

# 6601

Input / Output Expansion Module  
For SCADAPack 530E | 535E | 570 | 575  
Smart RTUs



## Product at a glance

Designed to supplement the onboard I/O count of select SCADAPack™ Smart RTUs, the 6601 I/O Expansion Module provides a combination of I/O, including digital and analog inputs and outputs, and counter inputs.

The I/O combination provided is identical to that on the I/O board included with the SCADAPack 575 and the SCADAPack 535E.

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## Input / Output Expansion Module

### Specifications

#### General

Environment	<ul style="list-style-type: none"> <li>-40...70 °C (-40...158 °F) operating temperature when the unit is mounted horizontally on a vertical surface</li> <li>-40...65 °C (-40...149 °F) operating temperature when the unit is mounted in any other position</li> <li>-40...85 °C (-40...185 °F) storage temperature</li> <li>5...95% relative humidity, non-condensing</li> <li>Pollution Degree 2, Installation Category I, Indoor use</li> </ul>
Elevation	3,000 m (9,842 ft.)
Terminations	3.3...0.08 mm <sup>2</sup> (12...28 AWG), solid or stranded
Packaging	Corrosion-resistant and RoHS-compliant clear zinc-plated steel with black enamel paint
Dimensions	150.5 mm wide X 182.3 mm high X 44.7 mm deep (5.9 in. wide X 7.2 in. X 1.8 in. deep)
Mechanical Shock	<ul style="list-style-type: none"> <li>IEC 61131-2</li> <li>½ sine, 15 ms, 15 g</li> </ul>
Vibration	<ul style="list-style-type: none"> <li>IEC 61131-2</li> <li>5...8.4 Hz: Amplitude controlled, 7.0 mm (0.28 in.) peak-to-peak</li> <li>8.4...150 Hz: Acceleration controlled, 1.0 g peak</li> </ul>
I/O Expansion Limits	Refer to the appropriate SCADAPack Hardware Manual for further details.

#### Power Supply

Power requirements at 30 Vdc (from SCADAPack RTU)	1.1 W
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#### Certifications

	Requirements specific to the RTU functional characteristics, immunity, robustness, and safety:
Industrial Standards	<ul style="list-style-type: none"> <li>IEC/EN 61131-2</li> <li>CSA 22.2 No. 61010-1-12 and CSA 22.2 No. 61010-2-201</li> <li>UL 61010-1 and UL 61010-2-201</li> </ul>
CE Marking Compliance	<ul style="list-style-type: none"> <li>For the latest information regarding product compliance with European Directives for CE marking, refer to the EU Declaration of Conformity issued for your product at <a href="http://www.se.com">www.se.com</a></li> <li>For the latest information regarding product compliance with RoHS, WEEE directives and REACH regulation, visit the Schneider Electric Check a Product portal at <a href="http://www.reach.schneider-electric.com">www.reach.schneider-electric.com</a></li> </ul>
Installation in Classified Ex Area	<ul style="list-style-type: none"> <li>Hazardous locations Class I, Division 2, groups A, B, C, and D and Class I, Zone 2 according to CSA C22.2 No. 213, CSA C22.2 60079-0, CSA C22.2 60079-15, ANSI/ISA 60079-0, ANSI/ISA 60079-15, ANSI/ISA 12.12.01, FM 3600 and FM 3611</li> <li>ATEX (European directive 2014/34/EU) in defined atmosphere Zone 2 according to EN 60079-0 and EN 60079-15</li> <li>IECEX in defined atmosphere Zone 2 according to IEC 60079-0 and IEC 60079-15</li> </ul>
Specific Countries	<ul style="list-style-type: none"> <li>Australia and New Zealand: ACMA requirements for RCM marking</li> <li>United States: FCC Part 15 Subpart B Class A</li> </ul>

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## Input / Output Expansion Module

### Specifications – cont'd

#### Counter Inputs

Quantity	8
Electrical Characteristics	Shared with digital input channels
Reporting	<ul style="list-style-type: none"> <li>• 16-bit and 32-bit counters</li> <li>• Deviation</li> <li>• Timestamped events</li> <li>• Polled, unsolicited reporting</li> </ul>
Frequency	Up to 8 channels: <ul style="list-style-type: none"> <li>• DI 1 to 4: 0...1.5 kHz</li> <li>• DI 5 to 8: 0...150 Hz</li> </ul>

#### Digital Inputs

Quantity	16
Typical Operating Voltage	12...24 Vdc
Turn-on Voltage	Minimum: 9 Vdc
Turn-off Voltage	Maximum: 4 Vdc
Over-voltage Tolerance	36 Vdc sustained over-voltage without foreseeable damage
Input Current	<ul style="list-style-type: none"> <li>• 0.9...1.2 mA at 12 Vdc</li> <li>• 2.1...2.4 mA at 24 Vdc</li> </ul>
Timestamping	1 ms Sequence of Event (SOE)
Isolation	<ul style="list-style-type: none"> <li>• Isolation is in 2 groups of 8</li> <li>• Isolation from device logic and chassis</li> <li>• 1000 Vac or 1500 Vdc</li> </ul>

#### Digital Outputs

Quantity	8
Type	<ul style="list-style-type: none"> <li>• 2 Form C single-pole double-throw (SPDT) relays available to the application</li> <li>• Separate Normally Open/Normally Closed/Common</li> <li>• 6 Form A relays available to the application</li> <li>• Normally Open, one Common</li> </ul>
Isolation	500 Vac minimum to device logic
Maximum Switching Voltage	30 Vdc or 25 Vac
Maximum Switching Load	<ul style="list-style-type: none"> <li>• 60 W or 50 VA per relay</li> <li>• 2 A per relay</li> <li>• 2 A per common on digital outputs 1-2</li> <li>• 12 A per common on digital outputs 3-8</li> </ul>
Status and reporting	Individual relay pole feedback to software Output state poll
Temperature de-rating	Mounted horizontally on a vertical surface: <ul style="list-style-type: none"> <li>• 2 A maximum per relay at 60 °C (140 °F), de-rate by 0.1 A per 1 °C to 1 A maximum per relay at a maximum ambient temperature of 70 °C (158 °F)</li> </ul> Mounted in any other position: <ul style="list-style-type: none"> <li>• 2 A maximum per relay at 60 °C (140 °F), de-rate by 0.1 A per 1 °C to 1.5 A maximum per relay at a maximum ambient temperature of 65 °C (149 °F)</li> </ul>
Controls	<ul style="list-style-type: none"> <li>• Direct Operate</li> <li>• Select Before Operate</li> <li>• Trip/Close</li> <li>• Latch</li> <li>• Pulse</li> </ul>

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## Input / Output Expansion Module

### Specifications – cont'd

#### Analog Inputs

Quantity	6
Type	Uni-polar, differential, voltage or current
Resolution (filtered)	<ul style="list-style-type: none"> <li>• 24-bit conversion yields an effective 19 bits of resolution during filtered conversions</li> <li>• 10 <math>\mu</math>V on the 5 Vdc range</li> <li>• 40 nA resolution on the 20 mA range</li> </ul>
Resolution (fast)	<ul style="list-style-type: none"> <li>• 24-bit conversion yields an effective 13 bits of resolution during unfiltered conversions.</li> <li>• 0.6 mV resolution on the 5 Vdc range</li> <li>• 2.4 <math>\mu</math>A resolution on the 20 mA range</li> </ul>
Accuracy	<ul style="list-style-type: none"> <li>• <math>\pm 0.1\%</math> of full scale at 25 °C (77 °F)</li> <li>• <math>\pm 0.2\%</math> over-temperature range</li> </ul>
Isolation	250 Vac isolation between channels and from device logic and chassis
Input resistance	<ul style="list-style-type: none"> <li>• 250 <math>\Omega</math> in current configurations</li> <li>• 800 k<math>\Omega</math> in voltage configurations</li> </ul>
Ranges	<ul style="list-style-type: none"> <li>• Input Type: 4...20 mA, 0...20 mA, 1...5 Vdc, or 0...5 Vdc</li> <li>• Under-range: 4...20 mA measures to 0 mA</li> <li>• Individual inputs can be configured for current or voltage operation using DIP switches.</li> <li>• Calibration in voltage mode 1...5 Vdc is available as an option.</li> </ul>
Sampling Rate	<ul style="list-style-type: none"> <li>• Filtered: 500 ms per 6 channels</li> <li>• Fast: 30 ms per 6 channels</li> </ul>
Common Mode Rejection	80 dB
Normal Mode Rejection	<ul style="list-style-type: none"> <li>• Filtered: 86 dB (50/60 Hz)</li> <li>• Fast: Not applicable</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>• Deviation</li> <li>• 8 alert limits</li> <li>• Under- and over-range events</li> <li>• Quality flags</li> <li>• Integer/floating point</li> <li>• Timestamped events</li> <li>• Polled, unsolicited reporting on deviation and per alert limit</li> </ul>
Timestamping	30 ms Sequence of Event (SOE)
I/O Cable Length	Maximum: 30 m (98.4 ft)

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## Input / Output Expansion Module

### Specifications – cont'd

#### Analog Outputs

Quantity	2 with optional analog outputs
Type	Uni-polar
Resolution	12-bit over 0...20 mA range
Accuracy	<ul style="list-style-type: none"> <li>±0.15% at 25 °C (77 °F)</li> <li>±0.35% of full scale over-temperature range</li> </ul>
Response Time	Less than 10 µs for 10% to 90% signal change
Power Supply (External)	12...30 Vdc
Power Supply Cable Length	Maximum: 30 m (98.4 ft)
Power (Current) Requirements	10 mA plus up to 20 mA per output
Isolation	<ul style="list-style-type: none"> <li>Transformer</li> <li>500 Vdc maximum to device logic and chassis</li> </ul>
Range	<ul style="list-style-type: none"> <li>0...20 mA</li> <li>4...20 mA</li> <li>Voltage output may be accomplished with external precision resistor</li> </ul>
Status and Reporting	<ul style="list-style-type: none"> <li>Power missing</li> <li>Open loop detected</li> <li>Values out of range</li> <li>ADC reference check</li> </ul>
Controls	<ul style="list-style-type: none"> <li>Direct Operate</li> <li>Select Before Operate</li> </ul>
Load range	<ul style="list-style-type: none"> <li>12 Vdc: 0...475 Ω</li> <li>24 Vdc: 0...1075 Ω</li> <li>30 Vdc: 250...1375 Ω</li> </ul>

### Model Code

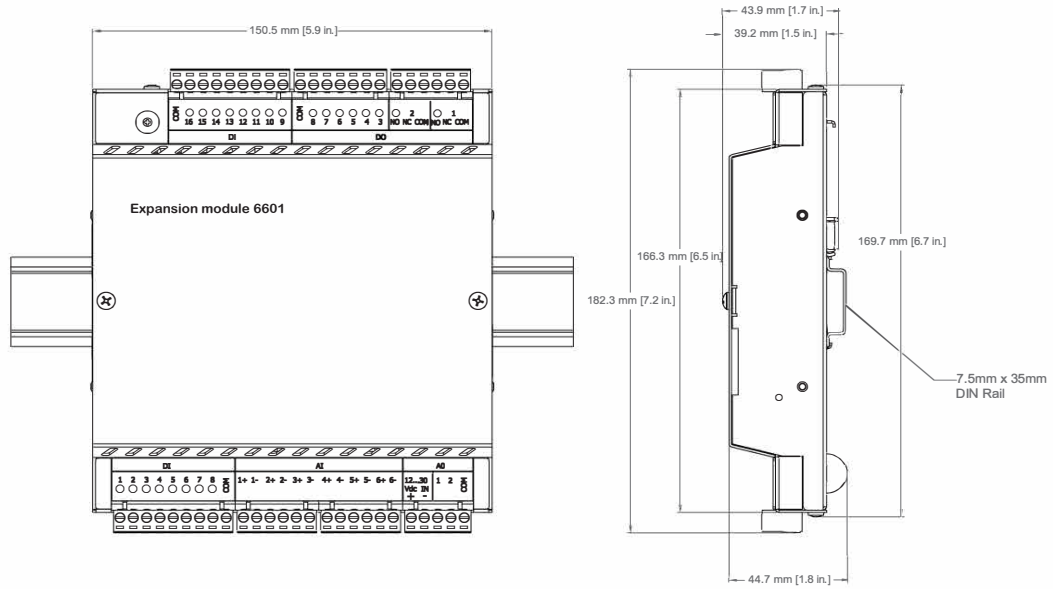
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Part No.	(Complete the following part numbers with an S, U, or X suffix depending on certification required)
<b>Models supported by SCADAPack 530E   535E   570   575 models only</b>	
TBUX297583	Model 6601-20mA, 16 D/I 12...24 Vdc, 8 Dry Contact Relay O/P, 6 config. A/I (0/4...20 mA)
TBUX297584	Model 6601-5V, 16 D/I 12...24 Vdc, 8 Dry Contact Relay O/P, 6 config. A/I (0/1...5 Vdc)
TBUX297585	Model 6601-20mA, 16 D/I 12...24 Vdc, 8 Dry Contact Relay O/P, 6 config. A/I (0/4...20 mA), 2 A/O (external DC supply)
TBUX297586	Model 6601-5V, 16 D/I 12...24 Vdc, 8 Dry Contact Relay O/P, 6 config. A/I (0/1...5 Vdc), 2 A/O (external DC supply)

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## Input / Output Expansion Module

### Dimensions



This product is RoHS-compliant.

**Disclaimer:** Schneider Electric reserves the right to change product specifications. For more information visit [www.se.com](http://www.se.com).

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