ELECTRONIC AND CONTROL PROCESS DEVICES

DATEXEL

"DAT9000 SERIES" Intelligent units

The DAT9000 Series intelligent units were designed by DATEXEL to offer its customers products that, thanks to their capabilities, allow them to manage various architectures in the area of small to medium size automation systems and process control through the connection of a network of MODBUS RTU Master/Slave devices connected by way of RS-485.

The DAT9000 units read and write the parameters of the field devices to which they are connected, processing functions of the logical/mathematical type, including complex ones, such as for example: alarms, linearization, means, square roots, etc..

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DAT9000 Intelligent
SERIES units

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INTELLIGENT UNIT WITH ETHERNET INTERFACE
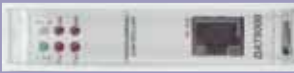
DAT 9000

GENERAL DESCRIPTION

The device DAT9000 is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working. By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value.

Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to:
- Programming of the Control Logic
- Monitor, request of data, programming in real time the Intelligent Unit
- Direct programming and request of data from the Slave devices connected on the RS-485 Master.

FEATURES

- N.1 serial interface RS-485 Modbus RTU Master
- N.1 serial interface RS-485/232 Modbus RTU Slave
- Interface Ethernet 10Base-T, Modbus TCP
- Functional Block programming software
- Remotely programmable

- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard

Application areas — Industries, Board machine, Energy, Food business, Water treatment

POWER SUPPLY

10 ÷ 30 Vdc

CURRENT CONSUMPTION

45 mA typ.@24Vdc (standby)

80 mA max

ISOLATIONS

Power supply / Ethernet	
Power supply / RS485	1500 Vac, 50 Hz, 1 min.
Ethernet / RS485	

TEMPERATURE & HUMIDITY

Operative temperature	-20°C ÷ +60°C
Storage temperature	-40°C ÷ +85°C
Relative humidity (not cond.)	0 ÷ 90 %

CONNECTIONS

Ethernet	RJ-45 (on terminals side)
RS-232D	RJ-45 (on front side)
RS-485 Master / Slave	Remov. screw terminals

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 160 g.

Network interface

Ethernet	10 Base-T
Protocol	Modbus TCP

RS-485 Interface

Baud-rate	up to 38.4 Kbps
Max. distance (1)	1.2 Km @ 38.4 Kbps
Number of modules in multipoint	up to 32
Internal termination resistance	120 Ohm (optional)

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

INTELLIGENT UNIT WITH DATA-LOGGER AND ETHERNET INTERFACE

DAT 9000-DL

GENERAL DESCRIPTION

The device DAT9000 DL is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working, managing up to 8 task of recording memorized on files saved on the microSD card. By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. By Ethernet it is possible to get access to the files saved on the microSD card when the Data-Logger function is active.

Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to: Programming of the Control Logic; Monitor, request of data, programming in real time the Intelligent Unit; Direct programming and request of data from the Slave devices connected on the RS-485 Master.

FEATURES

- N.1 serial interface RS-485 Modbus RTU Master
- N.1 serial interface RS-485/232 Modbus RTU Slave
- N.1 slot for microSD card
- Interface Ethernet 10Base-T, Modbus TCP
- Functional Block programming software
- Remotely programmable

- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard

Application areas — Industries, Board machine, Energy, Food business, Water treatment

POWER SUPPLY

10 ÷ 30 Vdc

CURRENT CONSUMPTION

45 mA typ.@24Vdc (standby)

100 mA max

ISOLATIONS

Power supply / Ethernet	
Power supply / RS485	1500 Vac, 50 Hz, 1 min.
Ethernet / RS485	

TEMPERATURE & HUMIDITY

Operative temperature	-20°C ÷ +60°C
Storage temperature	-40°C ÷ +85°C
Relative humidity (not cond.)	0 ÷ 90 %

CONNECTIONS

Ethernet	RJ-45 (on terminals side)
RS-232D	RJ-45 (on front side)
RS-485 Master / Slave	Remov. screw terminals

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 160 g.

Network interface

Ethernet	10 Base-T
Protocol	Modbus TCP

RS-485 Interface

Baud-rate	up to 38.4 Kbps
Max. distance (1)	1.2 Km @ 38.4 Kbps
Number of modules in multipoint	up to 32
Internal termination resistance	120 Ohm (optional)

Compatible SD card

Type	microSD
Memory size	Up to 8 GB
Format	FAT16 or FAT32

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

INTELLIGENT UNIT WITH ETHERNET INTERFACE AND DIGITAL I/O

DAT 9000IO

GENERAL DESCRIPTION

The device DAT9000IO is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working. Moreover, the device is equipped with 4 digital inputs channels and 2 relay outputs. On digital inputs are available 32-bit counters and the measure of the frequency up to 300Hz.

By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to:
- Programming of the Control Logic
- Monitor, request of data, programming in real time the Intelligent Unit.
- Direct programming and request of data from the Slave devices connected on the RS-485 Master.

FEATURES
- N.1 serial interface RS-485 Modbus RTU Master
- N.1 serial interface RS-485/232 Modbus RTU Slave
- Interface Ethernet 10Base-T, Modbus TCP
- N.4 Digital Inputs
- N.2 SPDT Relay Outputs
- Functional Block programming software
- Remotely programmable

- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- LED signalling for digital inputs and digital outputs state
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard

Application areas

POWER SUPPLY	
18 ÷ 30 Vdc	

CURRENT CONSUMPTION	
45 mA typ.@24Vdc (standby)	
100 mA max	

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

CONNECTIONS	
Ethernet	RJ-45 (on terminals side)
RS-232D	RJ-45 (on front side)
RS-485 Master / Slave	Remov. screw terminals

ISOLATIONS	
Power supply / Ethernet	
Power supply / RS-485	1500 Vac, 50 Hz, 1 min.
Ethernet / RS-485	
Inputs / RS-485	2000 Vac, 50 Hz, 1 min.
Inputs / Power supply	

TEMPERATURE & HUMIDITY	
Operative temperature	-20°C .. +60°C
Storage temperature	-40°C .. +85°C
Relative humidity (not cond.)	0 .. 90 %

HOUSING	
Material	Self-extinguishing plastic
Mounting	DIN rail
Dimensions (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 190 g.

DIGITAL INPUTS	
Channels	4
Input voltage (bipolar)	
OFF state	0 ÷ 3 V
ON state	10 ÷ 30 V
Impedance	4.7 KΩ
Frequency	up to 300 Hz
Network interface	
Ethernet	10Base-T
Protocol	Modbus TCP
RS-485 Interface	
Baud-rate	up to 38.4 Kbps
Max. distance (1)	1.2 Km @ 38.4 Kbps
Number of modules in multipoint	up to 32
Internal termination resistance	120 Ohm (optional)

DIGITAL OUTPUTS	
Channels	2
Type	SPDT Relays
Switching Power (max.)	
2 A @ 250 Vac (resistive load) per contact	
2 A @ 30 Vdc (resistive load) per contact	
Minimum load	5Vdc , 10mA
Max. voltage	
250Vac (50 / 60 Hz) , 30Vdc	
Dielectric strength between contacts	
1000 Vac, 50 Hz, 1 min.	
Dielectric strength between coil and contacts	
4000 Vac, 50 Hz, 1 min.	

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

DAT 9000-DL-IO

GENERAL DESCRIPTION

The device DAT9000-DL-IO is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working, managing up to 8 task of recording memorized on files saved on the microSD card. The device is equipped with 4 digital inputs channels and 2 relay outputs. For the digital inputs, are also available 32 bit counters and the measure of the frequency up to 300 Hz. By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. By Ethernet it is possible to get access to the files saved on the microSD card when the Data-Logger function is active. Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to: Programming of the Control Logic; Monitor, request of data, programming in real time the Intelligent Unit; Direct programming and request of data from the Slave devices connected on the RS-485 Master.

FEATURES

- N.1 serial interface RS-485 Modbus RTU Master
- N.1 serial interface RS-485/232 Modbus RTU Slave
- N.1 slot for microSD card
- Interface Ethernet 10Base-T, Modbus TCP
- N.4 Digital Inputs + N.2 SPDT Relays
- Functional Block programming software
- Remotely programmable

- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- LED signalling for digital input and output state
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard

Application areas — Industries, Board machine, Energy, Food business, Water treatment

DAT9000 SERIES

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POWER SUPPLY	
18 ÷ 30 Vdc	

CURRENT CONSUMPTION	
45 mA typ.@24Vdc (standby)	
100 mA max	

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

CONNECTIONS	
Ethernet	RJ-45 (on terminals side)
RS-232D	RJ-45 (on front side)
RS-485 Master / Slave	Remov. screw terminals

ISOLATIONS	
Power supply / Ethernet	1500 Vac, 50 Hz, 1 min.
Power supply / RS485	
Ethernet / RS485	
Inputs / RS485	2000 Vac, 50 Hz, 1 min.
Inputs / Power supply	

TEMPERATURE & HUMIDITY	
Operative temperature	-20°C .. +60°C
Storage temperature	-40°C .. +85°C
Relative humidity (not cond.)	0 .. 90 %

HOUSING	
Material	Self-extinguishing plastic
Mounting	DIN rail
Dimensions (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 160 g.

DIGITAL INPUTS	
Channels	4
Input voltage (bipolar)	
OFF state	0 ÷ 3 V
ON state	10 ÷ 30 V
Impedance	4.7 KΩ
Network interface	
Ethernet	10Base-T
Protocol	Modbus TCP
RS485 Interface	
Baud-rate	up to 38.4 Kbps
Max. distance (1)	1.2 Km @ 38.4 Kbps
Number of modules in multipoint	up to 32
Internal termination resistance	120 Ohm (optional)
Compatible SD card	
Type	microSD
Memory size	Up to 8 GB
Format	FAT16 or FAT32

DIGITAL OUTPUTS	
Channels	2
Type	SPDT Relays
Switching Power (max.)	
2 A @ 250 Vac (resistive load) per contact	
2 A @ 30 Vdc (resistive load) per contact	
Minimum load	5Vdc, 10mA
Max. voltage	
250Vac (50 / 60 Hz), 30Vdc	
Dielectric strength between contacts	
1000 Vac, 50 Hz, 1 min.	
Dielectric strength between coil and contacts	
4000 Vac, 50 Hz, 1 min.	

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

INTELLIGENT UNIT WITH ETHERNET INTERFACE AND DIGITAL AND ANALOGUE I/O

DAT 9011

GENERAL DESCRIPTION

The device DAT9011 is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working. The device is equipped with one universal analogue input channel, one channel for Volt and mA input, two digital inputs and 2 relay outputs. On input an Auxiliary source is available to supply passive sensors on the field.

By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to program the Control Logic, to monitor, to request data and programming in real time the Intelligent Unit, to program directly the Slave devices connected on the RS-485 Master and to request data from them.

FEATURES

- N°1 serial interface RS-485 Modbus RTU Master
- N°1 serial interface RS-485/232 Modbus RTU Slave
- Interface Ethernet 10Base-T, Modbus TCP
- N°1 universal analogue input + N°1 current and voltage analogue input
- N°2 digital Inputs
- Auxiliary supply to power sensors on field
- N°2 passive 4-20 mA analogue outputs
- N°2 SPDT Relay Outputs
- Functional Block programming software

- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- LED signalling for digital inputs and digital outputs state
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard

Application areas

Industries / Board machine / Energy / Food business / Water treatment

POWER SUPPLY

Power supply Voltage	9 ÷ 30 Vdc
Current consumption @ 24 Vdc	60 mA (170 mA max)
Current consumption @ 10 Vdc	147 mA (300 mA max)
Reverse polarity protection	60 Vdc max

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

CONNECTIONS

Ethernet	RJ-45 (on terminals side)
RS-232D	RJ-45 (on front side)
RS-485 Master / Slave	Screw terminals pitch 5.08mm
Outputs Relay	
Supply/Inputs/ Analogue outputs	Screw terminals pitch 3.81mm

ISOLATIONS

Isolations voltage (50 Hz, 1 min.)	1500 Vac (on all the ways)

TEMPERATURE & HUMIDITY

Operative temperature	-20°C .. +60°C
Storage temperature	-40°C .. +85°C
Relative humidity (not cond.)	0 .. 90 %

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dimensions (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 190 g.

ANALOGUE INPUTS

Type	Range	Calibration	Linearity	Thermal Drift
100 mV	-100 ÷ +100 mV	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
10 V	-10 ÷ +10 V	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
20 mA	-20 ÷ +20 mA	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Pt100	-200 ÷ +850 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Pt1K	-200 ÷ +200 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Ni100	-60 ÷ +180 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Ni1K	-60 ÷ +150 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Res	0 ÷ 2000 Ohm	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Pot	20 ÷ 50000 Ohm	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc J	-210 ÷ +1200 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc K	-210 ÷ +1370 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc R	-50 ÷ +1760 °C	±0.1 % f.s.	±0.2 % f.s.	100 ppm/°C
Tc S	-50 ÷ +1760 °C	±0.1 % f.s.	±0.2 % f.s.	100 ppm/°C
Tc B	+400 ÷ +1825 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc E	-210 ÷ +1000 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc T	-210 ÷ +400 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc N	-210 ÷ +1300 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C

Input impedance	Tc, mV >= 10 MΩ
	Volt >= 1 MΩ
	Current ~ 22 Ω
Auxiliary voltage	>14 V @ 20 mA

Line resistance influence

RTD 3 wires	0.05 %/Ω (50 Ω max)
mV, Tc	< 0.8 uV/Ohm

Sensor excitation current

RTD, Res, Pot	~ 400 uA
CJC comp.	± 1 °C
Sample time	1 sec.
Warm-up time (TC,RTD)	3 min.

DIGITAL INPUTS

Channels	2
Input voltage (bipolar)	OFF state : 0÷3 V
	ON state : 10÷30 V
Input impedance	4.7 KOhm
N°2 Digital counter	32 bit (up to 300 Hz)

ANALOGUE OUTPUTS (2 CHANNELS)

Type	Range	Calibration	Linearity	Thermal Drift
20 mA	4 ÷ +20 mA	±0.05 % f.s.	±0.05 % f.s.	100 ppm/°C

DIGITAL OUTPUTS

N.2 SPDT Relays

Switching Power (resistive load)	2 A @ 250 Vac (per contact)
	2 A @ 30 Vdc (per contact)
Minimum load	5Vdc , 10mA
Max. voltage	250Vac (50 / 60 Hz) ,110Vdc
Dielectric strength between contacts	1000 Vac, 50 Hz, 1 min.
Dielectric strength between coil and contacts	4000 Vac, 50 Hz, 1 min.

Serial Ports RS-485 (Master & Slave)

Protocol	Modbus RTU
Baud Rate	up to 115.2 Kbps
Max. recommended distance (1)	1.2 Km @ 38.4 Kbps
Number of modules in multipoint	up to 32
Internal termination resistance	120 Ohm (optional)

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

DATEXEL

INTELLIGENT UNIT WITH DATA-LOGGER FUNCTION, ETHERNET INTERFACE AND DIGITAL AND ANALOGUE I/O

DAT 9011-DL

GENERAL DESCRIPTION

The device DAT9011-DL is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working and managing up to 8 tasks of storage data. The data are saved on microSD card; it is possible to get access to the saved files by means of the Ethernet connection. The device is equipped with one universal analogue input channel, one channel for Volt and mA input, two digital inputs and 2 relay outputs. On input an Auxiliary source is available to supply passive sensors on the field. By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to program the Control Logic,to monitor, to request data and programming in real time the Intelligent Unit,to program directly the Slave devices connected on the RS-485 Master and to request data from them.

FEATURES

- N°1 serial interface RS-485 Modbus RTU Master
- N°1 serial interface RS-485/232 Modbus RTU Slave
- N°1 Slot for microSD card
- Interface Ethernet 10Base-T, Modbus TCP
- N°1 universal analogue input + N°1 current and voltage analogue input
- N°2 digital Inputs
- Auxiliary supply to power sensors on field
- N°2 passive 4-20 mA analogue outputs
- N°2 SPDT Relay Outputs

- Functional Block programming software
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- LED signalling for digital inputs and digital outputs state
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard

Application areas

POWER SUPPLY	
Power supply Voltage	9 ÷ 30 Vdc
Current consumption @ 24 Vdc	60 mA (170 mA max)
Current consumption @ 10 Vdc	147 mA (300 mA max)
Reverse polarity protection	60 Vdc max

EMC (for industrial environments)	
DIRECTIVE 2004 / 108 / EC	
Immunity	EN 61000-6-2
Emission	EN 61000-6-4

CONNECTIONS	
Ethernet	RJ-45 (on terminals side)
RS-232D	RJ-45 (on front side)
RS-485 Master / Slave	Screw terminals pitch 5.08mm
Outputs Relay	
Supply/Inputs/Analogue outputs	Screw terminals pitch 3.81mm

ISOLATIONS		
Isolations voltage (50 Hz, 1 min.)	1500 Vac (on all the ways)	

TEMPERATURE & HUMIDITY	
Operative temperature	-20°C .. +60°C
Storage temperature	-40°C .. +60°C
Relative humidity (not cond.)	0 .. 90 %

HOUSING	
Material	Self-extinguishing plastic
Mounting	DIN rail
Dimensions (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 190 g.

ANALOGUE INPUTS

Type	Range	Calibration	Linearity	Thermal Drift
100 mV	-100 ÷ +100 mV	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
10 V	-10 ÷ +10 V	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
20 mA	-20 ÷ +20 mA	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Pt100	-200 ÷ +850 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Pt1K	-200 ÷ +200 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Ni100	-60 ÷ +180 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Ni1K	-60 ÷ +150 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Res	0 ÷ 2000 Ohm	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Pot	20 ÷ 50000 Ohm	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc J	-210 ÷ +1200 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc K	-210 ÷ +1370 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc R	-50 ÷ +1760 °C	±0.1 % f.s.	±0.2 % f.s.	100 ppm/°C
Tc S	-50 ÷ +1760 °C	±0.1 % f.s.	±0.2 % f.s.	100 ppm/°C
Tc B	+400 ÷ +1825 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc E	-210 ÷ +1000 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc T	-210 ÷ +400 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc N	-210 ÷ +1300 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C

Input impedance	Tc, mV >= 10 MΩ
	Volt >= 1 MΩ
	Current ~ 22 Ω
Auxiliary voltage	>14 V @ 20 mA
Line resistance influence	
RTD 3 wires	0.05 %/Ω (50 Ω max)
mV, Tc	< 0.8 uV/Ohm

Sensor excitation current	
RTD, Res, Pot	~ 400 uA
CJC comp.	± 1 °C
Sample time	1 sec.
Warm-up time (TC,RTD)	3 min.

DIGITAL INPUTS

Channels	2
Input voltage (bipolar)	OFF state : 0÷3 V
	ON state : 10÷30 V
Input impedance	4.7 KOhm
N°2 Digital counter	32 bit (up to 300 Hz)

ANALOGUE OUTPUTS (2 CHANNELS)

Type	Range	Calibration	Linearity	Thermal Drift
20 mA	4 ÷ +20 mA	±0.05 % f.s.	±0.05 % f.s.	100 ppm/°C

DIGITAL OUTPUTS

N.2 SPDT Relays

Switching Power (resistive load)	2 A @ 250 Vac (per contact)
	2 A @ 30 Vdc (per contact)
Minimum load	5Vdc , 10mA
Max. voltage	250Vac (50 / 60 Hz) ,110Vdc
Dielectric strength between contacts	1000 Vac, 50 Hz, 1 min.
Dielectric strength between coil and contacts	4000 Vac, 50 Hz, 1 min.

Serial Ports RS-485 (Master & Slave)

Protocol	Modbus RTU
Baud Rate	up to 115.2 bps
Max. distance (1)	1.2 Km @ 38.4 Kbps
Number of modules in multipoint	up to 32
Internal termination resistance	120 Ohm (optional)

Compatible SD card

Type	microSD
Memory size	Up to 8 GB
Format	FAT16 or FAT32

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

ELECTRONIC AND CONTROL PROCESS DEVICES

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