

# SCU-8400 Universal Signal Conditioner

SCU-8400 Universal Signal Conditioner Technical Specifications		
<b>General Specifications</b>		
<b>Power</b>	AC Power	21.6 to 253 VAC, 50/60 Hz
	DC Power	19.2 to 300 VDC
<b>Consumption</b>	≤2.5W	
<b>Fuse</b>	400mA slow blow / 250VAC (Not user replaceable)	
<b>Auxiliary Power Supply Output</b>	Auxiliary supplies: 2-wire loop supply (terminal 43, 44).....> 16 V @ 20mA 3-wire loop supply (terminal 42, 44).....> 18...< 28V @ 23...0 mA Loop supply limitation (terminal 42, 44).....27...35 mA avg., < 80mA peak Reference voltage.....2.5V ±0.5% Reference voltage, load.....0...15 mA Current limit, reference voltage.....< 60mA	
<b>Isolation Voltage, Test / Working</b>	2.3 kVAC / 250 VAC (reinforced) / 500 VAC (basic)	
<b>Configuration Interface</b>	Programming/display module, SCU-PDM2 (sold separately) or SCU-PDM1 (discontinued and replaced by SCU-PDM2)	
<b>Signal Dynamics, Input / Output</b>	24bit / 18bit	
<b>Signal/noise Ratio</b>	Min. 60dB	
<b>Response Time (0 to 90%, 100 to 10%)</b>	< 20ms	
<b>Calibration Temperature</b>	20 to 28°C [68 to 82.4°F]	
<b>Accuracy</b>	The greater of the general and basic values (See Accuracy Table)	
<b>EMC Immunity</b>	≤ ± 0.5% of span	
<b>Extended EMC Immunity: NAMUR NE 21, A criterion, burst</b>	≤ ± 1% of span	
<b>Conducted emission, class A</b>	150kHz to 10MHz	
<b>Environmental Conditions</b>	Operating Temperature	-20 to +60°C [-4 to 140°F]
	Storage Temperature	-20 to +85°C [-4 to 185°F]
	Operating and Storage Humidity	95% relative humidity (non-condensing)
<b>Approvals</b>	UL: E197592, UL 508/C22.2 No. 14 CE: EMC 2014/30/EU LVD 2014/35/EU RoHS2 2011/65/EU amended by 2015/863	
<b>Construction</b>	IP 20, case body is black high impact plastic. Pollution degree 2.	
<b>Connections</b>	Wire strip length	7.5 mm [0.3 in]
	Wire gauge	26 - 14 AWG standard wire
	Torque	0.5 N-m [4.5 inch-lbs]
<b>Weight</b>	250g [8.8 oz], 285g [10.1 oz] with programming module	
<b>Dimensions (HxWxD)</b>	109 x 23.5 x 104mm [4.3 x 0.93 x 4.1 in], 109 x 23.5 x 116 or 131mm depending on which programming module, PDM1 or PDM2 [4.3 x 0.93 x 4.6 or 5.16 in] with programming module	

Accuracy Table		
<b>General Values</b>		
<b>Input Type</b>	<b>Absolute Accuracy</b>	<b>Temperature Coefficient</b>
All	≤ ± 0.05% of span	≤ ± 0.01% of span/°C
<b>Basic Values</b>		
<b>Type</b>	<b>Basic Accuracy</b>	<b>Temperature Coefficient</b>
Current input	± 0.334 µA	± 0.067 µA/°C
Voltage input	± 8.33 µV	± 1.67 µV/°C
Current output	± 1.33 µA	± 0.266 µA/°C
Buffered voltage output	± 267 µV	± 53.4 µV/°C
Shunted voltage output (±1 V)	± 267 µV	± 53.4 µV/°C
Shunted voltage output (±10V)	± 1333 µV	± 0.267 µV/°C

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## Input/Output Specifications

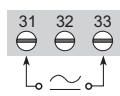
Model	SCU-8400
<b>Input</b>	
Current input ranges	0...1, 0...5, 1...5, 0...20, 4...20, $\pm 1$ , $\pm 5$ , $\pm 10$ , $\pm 20$ , $\pm 50$ , $\pm 100$ mA
Current input resistance	Nom. 20 $\Omega$ + PTC 10 $\Omega$
Current min. span	0.5 mA
Input voltage drop, nom.	0.6 V @ 20 mA
Voltage input ranges	0...0.1, 0...1, 0.2...1, 0...2.5, 0...5, 1...5, 0...10, 2...10, 0...100, 0...300, $\pm 0.1$ , $\pm 1$ , $\pm 2.5$ , $\pm 5$ , $\pm 10$ , $\pm 100$ , $\pm 300$ V
Voltage min. span	25 mV
Voltage input resistance	> 2.5 V input: 3 M $\Omega$ nom. $\leq$ 2.5 V input: > 10 M $\Omega$
3-wire potentiometer input (terminal 41, 42 & 44)	0...100%
Potentiometer reference voltage (terminal 42, 44)	2.5 V
Potentiometer calibration resistance	5 k $\Omega$
Min. potentiometer resistance	200 $\Omega$
<b>Output</b>	
Current output ranges (direct or inverted action)	0...5, 1...5, 0...10, 2...10, 0...20, 4...20, S4-20 mA, $\pm 5$ , $\pm 10$ , $\pm 20$ mA
Current output min. span	4 mA
Load (max.), current output	$\leq 1000 \Omega$ / $\pm 20$ V @ $\pm 20$ mA
Current limit	$\leq 28$ mA (unipolar) / $\pm 28$ mA (bipolar)
Load stability	0.001% of span / 100 $\Omega$
Response time, programmable	0.0 to 60.0 sec
Passive 2-wire programmable ranges	0 to 20 and 4 to 20 mA (direct or inverted action)
External 2-wire loop supply	3.5 to 28.8 VDC
Voltage output programmable ranges (direct or inverted action)	0/0.2...1, 0/1...5, 0/2...10, $\pm 1$ , $\pm 5$ , $\pm 10$ V
Response time, programmable	0.0 to 60.0 sec
Shunted voltage output signal range	$\pm 1.2$ V / $\pm 12$ V
Shunted programmable standard ranges	0...1, 0...2.5, 0...5, 0...10, 2...10, $\pm 1$ , $\pm 2.5$ , $\pm 5$ , $\pm 10$ V
Shunted custom configurable output range	$\pm 10$ V
Shunted min. span	0.8 V
Load (min.), shunted voltage output	$\geq 500$ k $\Omega$
Buffered voltage output signal range	$\pm 23$ V
Buffered programmable standard ranges	0...1, 0.2...1, 0...2.5, 0...5, 1...5, 0...10, 2...10, 0...20, 4...20, $\pm 1$ , $\pm 2.5$ , $\pm 5$ , $\pm 10$ , $\pm 20$ V
Buffered custom configurable output range	$\pm 20$ V
Buffered min. span	0.8 V
Load (min.), buffered voltage output	> 2 k $\Omega$
Current limit, buffered voltage output	< 50 mA

# SCU-8400 Universal Signal Conditioner

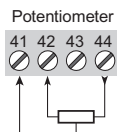
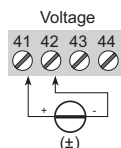
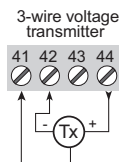
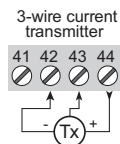
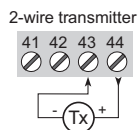
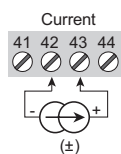
## Wiring Diagram

Model **SCU-8400**

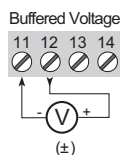
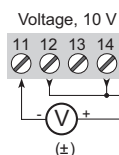
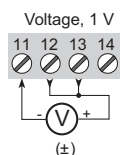
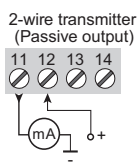
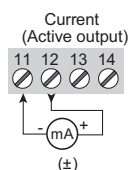
### Supply:



### Inputs:



### Outputs:



# SCU Series Universal Signal Conditioner Accessories

## Programming/Display Module SCU-PDM2



### Application:

- The AutomationDirect SCU-PDM2 module easily connects to the front of the Universal Signal Conditioners and is used as a display and to enter or adjust the programming of the module.
- Can be moved from one module to another and download the configuration of the first transmitter to subsequent transmitters.
- Fixed display for visualization of process data and status.
- Required for programming all SCU Series Universal Signal Conditioner models.

### Technical characteristics:

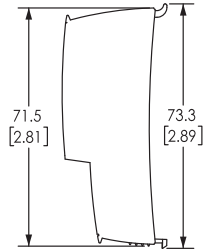
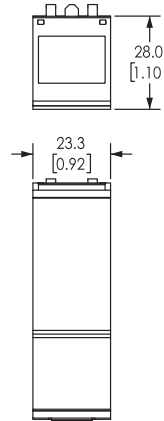
- LCD display with 4 lines; Line 1 (H = 5mm, 0.20 in) shows input signal, line 2 (H = 3.5 mm, 0.14 in) shows units, line 3 (H = 3.5 mm, 0.14 in) shows analog output or user defined text and line 4 shows communication and relay status.
- Programming access can be blocked by assigning a password. The password is saved in the transmitter in order to ensure against unauthorized modifications to the configuration.
- Not capable of standalone or remote operation.
- For Use With: SCU-3100, SCU-1400, SCU-1600, SCU-8400, SCU-7900, SCU-2200, SCU-2501, SCU-2502, SCU-2503

### Mounting/Installation:

- Snap SCU-PDM2 onto the front of the universal signal conditioners.
- Can be installed or removed whether the signal conditioner is powered or not.

## Selectable Engineering Units

°C	hP	kW	mA	PH	MHz
°F	hPa	kWh	mbar	rPM	P/m
%	Hz	l	mils	s	P/h
A	in	l/h	min	S	P/d
bar	in/h	l/min	mm	t	
cm	in/min	l/s	mm/s	t/h	
ft	in/s	m	mol	uA	
ft/h	ips	m/h	MPa	um	
ft/min	K	m/min	mV	uS	
ft/s	kA	m/s	MW	V	
g	kg	m/s <sup>2</sup>	MWh	W	
gal/h	kJ	m <sup>3</sup>	N	Wh	
gal/min	kPa	m <sup>3</sup> /h	Ohm	yd	
GW	kV	m <sup>3</sup> /min	Pa	KHz	



## External Cold Junction Compensation Connector

See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.



### Installation:

- Remove terminal block included with SCU-1400, SCU-1600 or SCU-3100 signal conditioner and replace with SCU-CJC1.

Part No. SCU-CJC1

SCU Series Signal Conditioner Accessories				
Part No.	Description		Weight (lb)	Price
<u>SCU-PDM2</u>	ProSense detachable programming/display module, for use with SCU series signal conditioners.	1	0.04	\$59.00
<u>SCU-CJC1</u>	ProSense external cold junction compensation (CJC) connector, for use with SCU-3100, SCU-1400, SCU-1600 signal conditioners.	1	0.02	\$18.00