Schwille - Elektronik Programmable Panel Meter SPE 670 – 030 for Analog Signals

Digital Panel Meter SPE 670 – 030

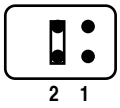
Meas. Type:	Analog signals 0-10V/0-20mA
Dimension Display:	On request
Display/ Rate:	3_ Digits / 2.5 Meas./s
Display Type:	LED 12.5mm, red
Polarity:	Auto., "-" sign
Decimal Point:	Programmable
Protection Index:	IP50, DIN 40050
Operating Temp.:	-10°C…+50°C
Control Outputs:	2 Relays N/O or N/C
Limit Values:	Programmable
Relay Contact:	230V / 5A
Connector Type:	Lift clamp
Front Panel:	DIN 48 x 96
Mounting Depth:	D = 115mm
Panel Cut-out:	H x W = 44.5x90.5mm
Supply:	230V 50-60Hz 4.5VA
Meas. Ranges:	Set by jumper
Front keys:	Lockable by jumper
Sensor Supply:	24V / 30mA DC

Measuring Ranges (and Functions)

Analog Signals
Accuracy: ± 0.1%, ±1 Digit of meas.val.

I	0 - 1V	Ri 1 MOhm
I	0 – 10V	Ri 10 MOhm
II	0 – 20mA	Ri 10 Ohm
II	4 - 20mA	Ri 10 Ohm

Setting the Ranges

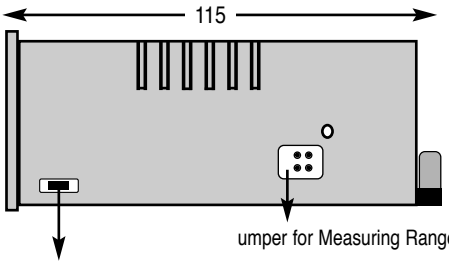


The Measuring Range is freely settable through jumpers at the right side of the device housing.

Jumper 1 Meas. Range 0 – 10V / 0 – 1V

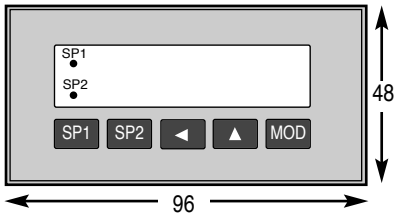
Jumper 2 Meas. Range 0 – 20MA / 4 – 20mA

Attention: Either set Jumper 1 or Jumper 2
Other combinations may lead to serious damages of the device. Jumpers may not be changed while the device is being connected to power.



Key Lock:
The jumper is placed on the main board and is accessible from the side of the device housing.
By removing the jumper the keys are locked.

Operation Instruction:



MOD enter or leave programming mode

▲ increment selected digit

◄ select next digit / position

SP1 display threshold value of SP1 relay

SP2 display threshold value of SP2 relay

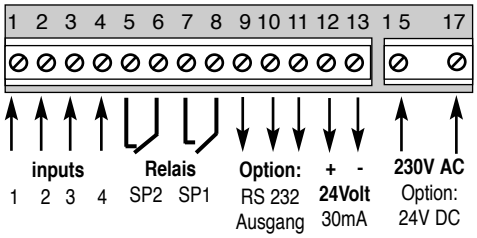
SP1 SP1 ON : SP1 relay contact is closed

SP2 SP2 ON : SP2 relay contact is closed

Error indications:
If the measuring signal exceeds or falls short of the allowed measuring range the LED display shows:
"oooo" = Measuring range exceeded
"uuuu" = Measuring range fallen short

Reset to default device setting:
Turn off power. Push simultaneously the leftmost three keys. Hold and turn on power. Release keys after 3 seconds.

Terminal Legend:



Input 1: In-HI Voltage range 0 – 10V

Input 2: In-HI Voltage range 0 – 1V

Input 3: In-HI Current Range 0 – 20mA/4 - 20mA

Input 4: GND for all measuring ranges

Relay SP1: Potential free switch
Relay SP2: Potential free switch

Opt.RS232: Galvanic separated RS232 output
GND(11), RXD(10), TXD(9)
Output: 24V, 30mA galvanic separated voltage supply for external sensors
230V AC: AC Power input (15,17) or Optional 12V / 24V DC supply input

CE-Convention

Meets EMV convention (89/336/EWG) and the German EMV ruling by applying the Basic Standard EN 50080/ EN 50081. Meets the Low Voltage convention (73/23/EWG) by applying Product Standard EN 61010.

Safety Precautions

Employing these instruments, regulations for working with high voltage equipment, as well as any Professional Trade Association regulation for working with electrical appliances and installations have to be observed.

Option: 12V / 24V DC Supply

In derivation of the standard model the device can be ordered for following auxiliary supply voltages: 12V DC or 24V DC (Conn. 15 "-", 17 "+"). For these models the 24V / 30mA sensor supply voltage is not available. Using this option measurements for up to 200V DC / AC can be performed only since the DC-DC converter isolates 500V. Special DC-DC Converter are available on request for higher measurements.

Option: RS232 with Real Time Clock

The RS232 module with Real Time Clock provides a printer output via the serial interface. Data, Time and Measuring values with dimension are available. The isolated RS232 interface is bi-directional and comes with a driver software. Models 670/… can be controlled external via this interface. (See description on back page)

Option: Analog Output Terminal 9, 11

Models -010 / -020 / -030 / -050 / -060
Output: -1999 digits generate = 0V
Terminal 9 = + V ±000 digits generate = +5V
Terminal 11 = GND 1999 digits generate = +10V
With this option the 24V voltage supply is not available

Guarantee Regulations:

Regulations by law apply for guarantee within 12 month. All equipment is factory tested and calibrated. Excluded from the guarantee are normal wear and tear, defects due to misuse, negligence, chemical exposure, mechanical stress as well as equipment, which has been modified, re-labeled or otherwise altered or if attempts to repair have been made. All guarantee claims are subject to our scrutiny and approval.

Programming:

The programmable Panel Meter 670-XXX with its integrated measuring routines can be controlled by a variety of parameters for the measuring cycle. New values can be entered as on a pocket calculator via keyboard, easy and comfortable.

This is how to select a measuring routine: MOD

Push MOD to enter programming mode

Select routine number with increase key ▲

Push MOD again to confirm selection MOD

To change value on selected routine:

Enter desired value with increase key ▲

Select next position with shift key, ◄

decimal point of selected digit is blinking

Select value with increase key ▲

Enter inserted value MOD

The device now works again in the measuring mode.

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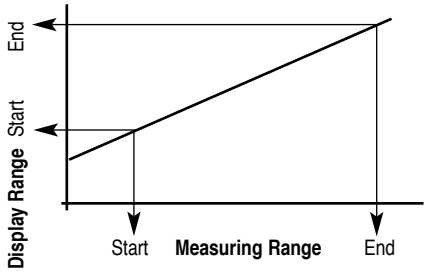
Integrated Programming Routines

Routine 1 – 4: Special Measuring Range only
With routines 1-4 the ration between the measuring range and the display range is set. Thereby the slope of the line between start and end values as well as a zero-offset value can be set. To excess these routines parameter 1 must be set in Routine 23.



Routine 1: Start of measuring range
Routine 2: Start of display range
Routine 3: End of measuring range
Routine 4: End of display range

Example: Measuring Range: 0 - 1000
Display Range: 0 - 780
- Routine 23 set to 1
- Routine 1 set to 000
- Routine 2 set to 000
- Routine 3 set to 1000
- Routine 4 set to 780

Routine 5: Setting the Options
DAC (Analog Output) or
RS232 / Real Time Clock board mounted
000 = DAC or no extension board
001 = RS232 / RTC board

Routine 6: Setting the Decimal Point
Setting the position of the comma on the LED display
- 000 = No decimal point (default)
- 001 = 1.999
- 002 = 19.99
- 003 = 199.9

Routine 7: Setting the Switch Point SP 1 With this routine the desired threshold (display) value for SP 1 can be set.
Routine 8: Activating Switch Point SP 1The switch point function can be turned on or off. 000 = Inactive, 001 = Active

Routine 9: Setting the Switch Point SP 2 With this routine the desired threshold (display) value for SP 2 can be set.
Routine 10: Activating Switch Point SP 2 The switch point function can be turned on or off. 000 = Inactive, 001 = Active

Routine 11: Switch Point Hysteresis SP 1
Routine 12: Switch Point Hysteresis SP 2
The hysteresis is set as an amount of digits (max. 1999). Default value 000

Routine 13: Test Function Relay SP 1
Routine 14: Test Function Relay SP 2
EIN is displayed if the relay is energized and if the relay is programmed as Closer (N/O). Otherwise
AUS is displayed if programmed as Opener (N/C).

Routine 15: Setting of relay function SP 2
Routine 16: Setting of relay function SP 2
Each relay can operate as Closer (N/O) or Opener (N/C) when the Switch Point is reached. If the last digit is set to 1 = Opener (N/C) the current circuit is inter-rupted. If the last digit is set to 000 = Closer (N/O) the current circuit is closed. Default = 000.

Routine 17: ON- / OFF- delay of SP 1
Routine 18: ON- / OFF- delay of SP 2
When reaching the threshold value the relay function is time-delayed. The time-delay is proportional to the number of measuring cycles (max. 1999 cycles). Number of measuring cycles = Time-delay Default: 000

Routine 19: Viewing Maximum measuring value retention
Routine 20: Viewing Minimum measuring value retention
The maximum and minimum measuring values since the last reset are continuously recorded and stored. These values can be reset while the min.or max. value is displayed by pushing and holding for at least 3 seconds keys SP 1 and SP 2 simultaneously

Routine 21: Rounding the last digit
The last digit can be rounded to 0, 2 or 5.
Setting: 000 = last digit will be set to 0
001 = last digit will be displayed (default)
002 = 2 / 4 / 6 / 8
003 = 0 / 5 / 0

Routine 22: Setting the number of measurements to generate an average value The average measuring value will be displayed.
Setting: 000 = no average value generation (default).
002 – 1999 number of measuring cycles used to generate an average value

Routine 23: Selection of measuring method
Setting: 000 = standard measuring (default)
001 = special measuring range.
Routines 1 – 4 can be accessed

Routine 25: Activation und Time setting for RS232 Interface
Setting: 000 = no measurement output (default)
001 = output activated, cycle time Minutes
002 = output activated, cycle time Seconds

Data format: 4800 Bd, no Parity, 1 Stop bit and 8 Data bits

Routine 26: Measurement division by 10
Setting: 000 = no division (default)
001 = measuring value divided by 10

Routine 27: Setting the Baud Rate of the RS232 interface
Setting: 0 = 150, 1 = 300, 2 = 600, 3 = 1200,
4 = 2400 5 = 4800, 6 = 9600 Baud

Setting the Real Time Clock (RTC)

Routine 28: Minutes This value sets the actual time in minutes Setting range: 0 – 59 minutes

Routine 29: Hours This value sets the actual time in hours Setting range: 0 – 23 hours

Routine 30: Day of date This value sets the actual day of the date Setting range: 1 – 31

Routine 31: Day of week This value sets the actual day of the week Setting: 0 = Sunday, 1 = Monday, 2 = Tuesday, 3 = Wednesday, 4 = Tuesday, 5 = Friday, 6 = Saturday

Routine 32: Month of date This value sets the actual month of the date Setting range: 1 – 12
1 = January, 2 = February … 12 = December

Routine 33: Year of date
This value is least significant part of the year number of the actual year of date. The most significant part is set to 20.
Setting range: 0 –99
0 = 2000,
99 = 2099

Routine 34: Setting the Transmission cycle for serial interface Date and time are added to the measuring value at the time interval of the programmed transmission cycle and transmitted via the serial interface. The time distance of transmissions is entered in minutes Note that transmission must be activated first either through Routine 25 or through Jumper 4 (see description further down).

Setting range:
0 – 255
0 = Timer Stop (no transmission)
1 = transmission occurs every minute
2 = every 2 minutes
255 = every 255 minutes (4h 15min)

Dimensioning measurements
The dimension of a physical unit consists mainly of two parts, the size and the type of the unit.
Dimensions are not displayed on the SPE 670 series but appear on the printout. The dimension size and type can be entered in ASCII-code as a decimal value. For the extended type-set code page 437 (IBM) applies.

Routine 35: Size of dimension Sets the size of the physical unit for the displayed measuring value: m = Milli, μ = Micro, p = Pico … ° = Grad. Examples: ° = 248, μ = 230, m = 109, n = 110, p = 112, k = 107, M = 77, G = 71.

Routine 36: Type of dimension
Sets the type of the physical unit for the displayed measuring value: V = Volt, A = Ampere … C = Celsius
Examples: A = 65, C = 67, V = 86, Ü = 234 (Ohm).

Routine 37: Customizing signs for measurements
Covering a wider variety of naming measuring values a third sign can be entered. Through this feature names like "Bar" are possible. In this example enter
B = 66 in Routine 35, a = 65 in Routine 36 and r = 114 in Routine 37.
For character translation see ASCII-code table or IBM code page 437.

Jumper 4 Single or event triggering
If Jumper 4 is set measuring values are transmitted at programmed time intervals via the serial interface, even if the inter face is deactivated through Routine 25. The transmission cycle is set through Routine 34 respectively can be stopped. Jumper 4 is accessible on the main board left hand side of the display unit. (seen from the front view)

Service

We are glad that you decided on an instrument from our product range. If there are what so ever any defects, please send the instrument (postage paid) to your distributor.

For technical information contact us via E Mail
Info@schwille.de

Technical changes reserved.
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