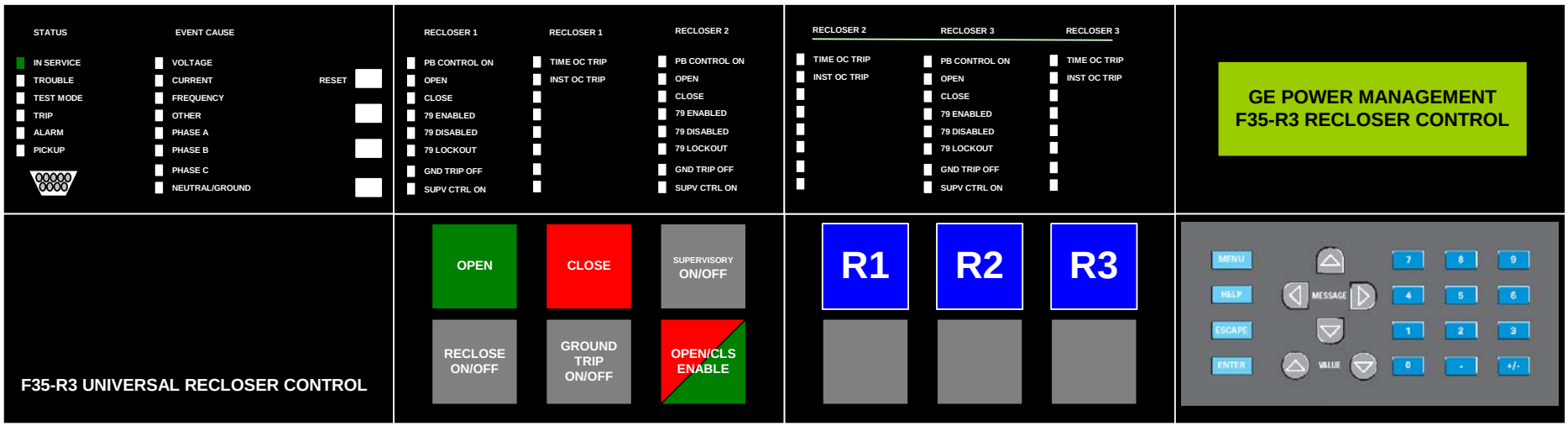
Large 2 line backlit LCD display & keypad

User-programmable pushbuttons

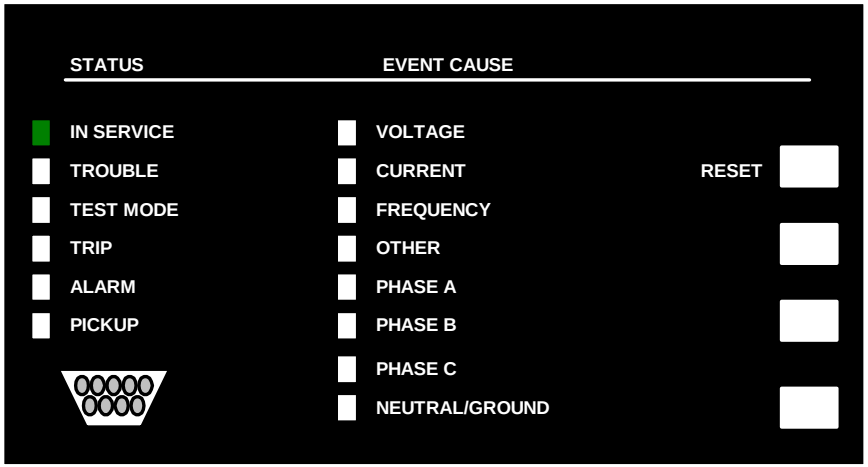
(Trip, Close, Block 79, Block Gnd OC, HLT, Local/Remote, etc.)

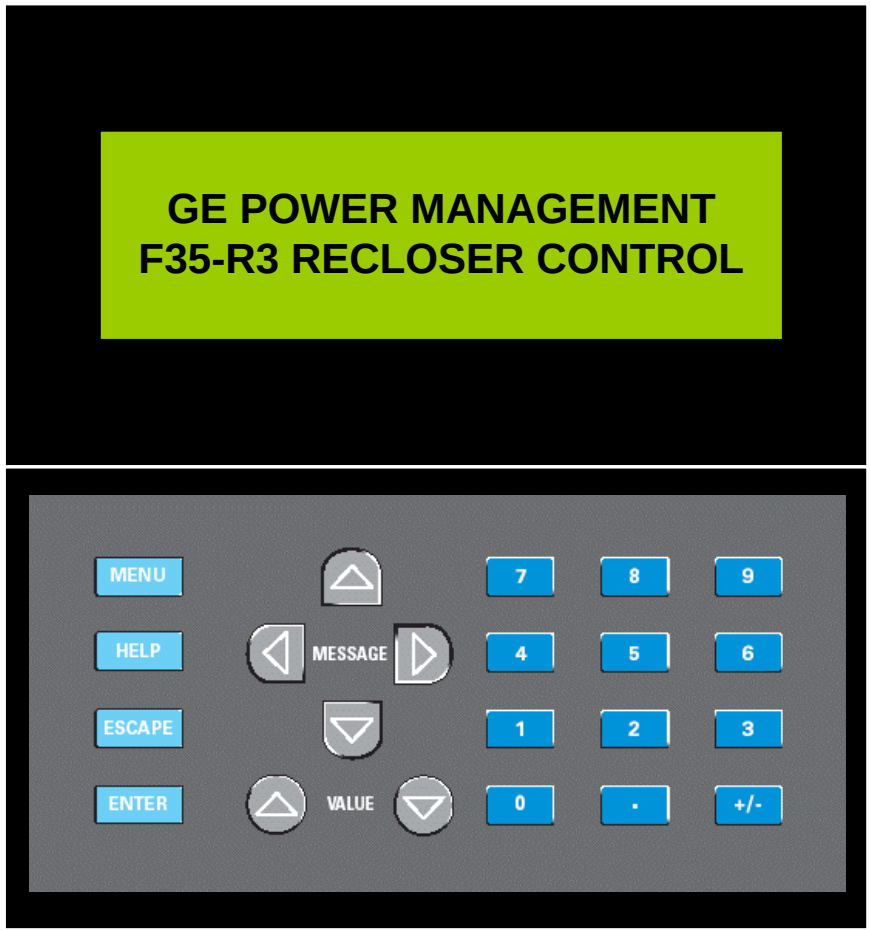
Front-mounted test panels with covers (optional)

URC Front Panel Features

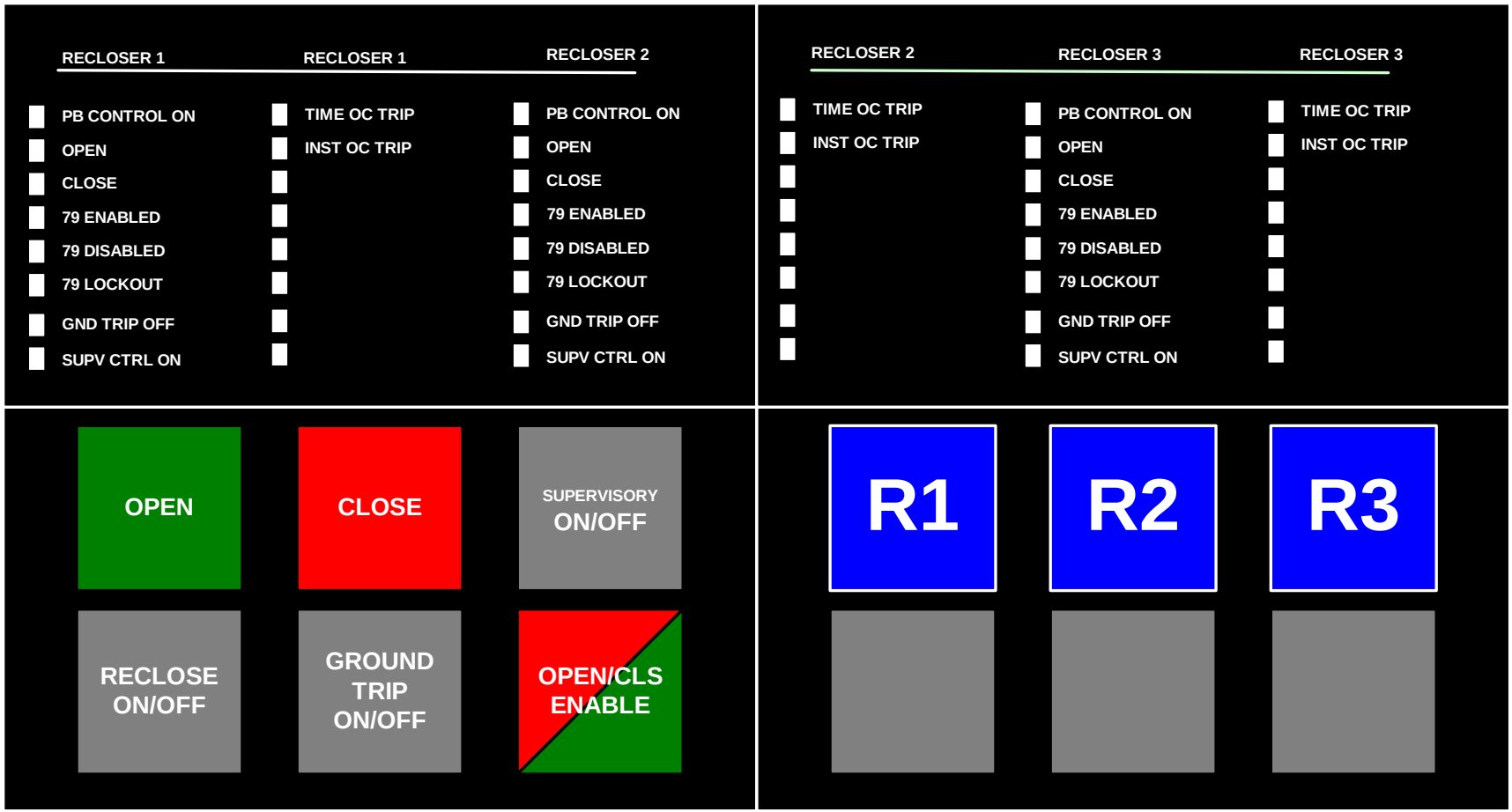


URC Front Panel Features





URC Front Panel Features



URC Internal Features

Inter-relay communication

via single-mode or multi-mode fiber optic cable with distances up to 65 miles

Contact I/O, CT/VT Connections

Communication interface

Climate control (Thermostat and Heater Options)

Back-up Battery w/ Charger

Recloser Receptacle

Multiple Recloser/Breaker Support

- Using the F35R models, one can protect 2,3 or 4 reclosers using one URC control cabinet
- Multiple three phase currents and voltages can be wired to the URC
- Multiple (up to 6) phase, ground and neutral time overcurrents elements are included to perform "fast" and "slow" tripping functions for each connected recloser
- Choices include:
  - F35R2 – 2 Reclosers
  - F35R3 – 3 Reclosers
  - F35R4 – 4 Reclosers
- F35R is expandable to allow for addition of future reclosers

Protect multiple reclosers with single URC cabinet

Different Recloser Models

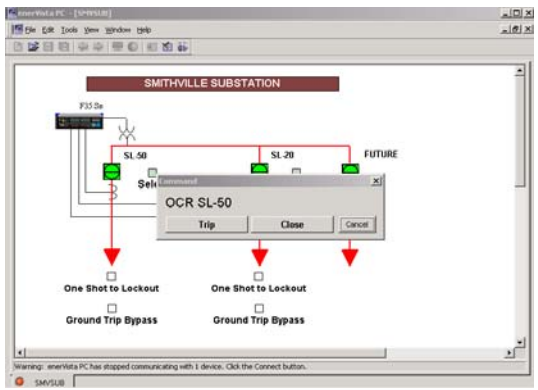
	F60R	F35R	F650R
Basic Protection		√	√
Advanced Protection	√ w/Option for HiZ	No HiZ Option	√ No HiZ Option
Multiple Recloser Support	No	**F35R1** – One Recloser, Upgradeable **F35R2** – Two Reclosers **F35R3** – Three Reclosers **F35R4** – Four Reclosers	No

Refer to Detailed Comparison Chart for More Information

enerVista Communications

The URC's has the capability to communicate to several enerVista services and software:

- Internet-Based 24/7 monitoring and report by exception system….**enerVista NET**
  - Automatic e-mail and pager notification
- PC based monitoring, control and data logging software…..**enerVista VIEWPOINT**
  - Real time connections via serial, modem, network or Internet



Specifications

- Dimensions H=600mm (23.6") x W=600mm (23.6") x D=350mm (13.8")
- Weight 28.4kg (62.6lbs) w/batteries approx. 36kg (80 lbs)
- Enclosure – NEMA4
- Relay Operating Temperature: -40 to +85 C
- Relay Approvals – UL & CSA Certified, CE Compliant
- ANSI Device Functions – 25, 27P, 27X, 32, 50BF, 50P, 50G, 50N, 50_2, 51P, 51G, 51N, 51_2, 59N, 59P, 59X, 59_2, 67P, 67N, 67_2, 79, 81U, 81O

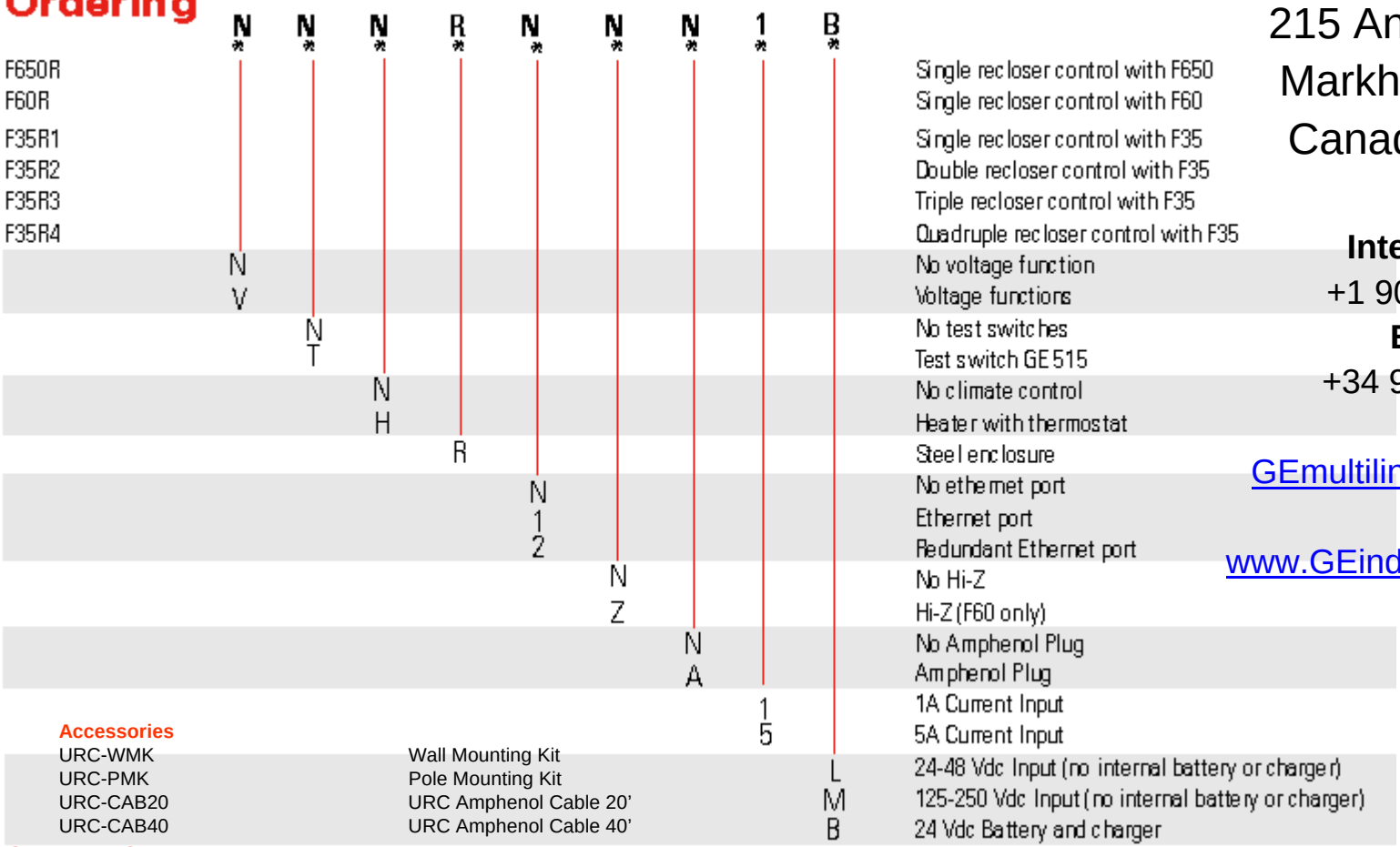
Ordering Options

- Multiple Recloser Support, Including Terminal Blocks and Cabling
  - F35R2 – 2 Recloser
  - F35R3 – 3 Recloser
  - F35R4 – 4 Recloser
- Additional Test and Control Switches – 1, 2 or 3
- Voltage Wired Up
- Thermostat & Heater Option
- Cooling Option
- Ethernet (UCA, DNP & Modbus protocols) communication
- Detection of Downed Conductor (HiZ – F60R Only)
  - Fallen lines and arcing conductors/conditions.
- User Specified Cable Lengths and Connectors
- Installation Support and Assistance
- Customer Requisitioned and Other Items

Ordering Information

To order the URC, call your local GE sales office, or contact:

URC Ordering Code:



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Thank You For the Time!