Life Is On | Schneider Electric

SCADAPack 570 | 575

Remote Programmable Automation Controllers (rPACs)

Product at a glance

The SCADAPack™ 570/575 rPACs are the first models able to share programs with Schneider Electric Modicon™ M340 and M580 PACs (Programmable Automation Controllers).

The SCADAPack 570/575 rPACs are managed with RemoteConnect™ software, a new tool built with Schneider Electric shared technologies (industry standard FDT2/DTM, Modicon Unity Pro™ logic engine).

The rPAC database utilizes objects with user-defined names, helping to make configuring and programming easy.

RemoteConnect software helps operators to remotely manage rPACs, thus reducing the number of on-site visits (configuration changes, program upload, firmware update, diagnostics).

SCADAPack 570/575 rPACs are compact, have conformal coated electronics boards, can cold start at –40°C (-40°F) and operate up to +70°C (+158°F).

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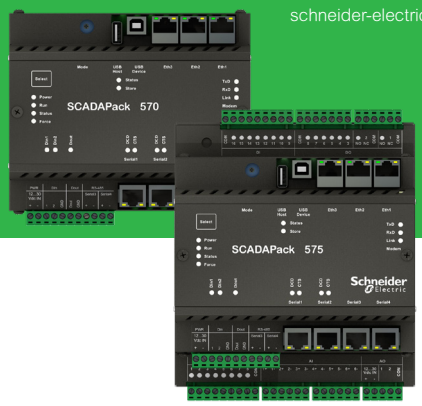
Remote Programmable Automation Controllers (rPACs)



Product Highlights:

- Database with user-defined object names
- Open standard IEC 61131-3 programming environment able to share programs with Modicon M340 and M580 PACs
- Open standard telemetry protocols DNP3 level 4 with Secure Authentication and IEC 60870-5-101/-104
- Open standard industrial protocol Modbus RTU and MODBUS TCP
- Support of HART™ pass-thru to smart instruments and actuators
- Data concentrator for DNP3 and Modbus devices
- Multiple active SCADA masters, up to 200 remote/local slave devices and up to 90 remote peer devices
- Remote maintenance (ability to remotely perform configuration changes, program downloads, firmware update and diagnostics)
- 1ms resolution time-stamped digital inputs, 30ms sampled analog inputs
- 3 Ethernet and 4 Serial ports, 1 USB device port for configuration, 1 USB host port for external storage
- Tool-less DIN rail mounting system
- Withstands 15g acceleration
- IP2X terminal blocks
- Operation from –40 to +70°C (–40 to +158°F)
- Compact form factor
- Conformal coating

Typical applications for the SCADAPack 570/575 rPACs

Like the existing ranges of SCADAPack and SCADAPack E Smart RTUs, the SCADAPack 570/575 rPAC may be used at remote sites in Oil & Gas (upstream and midstream) as well as in water applications (irrigation, fresh water distribution, waste water collection, etc.) and in other applications.

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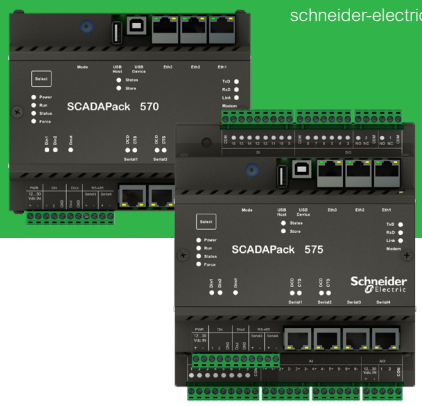

Configuring and programming SCADAPack 570/575 rPAC

RemoteConnect software is a new all-in-one software tool used to configure and program the SCADAPack x70 range:

- locally through any of its communication ports (default: USB device port),
- remotely through communication devices such as: serial modems (GPRS/3G/LTE, PSTN, fiber optic, etc.), Ethernet routers (GPRS/3G/LTE, fiber optic, etc.) or Serial/Ethernet radio units such as Schneider Electric Trio™ Data Radios

RemoteConnect software is built on Schneider Electric shared technologies such as industry-standard FDT2/DTM and Modicon Unity logic engine (IEC 61131-3 logic programming).

RemoteConnect software enables trained personnel to manage SCADAPack x70 rPAC systems:

- create the rPAC configuration and logic file, offline
- download the rPAC configuration and logic file, locally or remotely
- upload the rPAC file including the logic program source for editing or debug, locally or remotely
- amend a configuration on the fly, locally or remotely through IP or non IP communication links
- amend a logic program on the fly, locally or remotely
- perform rPAC diagnostics, locally or remotely
- update the rPAC firmware, locally or remotely

- export and import bulk configurations managed by spreadsheets or other applications
- manage external equipment using FDT1.2 and FDT2 DTMs such as instrumentation, motor drives, etc. from inside the RemoteConnect environment

RemoteConnect software is fitted with an import/export command that enables a user to exchange relevant parts of logic programs with Schneider Electric Modicon M340 and M580 PACs.

- a program written with Schneider Electric Unity Pro for a Modicon M340 or M580 PAC may be imported by RemoteConnect software, compiled and loaded into a SCADAPack 570/575 rPAC.
- a program written with RemoteConnect software may be exported to Unity Pro, recompiled and loaded into a Modicon M340 or M580 PAC.

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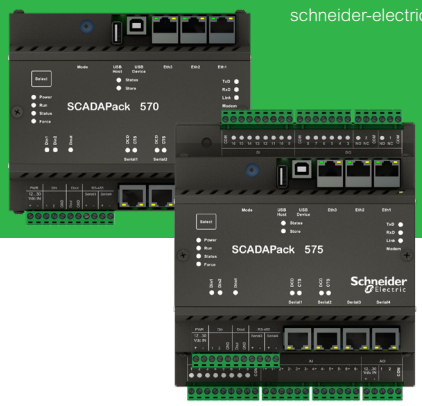

Specifications

Architecture	
Processor	SPEAr 1380 32-bit dual-core Cortex A9 microcontroller, 500MHz
Memory	• 128MB NAND FLASH, 128MB DDR3 RAM • Non-Volatile RAM CMOS SRAM with lithium battery retains contents for 2 years with no power
Event logging capacity(1)	Up to 40,000 time-stamped events depending on the protocol
Database capacity(1)	Up to 20,000 objects (this number decreases if the event pool is above 7,000 events)
Database concentrator(1)	Up to 15,000 objects depending on the type used (analog or digital) Up to 100 devices in DNP3 and up to 100 devices in Modbus
File system storage	Internal: 10 MB; External: 32 GB (on optional memory stick)

Communications	
Serial Ports: Serial1, Serial2	• RS-232 port, 8-pin modular RJ45 jack, full or half duplex with RTS/8-8 pin modular RJ45 jack, full or half duplex with RTS/CTS control and operator interface power control, supports baud rates up to 115,200 bps • Rated to ±15kV (IEC 61000-4-2, Air Discharge) static protection
Serial Ports: Serial3, Serial4	Configurable as: • either RS-232 port, 8-pin modular RJ45 jack, full or half duplex, rated to ±15kV (IEC 61000-4-2, Air Discharge) static protection • or RS-485 port, 2-wire, half-duplex, supports baud rates up to 115,200 bps
Embedded Wireless	Socket Modem support, for future use
Serial Protocols	DNP3 level 4 slave/master and peer-to-peer, IEC 60870-5-101 slave, Modbus slave/master
Ethernet Ports: Eth1, Eth2, Eth3	8-pin modular RJ45 jack, 10/100 Mbps UTP (10/100Base-T), transformer isolated
IP Protocols	• DNP3 level 4 in TCP Master/Slave, UDP Master/Slave and peer-to-peer, IEC 60870-5-104 Slave, Modbus/TCP Server, Modbus/TCP Client, Modbus RTU in TCP Client • NTP Client/Server, Telnet Server, FTP Server, BOOTP Server, Master - Slave capability • As data concentrator it can manage up to 100 local or remote DNP3 slaves, and up to 100 local slaves communicating with Modbus RTU/TCP • In peer-to-peer it can connect to up to 90 remote sites • when connected to SCADAPack 6602 modules, provides HART 5/6/7 (pass-thru and FB's)
USB Device Port	USB 2.0 compliant "B"-type receptacle, for local configuration.
USB Host Port	USB 2.0 compliant "A"-type receptacle, supports USB devices up to 32GB (specific memory sticks supported)

(1) For more information, check the SCADAPack documentation set.

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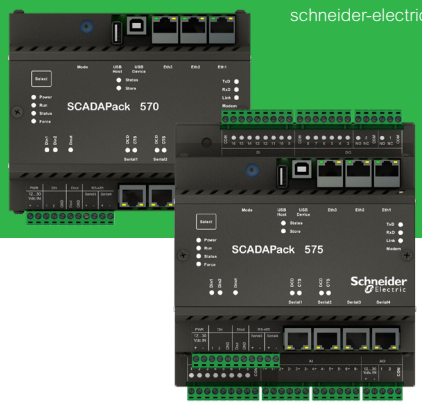

Specifications – cont'd

General

Logic Control	RemoteConnect software (5 IEC 61131-3 languages)
I/O Terminations	SCADAPack 570: 11-pole connector, 0.0810...3.31mm2 (28...12 AWG), solid or stranded SCADAPack 575: 5, 6, 7, 9, 11-pole connectors, 0.0810...3.31mm2 (28...12 AWG), solid or stranded
Dimensions	SCADAPack 570: 150.5mm (5.93") wide, 134.8mm (5.31") high, 74.9mm (2.95") deep SCADAPack 575: 150.5mm (5.93") wide, 182.3mm (7.18") high, 86.5mm (3.41") deep
Packaging	Corrosion resistant zinc-plated steel with black enamel paint Conformally coated
Environment	• -40°C (-40°F) to 70°C (158°F) operating, -40°C (-40°F) to 85°C (185°F) storage • 5% RH to 95% RH, non-condensing
Shock & Vibration	IEC 60068-2-27 (tested up to 15g), IEC 60068-2-6
Warranty	3 years on parts and labor

Power Supply

Related Voltage	12...30 Vdc, 5W typical. Limit voltage: 11.5...32 Vdc; turn on voltage: 10...11.5 Vdc; turn off voltage: 9...10 Vdc
Maximum Power	8.7 W: SP570 + 4 x 6601 expansion IO modules + USB memory stick
Power Requirements	SP570 (Controller) 3.7 W SP575 (Controller with integrated IO) 4.8 W 6601 (Expansion IO) 1.1W USB (5V at 100mA) 0.6 W Serial port (5V at 250mA) 1.5 W Analog output power requirements see the Analog Output specifications.

Power Consumption

Voltage Input	570	575	"575 + 1 x 6601"	"575 + 2 x 6601"	"575 + 3 x 6601"
	(3 I/O)	(35 I/O)	(67 I/O)	(99 I/O)	(131 I/O)
12 Vdc	3.0 W	4.1 W	5.2 W	6.3 W	7.4 W
24 Vdc	3.4 W	4.5 W	5.6 W	6.7 W	7.8 W
30 Vdc	3.7 W	4.8 W	5.9 W	7.0 W	8.1 W

Certifications

EMC & Radio Frequency	FCC 47 CFR Part 15, Subpart B ICES-003 Issue 5 August 2012 CE and RCM markings
General Safety	UL 508
Hazardous locations	cCSAus Non incendive Electrical Equipment for use in Class I, Division 2, Groups A, B, C and D IECEx/ATEX Class1, Class 2

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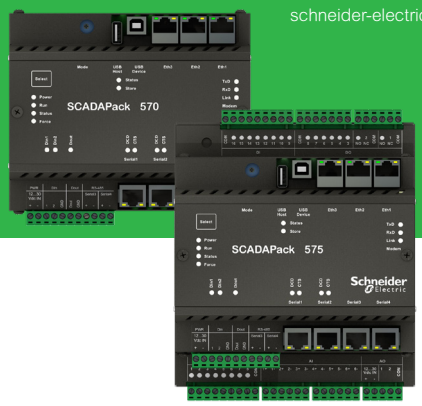

Specifications – cont'd

Digital and Analog Inputs/Outputs

	Digital inputs		Digital outputs		Counter inputs		Analog inputs	Analog outputs (option)
	10 ms SOE	1ms SOE	MOSFET output	2A output	150 Hz (shared)	1.5 kHz (shared)		
SCADAPack 570	2	-	1	-	-	-	-	-
SCADAPack 575	2	16	1	8	4	4	6	2

Digital Inputs	10 ms SOE: • 12…24 Vdc • Turn on voltage: 8 Vdc (minimum), Turn off voltage: 3 Vdc (maximum) • Over-voltage tolerance: 150% sustained over-voltage without foreseeable damage • DC input current: 0.4 mA at 12 Vdc, 0.8 mA at 24 Vdc • Time stamping: 10 ms • Ground return connected to Chassis Ground 1 ms SOE: • 12…24 Vdc • Turn on voltage: 9 Vdc (minimum), Turn off voltage: 4 Vdc (maximum) • Over-voltage tolerance: 150% sustained over-voltage without foreseeable damage • DC input current: 1.2 mA at 12 Vdc, 2.4 mA at 24 Vdc, 3.0 mA at 30 Vdc • Time stamping: 1 ms Sequence of Event • Isolation: in 2 groups of 8. Isolation from RTU logic and chassis: 1000 Vac/ 1500 Vdc
Digital Outputs	MOSFET output: • Sinking MOSFET output, rated 30V, 0.5A, ground return connected to Chassis Ground 2A output: • Relays (2 Form C, 6 Form A) • Form C: SPDT, separate Normally Open/Normally Closed/Common • Form A: Normally Open, one common • Isolation: 500 Vac minimum to RTU logic • Maximum Switching Voltage: 30 Vdc or 25 Vac • Maximum Switching Load: 60 W or 50 VA (2A) • Status & Reporting: Individual relay pole feedback to software, output state poll • Controls: Direct Operate, Select Before Operate, Trip/Close, Latch, Pulse
Counter Inputs	• Shared with digital input channels 1 to 4: 0…1.5kHz, 5 to 8: 0…150Hz
Analog Inputs	6, dipswitch-configurable to 4…20 mA, 0…20 mA or 1…5 V, 0…5 V • Uni-polar, differential, voltage or current • Resolution: 24-bit ADC (16-bit over the measurement range) • Accuracy: ±0.1% of full scale at 25°C (77°F), ±0.2% over temperature range • Isolation: 250 Vac isolation from channel to channel and from rPAC logic and chassis • Input Resistance: 250 Ω or 800 kΩ in current/voltage configurations • Under range: 4…20 mA measures to 0 mA • Common Mode Rejection : -80dB (50/60Hz) • Sampling rate: software selectable to 30 ms (unfiltered) or 500ms (filtered)
Analog Outputs	2 (optional), 0…20 mA, 4…20 mA, voltage output may be accomplished with external precision resistor • Uni-polar • Resolution: 12-bit over 0…20 mA range • Accuracy: ±0.15% at 25°C, ±0.35% of full scale over temperature range • Response Time: less than 10 µs for 10% to 90% signal change • Power Supply: 12…30 Vdc, external • Power (Current) Requirements: 10 mA plus up to 20 mA per output • Isolation: transformer, 500 Vdc maximum to RTU logic and chassis • Load Range: 12 Vdc: 0…475Ω, 24 Vdc: 0…1075Ω, 30 Vdc: 250…1375Ω • Logic End)-Of- Scan to Signal Update Latency: less than 10 ms (typically 5…8 ms) • Status & Reporting: Open Loop status, output value poll • Controls: Direct Operate, Select Before Operate
Internal Power Monitor	Power input - analog input and low indication, onboard lithium battery - low indication
Internal Temperature Monitor	Controller temperature range -40°C…+75°C (-40°F..+167°F)

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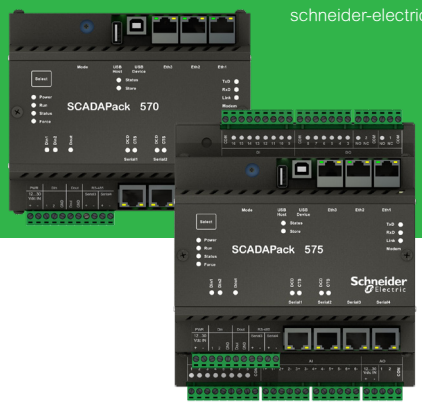

Specifications – cont'd

Additional I/O	
Supported Modules	Supported I/O expansion modules: • 6601, 6602 (HART) • 5304, 5405, 5414, 5415, 5304, 5506, 5606, 5607 (for each SCADAPack 570 or 575 configuration, order one adaptation cable ref. TBUM2972138 whatever the number of modules connected)
I/O Expansion	Maximum number of modules per unit: • SCADAPack 570: 16 (*) • SCADAPack 575: 15 (*) (*): to reach this limit, additional power supply modules are required. Consult SCADAPack 570 or 575 hardware manuals.

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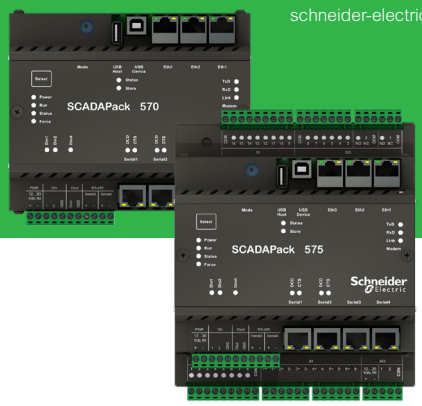

Model Code

	SCADAPack 570|575
Code	**Select: Hardware platform**
TBUP570	SCADAPack 570, 32-bit controller, Dual Core
TBUP575	SCADAPack 575, 32-bit controller, Dual Core comes with additional I/O

Code	**Select: Firmware platform**
U	SCADAPack x70 Firmware (RemoteConnect Configuration & IEC 61131-3 programming software, included)

Code	**Select: SCADA Security**
A	None
C	DNP3 Secure Authentication SAv2 (Security Administrator application required)

Code	**Select: Protocol Option**
5	DNP3 Serial/IP master/slave/peer-to-peer, IEC 60870-5-101/104 slave, Modbus RTU/TCP master/slave, TCP/IP

Code	**Select: License Option**
6	DNP3 multiple masters and data concentrator (>500 objects)
7	Adds WITS[1] protocol (available with SCADA Security Code C and Certification Code S only)

Code	**Select: Analog Inputs**
A	P570: None, P575: adds 6, shipped selectable as 0…20 mA or 4…20 mA
B	P575 only: adds 6, shipped selectable as 0…5 Vdc or 1…5 Vdc

Code	**Select: Digital Inputs/Outputs**
A	P570: 2 Digital Inputs (12/24V), 1 Digital Output (open collector)
B	P575 only: adds 16 Digital Inputs (12/24V) and 8 Dry Contact Relay outputs (6 Form A, 2 Form C)

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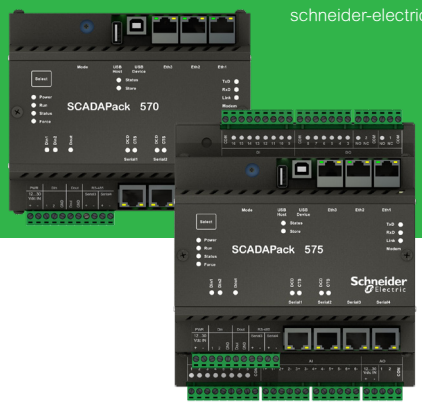

Model Code cont'd

SCADAPack 570|575

Code	Select: Analog Outputs
0	None
1	P575 only: 2 channel Analog Output option, shipped selectable as 0…20 mA or 4…20mA, external DC supply

Code	Select: Integrated Communication Interfaces
0	None

Code	Select: Certifications
S	EMC and radio frequency; FCC 47 CFR Part 15, Subpart B; ICES-003; CE and RCM markings
X	Adds IECEx/ATEX Class I, Zone 2
U	Adds cCSAus Nonincendive Electrical Equipment for use in Class I, Division 2, Groups A, B, C and D

I/O Expansion Modules

Part No.	Expansion Modules (complete the following part numbers with S, X or U depending on certification required)
Models supported by SCADAPack 530E/535E/570/575 models only	
TBUX297583	Model 6601-20mA, 16 D/I 12-24 volts, 8 Dry Contact Relay O/P, 6 config. A/I (0/4…20mA)
TBUX297584	Model 6601-5V, 16 D/I 12-24 volts, 8 Dry Contact Relay O/P, 6 config. A/I (0/1…5V)
TBUX297585	Model 6601-20mA, 16 D/I 12-24 volts, 8 Dry Contact Relay O/P, 6 config. A/I (0/4…20mA), 2 A/O (external DC supply)
TBUX297586	Model 6601-5V, 16 D/I 12-24 volts, 8 Dry Contact Relay O/P, 6 config. A/I (0/1…5V), 2 A/O (external DC supply)
TBUX297590	Model 6602-1, 8 A/I HART (0…20mA), 4 A/O HART (external DC supply)
TBUX297591	Model 6602-2, 8 A/I HART (0…20mA)

1. WITS stands for Water Industry Telemetry Standards
2. SCADAPack 570/575 rPAC embedded DC supply can power up to 4 additional I/O expansion modules, after which additional DC power supply may be needed. For more information, check the SCADAPack 570/575 hardware reference manual.

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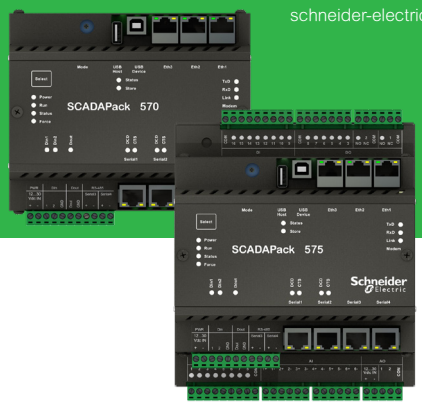
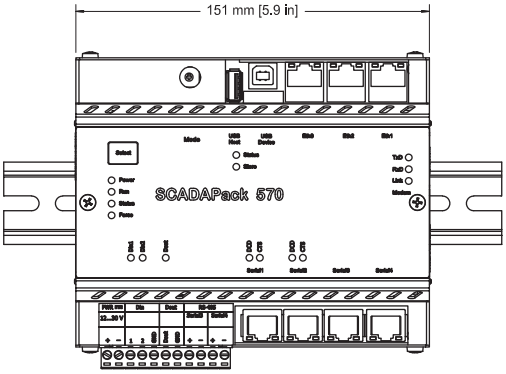
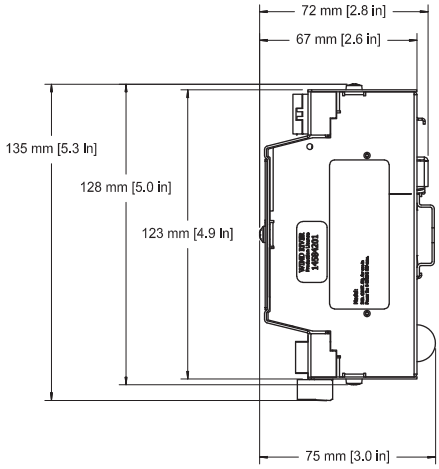
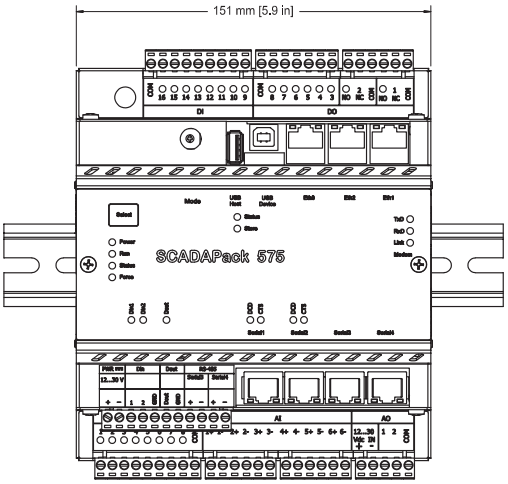
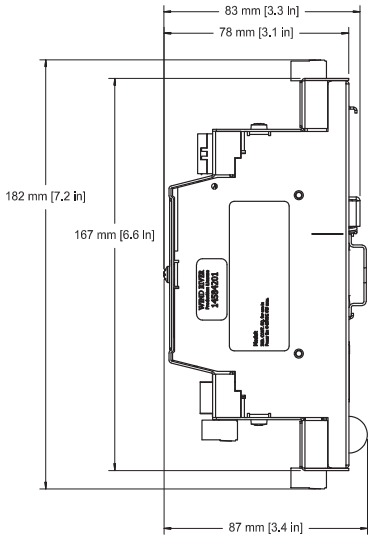


Dimensions









Disclaimer: Not all product features are available in every mode of operation.
Schneider Electric reserves the right to change product specifications. For more information visit www.schneider-electric.com.

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