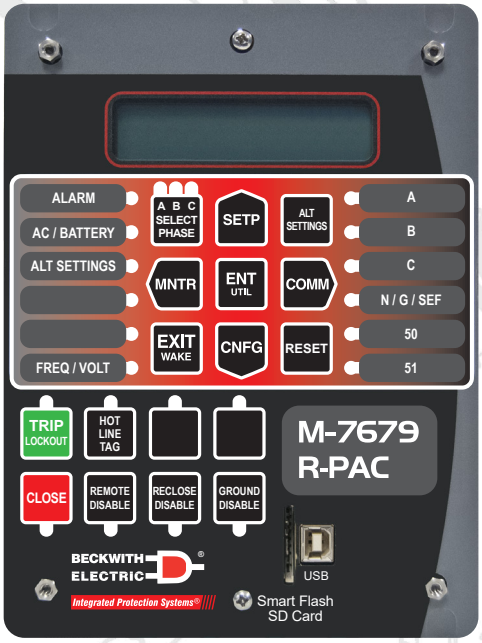
BECKWITH ELECTRIC®

M-7679 R-PAC



Protection, Automation and Control System for Recloser, Switch, Sectionalizer and Advanced Distribution Automation Applications

Protection and Control

- Over 30 Protection Elements for optimal protection of Power Distribution Systems
- Compatible with Three-Phase Ganged (Std) and Independent Phase Capable Switching devices such as Reclosers, Switches, Sectionalizers and Breakers (Optional)
- Four (std) or Six (optional) Low Energy Analog (LEA) or VT voltage inputs
- Recloser Settings Wizard assists in creating file for most common settings for Recloser applications
- Comprehensive I/O Matrix provides visual confirmation of enabled functions and selected outputs, improving security

Automation/Communications

- Pre-built functions for Advanced Distribution Automation Applications including Recloser, Switch, Sectionalizer, and Loop Schemes
- Embedded Cyber Security features to implement NERC/CIP v5 requirements, including IPsec and RADIUS server security
- Front panel USB and SD Card ports for local programming and data transfer
- Optional single or dual Ethernet ports (copper or fiber) with simultaneous multi-user and multi-protocol support
- Protocols supported include:
  - MODBUS, DNP3.0
  - Optional: IEC 61850
  - Optional: IEC 60870-5-104
- Meets IEEE 1686 Password requirement
- One or two optional serial ports (TIA-232, TIA-485, or Serial Fiber)

IPScom® – *Uncomplicated Software for Complex Power System Applications*

- Integrated Metering, DFR and PQ Visualization Tools
- Search and filtering tools for analysis of SOE, DFR and PQ records
- IPSlogic Programmable Logic

Monitoring

- Recloser Status Monitoring tool displays real time reclosing sequence and fault clearing time
- Power Quality Monitoring up to the 63rd Harmonic including THD and TDD
- PQ Viewer (ITIC Curve)
- Sags, Swell and Sub-Synchronous Transient Detection
- Comprehensive suite of advanced diagnostic tools
- Advanced Data Logging and Load Profile Recorder
- 3500 Event Sequence of Events (SOE) Recorder
- 100 DFR quality records of up to 480 cycles with adjustable sampling rate up to 128 s/c

Flexibility

- Two ways to upgrade your existing control:
- Beckwith Electric M-2979 Cabinet for replacement of select complete recloser or switch controls
- Beckwith Electric M-2400 series Adapters for retrofit of some of the most popular controls in the existing cabinet

HUBBELL®

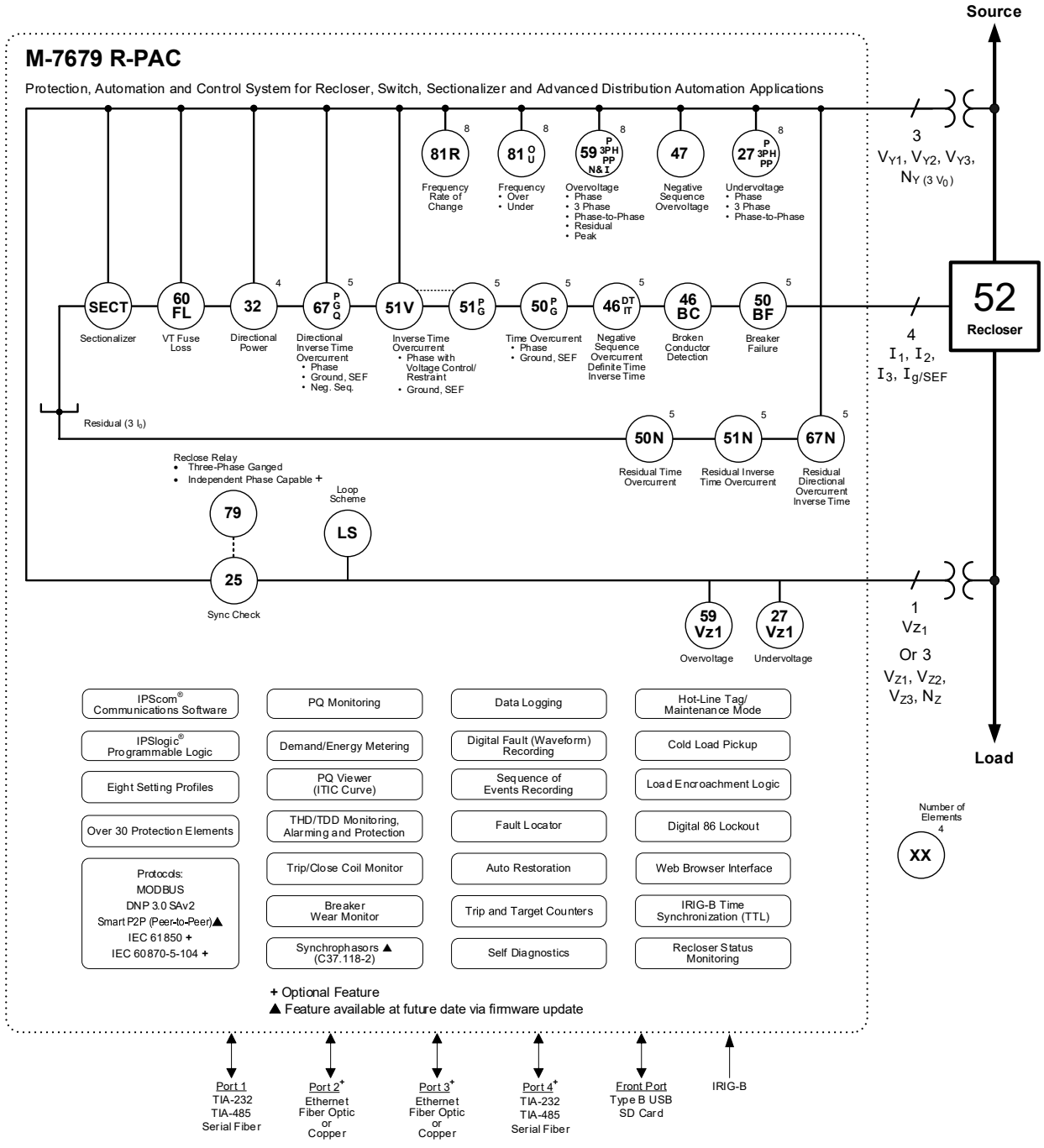


Figure 1 M-7679 R-PAC One-Line Functional Diagram

Standard Control Features

- Over 30 protection functions
- Horizontal or Vertical Mounting
- 50 Hz or 60 Hz Frequency
- High (90 to 315 Vac/Vdc) or Low (18 to 60 Vdc) Power Supply
- Multi-Shot Auto Recloser, Three-Phase Reclose Operation
- Eight Setting Profiles
- Hot Line Tag
- Cold Load Pickup
- Load Encroachment Supervision
- Sequence Coordination
- Phantom Voltage
- Digital 86 Lockout
- Fault Locator
- Auto Restoration
- Sensitive Ground Indicator
- Three Phase Current Inputs plus one Ground or Sensitive Earth Current Input
- Three Phase Voltage Inputs plus one Sync Check Voltage Input
- Four User Programmable Digital Inputs
- Four User Programmable Digital Outputs
- Conformal Coated Circuit Boards
- Configurable Front HMI LEDs and Pushbuttons
- 12 Vdc Backup Power Input
- IPScom Communications Software
- IPSlogic Programmable Logic
- Reclosing Sequence Monitor and Recorder
- Recloser/Breaker Wear Monitor
- I/O Map
- Custom Curve Designer
- Compare Settings Tool
- Power Supply Monitor
- Trip/Close Coil Monitor
- Trip and Target Counters
- Digital Fault (Waveform) Recording
- Fault Event Records
- Synchrophasors (IEEE C37.118-2)▲
- Front Panel USB and SD Card ports
- IRIG-B Time Synchronization
- Custom DNP Mapping
- Port 1: Rear TIA-232
- Protocols Supported:
  - MODBUS
  - DNP3.0 SAv2
  - Smart P2P (Peer-To-Peer)▲
- IPsec (Internet Protocol Security)
- RADIUS Client Capability to manage local and remote access to the control
- Wide Variety of Communications Accessories
- Power Quality Monitoring
- ITIC Curve Violation Counters and Recording
- Data Logging
- THD/TDD Monitoring, Alarming and Protection
- Demand and Energy Metering
- Sequence of Events Recording
- Self-Diagnostics

▲ Feature available at future date via firmware update

M-7679 Mounting Options

M-2400 Series Adapters

The M-2400 Series Adapters allow a simple, easy installation of the M-7679 into an existing cabinet to retrofit the following controls:

- M-2406 to retrofit the Eaton Cooper Form 6 (for 14-Pin or 19-Pin reclosers)
- M-2410 to retrofit the SEL 351R-2
- M-2411 to retrofit the SEL 351P-3/Panacea

Please refer to the M-2400 Series Specifications for additional information and ordering options.

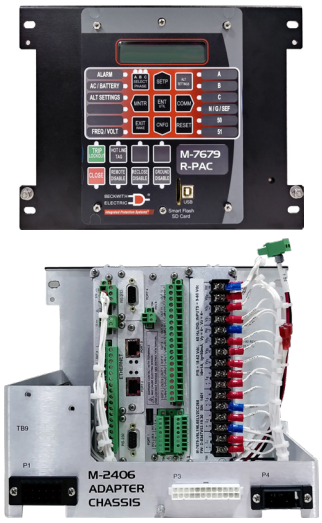


Figure 2 M-2406 Adapter Chassis

M-2979 Recloser Control Cabinet

Figure 3 M-2979 Recloser Control Cabinet

Please see the M-2979 Specification for additional information and ordering options.

M-7679 R-PAC Style Selection Table

M-7679 - V 6 L 1 M H4 SL A 2 00 0 0 0

S	**Vertical**	**V**	Mounting
S	Horizontal	H	
S	**60Hz**	**6**	Frequency
S	50Hz	5	
S	**Low (18-60 Vdc)**	**L**	Power Supply
S	High (90-315 Vac/Vdc)	H	
S	**1 A (3)**	**1**	Phase Current Inputs (I1, I2, I3)
S	5 A (3)	5	
S	5 mA with Interposing CT (1.0 A Nominal) (3)	S	
S	1 A	1	Ground Current Input (Ig)
S	5 A	5	
S	200 mA SEF	H	
S	**50 mA SEF**	**M**	
S	10 mA SEF	L	
S	1 mA SEF with Interposing CT (20 mA Nominal)	S	
S	**(4) LEA-High or VT (300 Vac Max)**	**H4**	Voltage Inputs
S	(4) LEA-Low (12 Vac Max)	L4	
S	(3) LEA-Low (12 Vac Max) and (1) LEA-High or VT (300 Vac Max)	X4	
$	(6) LEA-High or VT (300 Vac Max)	H6	
$	(6) LEA-Low (12 Vac Max)	L6	
$	(3) LEA-Low (12 Vac Max) and (3) LEA-High or VT (300 Vac Max)	X6	
S	**(4) Configurable LV Inputs 9~180V AC/DC, and (4) Configurable Dry Type Outputs**	**SL**	I/O Options
S	(4) Configurable HV Inputs 180~300 Vdc, 180-280 Vac, and (4) Configurable Dry Type Outputs	SH	
$	(8) Additional LV Inputs 9~180V AC/DC, and (8) Additional Dry Type Outputs	EL	
$	(8) Additional HV Inputs 180~300 Vdc, 180-280 Vac, (8) Additional Dry Type Outputs	EH	

S = Standard
$ = Optional With Price Adder
◆ = Consult Factory

CSR	**0**	**None**	**S**
	X	Customer Specific Requirements	◆
Protocols	**0**	**Standard (DNP3.0 & MODBUS)**	**S**
	4	IEC 60870-5-104 (Requires an Ethernet port)	$
	6	IEC 61850 (Requires an Ethernet port)	$
	9	IEC 61850 + IEC 60870-5-104 (Requires an Ethernet port)	$
PORT 4 (Serial)	**0**	**None**	**S**
	2	TIA-232 Port	$
	4	TIA-485 Port	$
	S	Serial Fiber Optic ST Port	$
	V	Serial Fiber Optic V-pin Port	$
PORT 2/ PORT 3 (Ethernet)	**00**	**None (none/none)**	**S**
	C0	1 x RJ-45 10/100 MBps Ethernet Port (RJ-45/none)	$
	F0	1 x ST Fiber Optic Port 100 Base-FX (FO/none)	$
	CC	2 x RJ-45 10/100MBps Ethernet Port (RJ-45/RJ-45)	$
	CF	1 x RJ-45 10/100MBps Ethernet Port + 1 x ST Fiber Optic Port 100 Base-FX (RJ-45/FO)	$
	FF	2 x ST Fiber Optic Port 100 Base-FX (FO/FO)	$
PORT 1 (Serial)	**2**	**TIA-232 Port**	**S**
	4	TIA-485 Port	S
	S	Serial Fiber Optic ST Port	$
	V	Serial Fiber Optic V-pin Port	$
	A	Analog Output Module	$
Operation Type	S	Switch/Sectionalizer (SW/SECT) – Three-Phase Ganged	S
	P	Distribution Automation Package (79, SW/SECT, LS) – Single Phase/Two Phase	$
	A	**Recloser – Three Phase Ganged**	**S**
	T	Recloser – Independent Phase Capable (Requires expanded I/O option)	$
	V	Distribution Automation Package (79, SW/SECT, LS) – Three-Phase Ganged	$
	W	Distribution Automation Package (79, SW/SECT, LS) – Independent Phase Capable (Requires expanded I/O option)	$

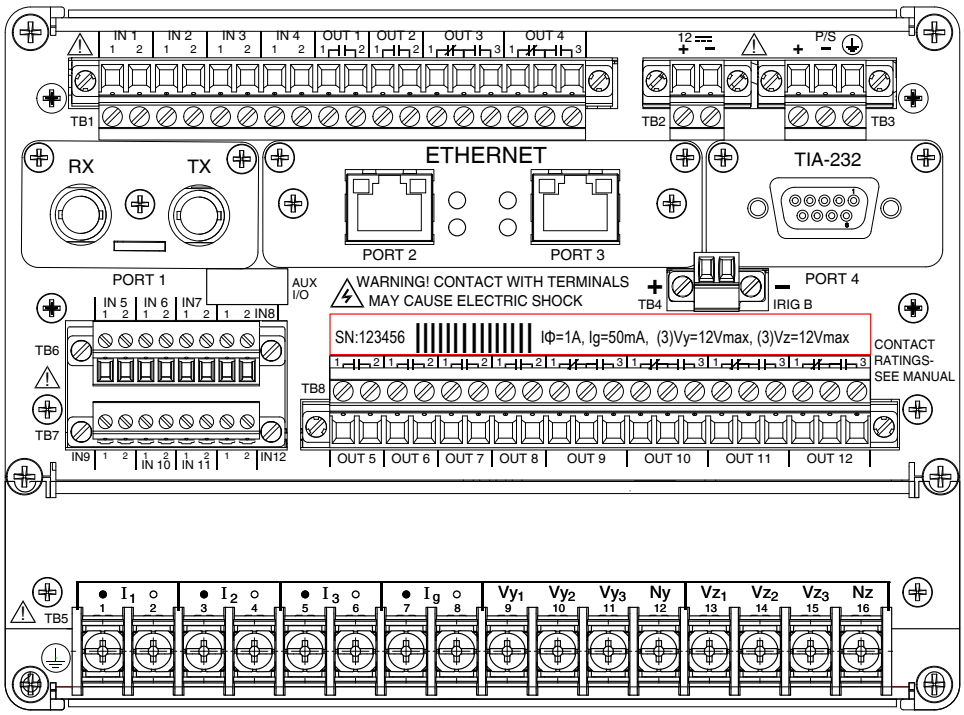


Figure 4 Typical M-7679 External Connections

BECKWITH ELECTRIC
6190 118th Avenue North • Largo, Florida 33773-3724 U.S.A.
PHONE (727) 544-2326
beckwithelectricsupport@hubbell.com
www.beckwithelectric.com
ISO 9001:2015