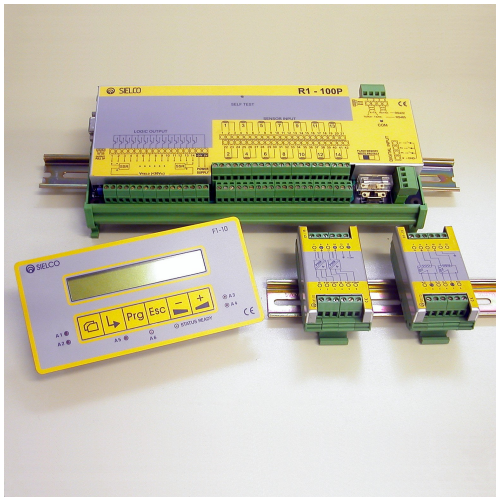

R1-100P-N

Multiloop controller with 14 Pt100 input channels

Multiloop temperature controller for DIN rail mounting; 14 Pt100 inputs with automatic compensation of the resistance of the cable; accurate readings without need of calibration; possibility to set different control strategies and to configure up to 14 PID control loops; heat, cool or heat/cool control with various output types: on/off, time proportional or analog (with addition of C1-10 external module); PID autotuning algorithm; programmable activation sequence to limit the energy consumption during start-up; dedicated interface for connection with a local operator panel (F1-10); RS422/485 serial interface with Modbus (ASCII or RTU) protocol; a common supervision of many controllers can be provided by the SCADA software WINLOG-A or by the F1-100 and the F1-500 (touch screen) operator panels.

GENERAL SPECIFICATIONS

Power supply	From 18 to 36 Vdc, 170 mA @ 24 Vdc (without F1-10), 250 mA (with)
Power supply protections	Against surge, voltage peaks and polarity inversion
Operating environment	Temperature: from 0 to 70 °C, relative humidity: from 25 to 85 % (non condensing)
Operating atmosphere	Without corrosive gas
Storage temperature	From -20 to 80 °C (without ice)
Electromagnetic compatibility □	• Radio frequency emissions: EN55011 Group 1 Class A • Conducted emissions: EN55011 Group 1 Class A • Radio frequency immunity: ENV50140 10 V/m AM from 80 to 1000 MHz • Conducted immunity: ENV50141 10V/m AM from 0.15 to 80 MHz
IP grade	Connectors: IP20, enclosure: IP20
Insulation	• Between inputs/outputs and 485/422 section: 1000 V • Between power supply and 485/422 sections: 1000 V
Signalling leds	Self-test, serial tx, serial rx, serial tx enable
Mounting mode	DIN EN50022 rail
Dimensions	275L x 130H x 70P mm
Weight	800 g
Ordering code	R1-100P-N

ANALOG INPUTS SPECIFICATIONS

Sensor type	14 Pt100 sensors, IEC 751, 2 or 3 wires
Analog/digital conversion	Successive approximation, 12 bit resolution
Maximum PT100 resistance	310 Ω
Maximum line resistance	20 Ω
Overall Accuracy	±0.05 % full scale
Acquisition rate	1 s (all the fourteen channels)
Full scale temperature range	From -199.9 to 500 °C

DIGITAL INPUTS SPECIFICATIONS

Input type	3 inputs, common negative
Voltage levels	Active state: from 0 to 2 V, non active state: from 3 to 36 V
Detectable pulse duration	Not less than 500 ms

DIGITAL OUTPUTS SPECIFICATIONS

Output type	14 outputs NPN transistor open collector
Pull-down resistor	10 kΩ to 15 V or to the power supply voltage (selectable by jumper)
Output voltage when active	0 V
Maximum load current	30 mA each output
Protections	Against short circuit

COMMUNICATION INTERFACE SPECIFICATIONS

Communication interface	EIA RS485 or RS422 (selectable by jumper)
Communication speed	9600 or 19200 baud (selectable by dip-switches)
Communication protocol	Modbus ASCII or Modbus RTU (selectable by dip-switches)
Device address	From 1 to 31 (selectable by dip-switches)
485/422 lines protections	Against surge, short circuits and voltage peaks
Pull-up and pull-down resistors	10 kΩ

FUNCTIONAL SPECIFICATIONS

Watch-dog	Hardware
Read software filter	Moving average, 8 samples depth (individually selectable for each channel)
Set-points	Two, runtime selectable by using one of the digital inputs
Set-point options	• Can be the temperature read from one of other channels • Hold-back and soft start • Set-point ramp, user configurable
Regulation strategies	Heat, cool, heat/cool, with start order
Regulation algorithm	Advanced PID, with cycle time selectable from 1 to 240 s
Autotuning	Yes
Outputs	• For SSR, with ramp and outputs limits user configurable • For relays, with working cycle user configurable • For motorized valves without potentiometric feedback
Alarms	Band type and mininum/maximum type alarms, with time activation filter (individually selectable for each channel)