SCU-1400

Universal Transmitter

User Manual

UNIVERSAL TRANSMITTER

SCU-1400

CONTENTS

GENERAL

WARNING

This device is designed for connection to hazardous electric voltages.
Ignoring this warning can result in severe personal injury or mechanical damage.
To avoid the risk of electric shock and fire, the safety instructions of this manual must be observed and the guidelines followed.
The specifications must not be exceeded, and the device must only be applied as described in the following.
Prior to the commissioning of the device, this manual must be examined carefully.
Only qualified personnel (technicians) should install this device.
If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

HAZARDOUS VOLTAGE

WARNING

Until the device is fixed, do not connect hazardous voltages to the device.
The following operations should only be carried out on a disconnected device and under ESD safe conditions:

- General mounting, connection and disconnection of wires.
- Troubleshooting the device.

WARNING

The SCU-PDM2 is NOT approved for use in Hazardous Locations.

INSTAL-LATION

WARNING

SCU-1400 must be mounted on a DIN rail according to DIN 46277.

WARNING

Do not open the front plate of the module as this will cause damage to the connector for the display / programming front SCU-PDM1 or SCU-PDM2. This module contains no DIP-switches or jumpers.

SYMBOL IDENTIFICATION

Triangle with an exclamation mark: Warning / demand.
Potentially lethal situations.

The CE mark proves the compliance of the device with the essential requirements of the directives.

The double insulation symbol shows that the device is protected by double or reinforced insulation.

SAFETY INSTRUCTIONS

DEFINITIONS
Hazardous voltages have been defined as the ranges: 75 to 1500 Volt DC, and 50 to 1000 Volt AC.
Technicians are qualified persons educated or trained to mount, operate, and also troubleshoot technically correct and in accordance with safety regulations.
Operators, being familiar with the contents of this manual, adjust and operate the knobs or potentiometers during normal operation.

RECEIPT AND UNPACKING
Unpack the module without damaging it. The packing should always follow the module until this has been permanently mounted.
Check at the receipt of the module whether the type corresponds to the one ordered.

ENVIRONMENT
Avoid direct sunlight, dust, high temperatures, mechanical vibrations and shock, as well as rain and heavy moisture. If necessary, heating in excess of the stated limits for ambient temperatures should be avoided by way of ventilation.
All devices fall under Installation Category II, Pollution Degree 1, and Insulation Class II.

MOUNTING
Only technicians who are familiar with the technical terms, warnings, and instructions in the manual and who are able to follow these should connect the device. Should there be any doubt as to the correct handling of the device, please contact:

www.automationdirect.com

Mounting and connection of the device should comply with national legislation for mounting of electric materials, i.e. wire cross section, protective fuse, and location. Descriptions of input / output and supply connections are shown in the block diagram and side label.

The following apply to fixed hazardous voltages-connected devices:

The max. size of the protective fuse is 10 A and, together with a power switch, it should be easily accessible and close to the device. The power switch should be marked with a label indicating that it will switch off the voltage to the device.

Year of manufacture can be taken from the first two digits in the serial number.

UL INSTALLATION REQUIREMENTS

Use 60/75°C copper conducters only
For use only in pollution degree 2 or better
Max. ambient temperature ..... 60°C
Max. wire size..... AWG 26-14
UL file number E191072

CALIBRATION AND ADJUSTMENT

During calibration and adjustment, the measuring and connection of external voltages must be carried out according to the specifications of this manual. The technician must use tools and instruments that are safe to use.

NORMAL OPERATION

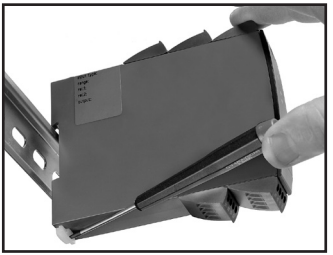
Operators are only allowed to adjust and operate devices that are safely fixed in panels, etc., thus avoiding the danger of personal injury and damage. This means there is no electrical shock hazard, and the device is easily accessible.

CLEANING

When disconnected, the device may be cleaned with a cloth moistened with distilled water.

HOW TO DETACH SCU-1400

First, remember to detach the connectors with hazardous voltages.



Picture 1:
Detach the device from the DIN rail by lifting the bottom lock.

When front LED lights red / display shows A0.ER

SCU-1400 is designed as a SIL 2 device with a high safety level. Therefore, a continuous measurement of the outgoing current is carried out on a 4...20 mA and 20...4 mA output signal. If the current output signal is different from the internal calculated output value or the current output is 0 (due to e.g. an open circuit breakage), an error mode switches on the red front LED.
This function is not a default option but must be actively selected via the programming menu (S4-20 & S20-4).
The error mode can only be reset by switching off and then switching on the supply voltage to the device.

UNIVERSAL TRANSMITTER
SCU-1400

- *Input for RTD, TC, Ohm, potentiometer, mA and V*
- *2-wire supply > 16 V*
- *FM-approved for installation in Div. 2*
- *Output for current and voltage*
- *Universal AC or DC supply*

Advanced features

- Programmable by way of detachable display front (SCU-PDM1 or SCU-PDM2), process calibration, signal simulation, password protection, error diagnostics and help text available in several languages.

Application

- Linearised, electronic temperature measurement with RTD or TC sensor.
- Conversion of linear resistance variation to a standard analog current / voltage signal, i.e. from solenoids and butterfly valves or linear movements with attached potentiometer.
- Power supply and signal isolator for 2-wire transmitters.
- Process control with standard analogue output.
- Galvanic separation of analogue signals and measurement of floating signals.
- The SCU-1400 is designed according to strict safety requirements and is thus suitable for application in SIL 2 installations.

Technical characteristics

- When SCU-1400 is used in combination with the SCU-PDM1 or SCU-PDM2 display / programming front, all operational parameters can be modified to suit any application. As the SCU-1400 is designed with electronic hardware switches, it is not necessary to open the device for setting of DIP-switches.
- A green / red front LED indicates normal operation and malfunction.
- Continuous check of vital stored data for safety reasons.
- 3-port 2.3 kVAC galvanic isolation.

SCU-PDM1 OR SCU-PDM2 DISPLAY / PROGRAMMING FRONT

SCU-PDM1

SCU-PDM2

Functionality

The simple and easily understandable menu structure and the explanatory help texts guide you effortlessly and automatically through the configuration steps, thus making the product very easy to use. Functions and configuration options are described in the section "Configuration / operating the function keys". SCU-PDM2 may vary slightly in appearance.

Application

- Communications interface for modification of operational parameters in SCU-1400.
- Can be moved from one SCU-1400 device to another and download the configuration of the first transmitter to subsequent transmitters.
- Fixed display for readout of process data and status.

Technical characteristics

- SCU-PDM1 LCD display with 4 lines; Line 1 (H=5.57 mm) shows input signal, line 2 (H=3.33 mm) shows units, line 3 (H=3.33 mm) shows analogue output or tag no. and line 4 shows communication status.
- SCU-PDM2 LCD display with 4 lines; Line 1 (H=5mm) shows input signal, line 2 (H=3.5 mm) shows units, line 3 (H=3.35 mm) shows analogue output or tag no. and line 4 shows communication status.
- Programming access can be blocked by assigning a password. The password is saved in the transmitter in order to ensure a high degree of protection against unauthorized modifications to the configuration.

Mounting / installation

- Click SCU-PDM1 or SCU-PDM2 onto the front of SCU-1400.

MOUNTING / DEMOUNTING THE SCU-PDM1 OR SCU-PDM2

1: Insert the taps of SCU-PDM1 or SCU-PDM2 into the holes at the top of the device.

2: Swing SCU-PDM1 or SCU-PDM2 into place.

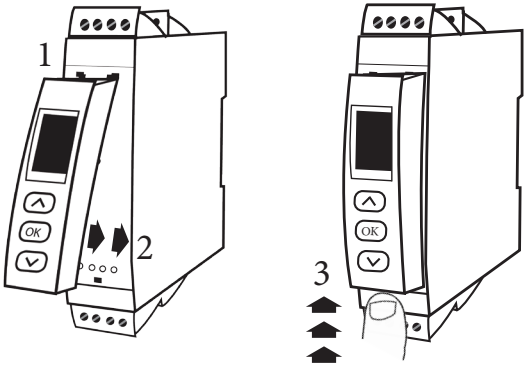
Demounting of SCU-PDM1 or SCU-PDM2

3: Push the release button on the bottom of SCU-PDM1 or SCU-PDM2 and swing SCU-PDM1 or SCU-PDM2 up.

Note: Can be installed or removed whether the signal conditioner is powered or not.

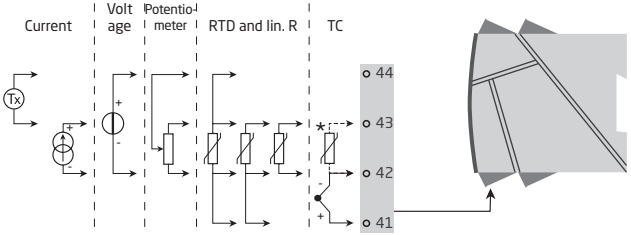
WARNING

The SCU-PDM2 is NOT approved for use in Hazardous Locations.



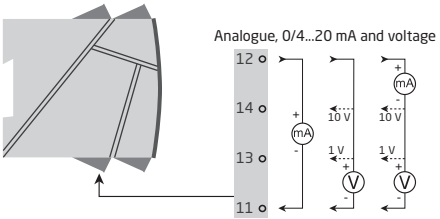
APPLICATIONS

Input signals:

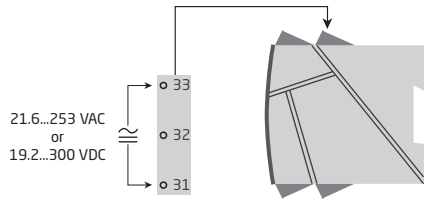


*Order separately: SCU-CJC1 Optional External CJC connector. See the connection drawing on page 15.

Output signals:



Supply:



Part Numbers

SCU-1400 = Universal transmitter
SCU-PDM1 or SCU-PDM2 = Display / programming display module
SCU-CJC1 = Optional External CJC connector

Electrical specifications

Environmental conditions

Specifications range ..... -20°C...60°C (-4°F...140°F)
Calibration temperature ..... 20...28°C (68°F...82.4°F)
Relative humidity ..... < 95% RH (non-cond.)
Protection degree IP20

Mechanical specifications

Dimensions (HxWxD) ..... 109 x 23.5 x 104 mm
(4.3 x 0.9 x 4.1 in)
Dimensions, with SCU-PDM1 or SCU-PDM2 (HxWxD)
109 x 23.5 x 116 / 131 mm (SCU-PDM1) or 144 mm (SCU-PDM2)
[4.3 x 0.9 x 4.6 / 5.2 in (SCU-PDM1) or 5.67 in (SCU-PDM2)]
Weight ..... 145 g
Weight with SCU-PDM1 or SCU-PDM2 ..... 160 g / 245 g
Max. wire size ..... 1 x 2.5 mm^2 (14 AWG) stranded wire
Screw terminal torque ..... 0.5 Nm (0.37 ft lb)
Vibration ..... IEC 60068-2-6 : 2007
2...13.2 Hz ..... ±1 mm
13.2...100 Hz ..... ±0.7 g

Common specifications

Supply voltage, universal ..... 21.6...253 VAC, 50...60 Hz or
19.2...300 VDC
Max. consumption ..... ≤ 2.0 W
Fuse ..... 400 mA SB / 250 VAC
Isolation voltage, test / operation ..... 2.3 kVAC / 250 VAC
Communications interface ..... Programming /display module, SCU-PDM2 (sold separately) or SCU-PDM1 (discontinued and replaced by SCU-PDM2)
Signal / noise ratio ..... Min. 60 dB (0...100 kHz)
Response time (0...90%, 100...10%):
Temperature input ..... ≤ 1 s
mA / V input ..... ≤ 400 ms

General values		
Input type	Absolute accuracy	Temperature coefficient
All	≤ ±0.1% of span	≤ ±0.01% of span / °C

Accuracy, the greater of the general and basic values:

Basic values		
Input type	Basic accuracy	Temperature coefficient
mA	≤ ±4 µA	≤ ±0.4 µA / °C
Volt	≤ ±20 µV	≤ ±2 µV / °C
Pt100	≤ ±0.2°C	≤ ±0.01°C / °C
Linear resistance	≤ ±0.1 Ω	≤ ±0.01 Ω / °C
Potentiometer	≤ ±0.1 Ω	≤ ±0.01 Ω / °C
TC type: E, J, K, L, N, T, U	≤ ±1°C	≤ ±0.05°C / °C
TC type: R, S, W3, W5, LR	≤ ±2°C	≤ ±0.2°C / °C
TC type: B 85...200°C	≤ ±4°C	≤ ±0.4°C / °C
TC type: B 200...1820°C	≤ ±2°C	≤ ±0.2°C / °C

EMC immunity influence ..... < ±0.5% of span
Extended EMC immunity:
NAMUR NE 21, A criterion, burst ..... < ±1% of span

Auxiliary supplies:
2-wire supply (terminal 44...43)..... 25...16 VDC / 0...20 mA

RTD, linear resistance and potentiometer input

Input for RTD types:
Pt10, Pt20, Pt50, Pt100, Pt200, Pt250, Pt300, Pt400, Pt500, Pt1000
Ni50, Ni100, Ni120, Ni1000, Cu10, Cu20, Cu50, Cu100

Input type	Min. value	Max. value	Standard
Pt10...Pt1000	-200°C	+850°C	IEC 60751
Ni50...Ni1000	-60°C	+250°C	DIN 43760
Cu10...Cu100	-200°C	+260°C	α = 0.00427
Lin. R	0 Ω	10000 Ω	-
Potentiometer	10 Ω	100 kΩ	-

Cable resistance per wire (max.), RTD..... 50 Ω
Sensor current, RTD..... Nom. 0.2 mA
Effect of sensor cable resistance
(3- / 4-wire), RTD ..... < 0.002 Ω / Ω
Sensor error detection, RTD..... Yes
Short circuit detection, RTD ..... < 15 Ω

TC input

Type	Min. value	Max. value	Standard
B	0°C	+1820°C	IEC 60584-1
E	-100°C	+1000°C	IEC 60584-1
J	-100°C	+1200°C	IEC 60584-1
K	-180°C	+1372°C	IEC 60584-1
L	-200°C	+900°C	DIN 43710
N	-180°C	+1300°C	IEC 60584-1
R	-50°C	+1760°C	IEC 60584-1
S	-50°C	+1760°C	IEC 60584-1
T	-200°C	+400°C	IEC 60584-1
U	-200°C	+600°C	DIN 43710
W3	0°C	+2300°C	ASTM E988-90
W5	0°C	+2300°C	ASTM E988-90
LR	-200°C	+800°C	GOST 3044-84

Cold junction compensation (CJC)
via external sensor in connector SCU-CJC1 20...28°C ≤ ±1°C
-20...20°C / 28...70°C ≤±2°C
via internal CJC sensor ..... ±(2.0°C + 0.4°C * Δt)
Δt = internal temperature - ambient temperature
Sensor error detection, all TC types..... Yes
Sensor error current:
when detecting..... Nom. 2 µA
else ..... 0 µA

Current input

Measurement range..... 0...20 mA
Programmable measurement ranges..... 0...20 and 4...20 mA
Input resistance..... Nom. 20 Ω + PTC 50 Ω
Sensor error detection:
Loop break 4...20 mA..... Yes

Voltage input

Measurement range..... 0...12 VDC
Programmable measurement ranges..... 0...1 / 0.2...1 / 0...5 / 1...5 / 0...10 and 2...10 VDC
Input resistance..... Nom. 10 MΩ

Current output

Signal range (span) ..... 0...20 mA
Programmable signal ranges ..... 0...20 / 4...20 / 20...0 / 20...4 mA
Load (max.) ..... 20 mA / 800 Ω / 16 VDC
Load stability ..... ≤ 0.01% of span / 100 Ω
Sensor error detection ..... 0 / 3.5 / 23 mA / none
NAMUR NE 43 Upscale / Downscale ..... 23 mA / 3.5 mA
Output limitation:
on 4...20 and 20...4 mA signals ..... 3.8...20.5 mA
on 0...20 and 20...0 mA signals ..... 0...20.5 mA
Current limit ..... ≤ 28 mA

Voltage output

Signal range ..... 0...10 VDC
Programmable signal ranges ..... 0...1 / 0.2...1 / 0...10 / 0...5 / 1...5 / 2...10 / 1...0 / 1...0.2 / 5...0 / 5...1 / 10...0 and 10...2 V
Load (min.) ..... 500 kΩ

I.S. approval

FM, applicable in ..... Class I, Div. 2, Group A, B, C, D
Class I, Div. 2, Group IIC
Zone 2 (when SCU-PDM2 is not attached). The SCU-PDM2 is NOT approved for use in Hazardous Locations.
Max. ambient temperature for T5 ..... 60°C

Observed authority requirements	**Standard**
EMC 2004/108/EC	EN 61326-1
LVD 2006/95/EC	EN 61010-1
FM	3600, 3611, 3810 and ISA 61010-1
UL, Standard for Safety	UL 508

of span = of the currently selected measurement range

Display readout on the SCU-PDM1 or SCU-PDM2 of sensor error detection and input signal outside range

Sensor error check:		
Device:	Configuration	Sensor error detection:
SCU-1400	OUT.ERR=NONE.	OFF
	Else:	ON

Outside range readout (IN.LO, IN.HI): If the valid range of the A/D converter or the polynomial is exceeded			
Input	Range	Readout	Limit
VOLT	0...1 V / 0.2...1 V	IN.LO	< -25 mV
		IN.HI	> 1.2 V
	0...10 V / 2...10 V	IN.LO	< -25 mV
		IN.HI	> 12 V
CURR	0...20 mA / 4...20 mA	IN.LO	< -1.05 mA
		IN.HI	> 25.05 mA
LIN.R	0...800 Ω	IN.LO	< 0 Ω
		IN.HI	> 1075 Ω
	0...10 kΩ	IN.LO	< 0 Ω
		IN.HI	< 110 kΩ
POTM	-	IN.LO	< -0.5 %
		IN.HI	> 100.5 %
TEMP	TC / RTD	IN.LO	< temperature range -2°C
		IN.HI	> temperature range +2°C

Display readout below min.- / above max. (-1999, 9999):			
Input	Range	Readout	Limit
All	All	-1999	Display readout <-1999
		9999	Display readout >9999

Sensor error detection limits

Sensor error detection (SE.BR, SE.SH):			
Input	Range	Readout	Limit
CURR	Loop break (4..20 mA)	SE.BR	<= 3.6 mA; > = 21 mA
POTM	All, SE.BR on all 3-wire	SE.BR	> ca. 126 kΩ
LIN.R	0...800 Ω	SE.BR	> ca. 875 Ω
	0...10 kΩ	SE.BR	> ca. 11 kΩ
TEMP	TC	SE.BR	> ca. 750 kΩ / (1.25 V)
	RTD, 2-, 3-, and 4-wire No SE.SH for Cuxx, Pt10, Pt20 and Pt50	SE.BR	> ca. 15 kΩ
		SE.SH	< ca. 15 Ω

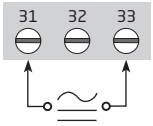
Error indications

Readout at hardware error		
Error search	Readout	Error cause
Test of internal CJC sensor	CJ.ER	CJC sensor defect or temperature outside range
Checksum test of the configuration in FLASH	FL.ER	Error in FLASH
Check measurement of analogue output current	AO.ER	1) No load on the current output (only S4...20/S20...4 mA)
Communications test SCU-PDM1 or SCU-PDM2 / SCU-1400	NO.CO	Connection error
Internal communication error	NO.OU	Output controller error
Check that input signal matches input configuration	IN.ER	1) Error levels on input
Check that saved configuration in SCU-PDM1 or SCU-PDM2 matches device	TY.ER	Configuration is not SCU-1400

! Error indications in the display flash once per second. The help text explains the error.
1) The error is reset by switching off and then switching on the supply voltage to the device.

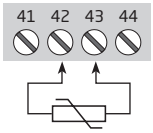
CONNECTIONS

Supply:

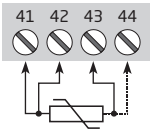


Inputs

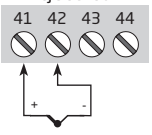
RTD, 2-wire



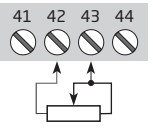
RTD, 3- / 4-wire



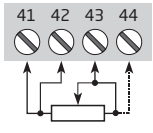
TC, internal CJC sensor



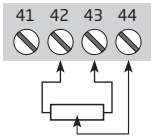
Resistance, 2-wire



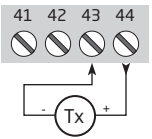
Resistance, 3- / 4-wire



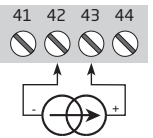
Potentiometer



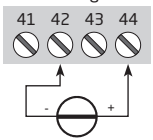
2-wire transmitter



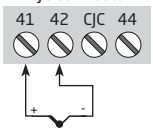
Current



Voltage



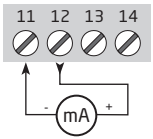
*TC, external CJC connector



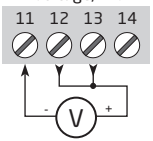
* Order separately: Optional External CJC connector SCU-CJC1

Outputs

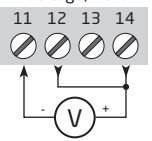
Current



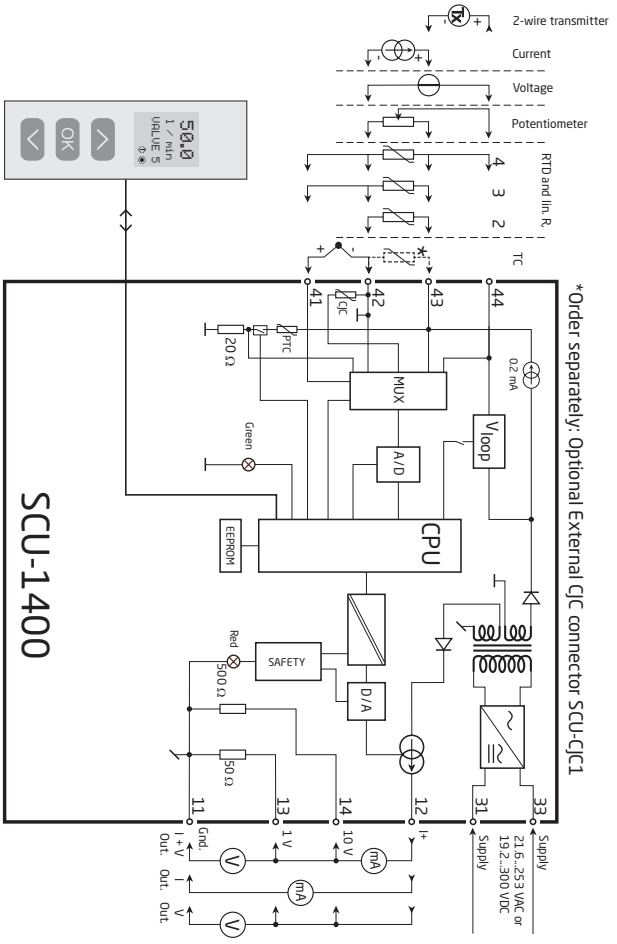
Voltage, 1 V



Voltage, 10 V



BLOCK DIAGRAM



CONFIGURATION / OPERATING THE FUNCTION KEYS

Documentation for routing diagram.

In general:

When configuring the SCU-1400, you will be guided through all parameters and you can choose the settings which fit the application. For each menu there is a scrolling help text which is automatically shown in line 3 on the display.

Configuration is carried out by using the 3 function keys:

- ⌃ will increase the numerical value or choose the next parameter
- ⌄ will decrease the numerical value or choose the previous parameter
- OK will accept the chosen value and proceed to the next menu

When configuration is completed, the dispaly will return to the default state 1.0.

Pressing and holding OK will return to the previous menu or return to the default state (1.0) without saving the changed values or parameters.

If no key is activated for 1 minute, the display will return to the default state (1.0) without saving the changed values or parameters.

Further explanations:

Password protection: Programming access can be blocked by assigning a password. The password is saved in the transmitter in order to ensure a high degree of protection against unauthorized modifications to the configuration.

Signal and sensor error info via display front SCU-PDM1 or SCU-PDM2

Sensor error (see limits in the table) is displayed as SE.BR (sensor break) or SE.SH (sensor short). Signals outside the selected range (not sensor error, see table for limits) are displayed as IN.LO indicating low input signal or IN.HI indicating high input signal. The error indication is displayed in line 3 as text and at the same time the backlight flashes. Line 4 of the display is a status line which displays COM (flashing bullet) indicating correct functioning of SCU-PDM1 or SCU-PDM2, and arrow up/down which indicates tendency readout of the input signal.

Signal and sensor error indication without display front

Status of the unit can also be read from the red/green LED in the front of the device.

Green flashing LED 13 Hz indicates normal operation.

Green flashing LED 1 Hz indicates sensor error.

Steady green LED indicates internal error.

Steady red LED indicates fatal error.

Advanced functions

The unit gives access to a number of advanced functions which can be reached by answering "Yes" to the point "adv.set".

Display setup: Here you can adjust the brightness contrast and the backlight. Setup of TAG number with 6 alphanumerics. Selection of functional readout in line 3 of the display - choose between readout of analog output or TAG number.

Two-point process calibration: The unit can be process-calibrated in 2 points to fit a given input signal. A low input signal (not necessarily 0%) is applied and the actual value is entered via SCU-PDM1 or SCU-PDM2. Then a high signal (not necessarily 100%) is applied and the actual value is entered via SCU-PDM1 or SCU-PDM2. If you accept to use the calibration, the unit will work according to this new adjustment. If you later reject this menu point or choose another type of input signal the unit will return to factory calibration.

Process simulation function: If you say "yes" to the point "EN.SIM" it is possible to simulate an input signal by means of the arrow keys and thus control the output signal up or down. When you finalise the point with OK, the unit returns to normal mode.

Password: Here you can choose a password between 0000 and 9999 in order to protect the unit against unauthorized modifications to the configuration. The unit is delivered default without password.

Language: In the menu "lang.setup" you can choose between 7 different language versions of help texts that will appear in the menu. You can choose between UK, DE, FR, IT, ES, SE and DK.

Auto diagnosis

The unit performs an advanced auto diagnosis of the internal circuits.

The following possible errors may be displayed on the front unit SCU-PDM1 or SCU-PDM2.

CJ.ER - CJC sensor defect or CJC temperature outside range
FL.ER - Flash error
AO.ER - No load on the current output (only for S4...20 mA/S20...4 mA)
NO.CO - Connection error
IN.ER - Error levels on input
TY.ER - Configuration in SCU-PDM1 or SCU-PDM2 does not match this product type

Selection of units

After choosing the input signal type you can choose the process units which will be displayed in text line 2 (see table). By selection of temperature input the process value is always displayed in Celsius or Fahrenheit. This is selected in the menu point after selection of temperature input.

Safety readback

When the device is delivered with default configuration, the SIL function is disabled. The safety readback function (loop surveillance) can be selected in the menu O.RANGE, thus enabling the device to run in SIL mode. In order to enable the SIL functionality, the menu item S4...20 mA must be selected. Please note, however, that when safety readback is enabled, a sensor error will be indicated as an error on the analogue output signal.

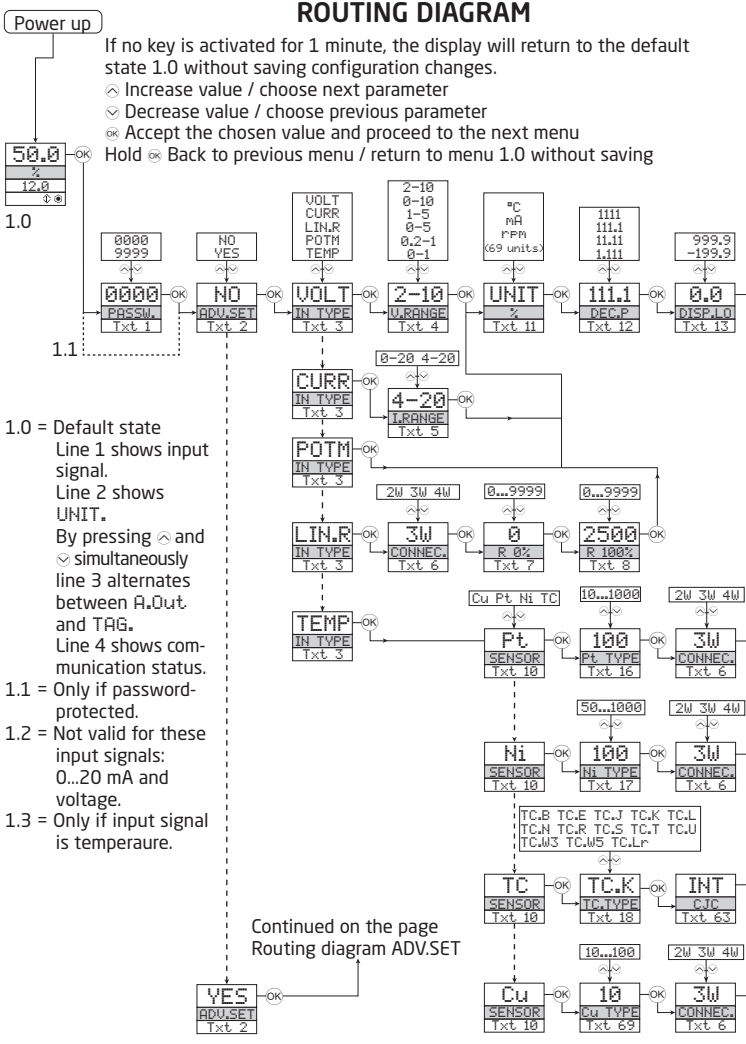
CJC

In the CJC menu you can choose between external CJC connector and internal cold junction compensation. The external CJC connector (SCU-CJC1) must be ordered separately.

Memory

In the memory menu you can save the configuration of the device in the SCU-PDM1 or SCU-PDM2, and then move the SCU-PDM1 or SCU-PDM2 onto another device of the same type and download the configuration in the new device.

ROUTING DIAGRAM

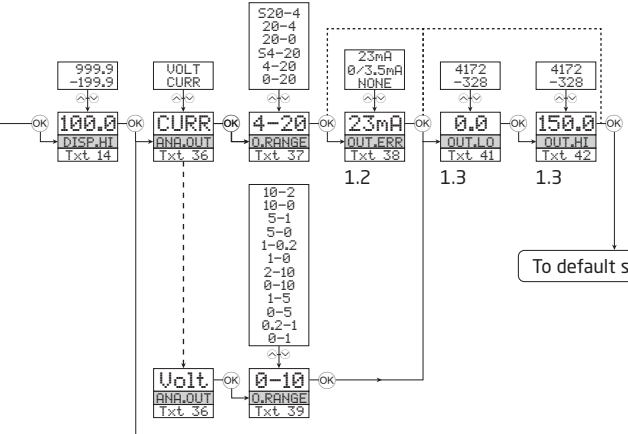


1.0 = Default state
Line 1 shows input signal.
Line 2 shows UNIT.
By pressing ⌃ and ⌄ simultaneously line 3 alternates between A.Out and TAG.
Line 4 shows communication status.

1.1 = Only if password-protected.

1.2 = Not valid for these input signals: 0...20 mA and voltage.

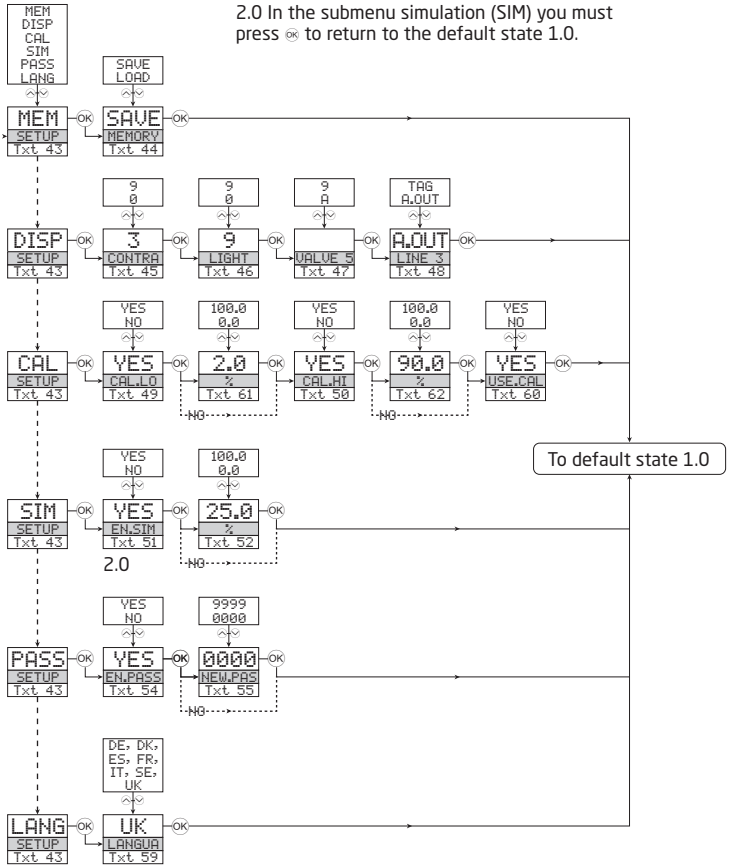
1.3 = Only if input signal is temperaure.



Selectable UNITS:

°C	hP	kW	mA	pH
°F	hPa	kWh	mbar	rpm
%	Hz	l	mils	s
A	in	l/h	min	S
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/s2	MWh	W
gal/h	kJ	m3	N	Wh
gal/min	kPa	m3/h	Ohm	yd
GW	kV	m3/min	Pa	[blank]

ROUTING DIAGRAM, ADVANCED SETTINGS (ADV.SET)



SCROLLING HELP TEXT IN DISPLAY LINE 3

[01] Set correct password
[02] Enter advanced setup menu?
[03] Select temperature input
Select potentiometer input
Select linear resistance input
Select current input
Select voltage input
[04] Select 0.0-1 V input range
Select 0.2-1 V input range
Select 0-5 V input range
Select 1-5 V input range
Select 0-10 V input range
Select 2-10 V input range
[05] Select 0-20 mA input range
Select 4-20 mA input range
[06] Select 2-wire sensor connection
Select 3-wire sensor connection
Select 4-wire sensor connection
[07] Set resistance value low
[08] Set resistance value high
[09] Select Celsius as temperature unit
Select Fahrenheit as temperature unit
[10] Select TC sensor type
Select Ni sensor type
Select Pt sensor type
Select Cu sensor type
[11] Select display unit
[12] Select decimal point position
[13] Set display range low
[14] Set display range high
[16] Select Pt10 as sensor type
Select Pt20 as sensor type
Select Pt50 as sensor type
Select Pt100 as sensor type
Select Pt200 as sensor type
Select Pt250 as sensor type
Select Pt300 as sensor type
Select Pt400 as sensor type
Select Pt500 as sensor type
Select Pt1000 as sensor type
[17] Select Ni50 as sensor type
Select Ni100 as sensor type
Select Ni120 as sensor type
Select Ni1000 as sensor type
[69] Select Cu10 as sensor type
Select Cu20 as sensor type
Select Cu50 as sensor type
Select Cu100 as sensor type
[18] Select TC-B as sensor type
Select TC-E as sensor type
Select TC-J as sensor type
Select TC-K as sensor type
Select TC-L as sensor type
Select TC-N as sensor type
Select TC-R as sensor type
Select TC-S as sensor type
Select TC-T as sensor type
Select TC-U as sensor type
Select TC-W3 as sensor type
Select TC-W5 as sensor type
Select TC-Lr as sensor type
[36] Select current as analogue output type
Select voltage as analogue output type
[37 Select 0-20 mA output range
Select 4-20 mA output range
Select S4-20 mA with safety readback
Select 20-0 mA output range
Select 20-4 mA output range
Select S20-4 mA with safety readback
[38] Select no error action - output undefined at error
Select downscale at error
Select NAMUR NE43 downscale at error
Select NAMUR NE43 upscale at error
[39] Select 0.0-1 V output range
Select 0.2-1 V output range
Select 0-5 V output range
Select 1-5 V output range
Select 0-10 V output range
Select 2-10 V output range
Select 1-0.0 V output range
Select 1-0.2 V output range
Select 5-0 V output range
Select 5-1 V output range
Select 10-0 V output range
Select 10-2 V output range
[41] Set temperature for analogue output low
[42] Set temperature for analogue output high
[43] Enter password setup
Enter simulation mode
Perform process calibration
Enter display setup
Perform memory operations
[44] Load saved configuration into SCU-1400
Save SCU-1400 configuration in SCU-PDM1 or SCU-PDM2
[45] Adjust LCD contrast
[46] Adjust LCD backlight
[47] Write a 6-character device TAG
[48] Analogue output value is shown in display line 3
Device TAG is shown in display line 3
[49] Calibrate input low to process value?
[50] Calibrate input high to process value?
[51] Enable simulation mode?
[52] Set the input simulation value
[54] Enable password protection?
[55] Set new password
[59] Select language
[60] Use process calibration values?
[61] Set value for low calibration point
[62] Set value for high calibration point
[63] Select CJC connector (accessory)
Select internal temperature sensor