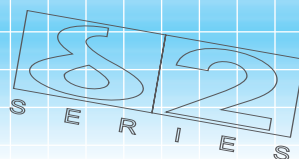
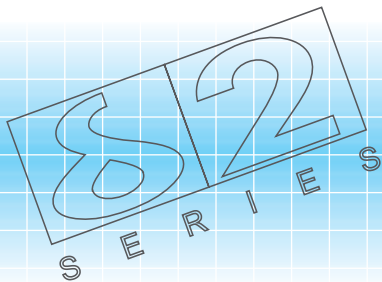
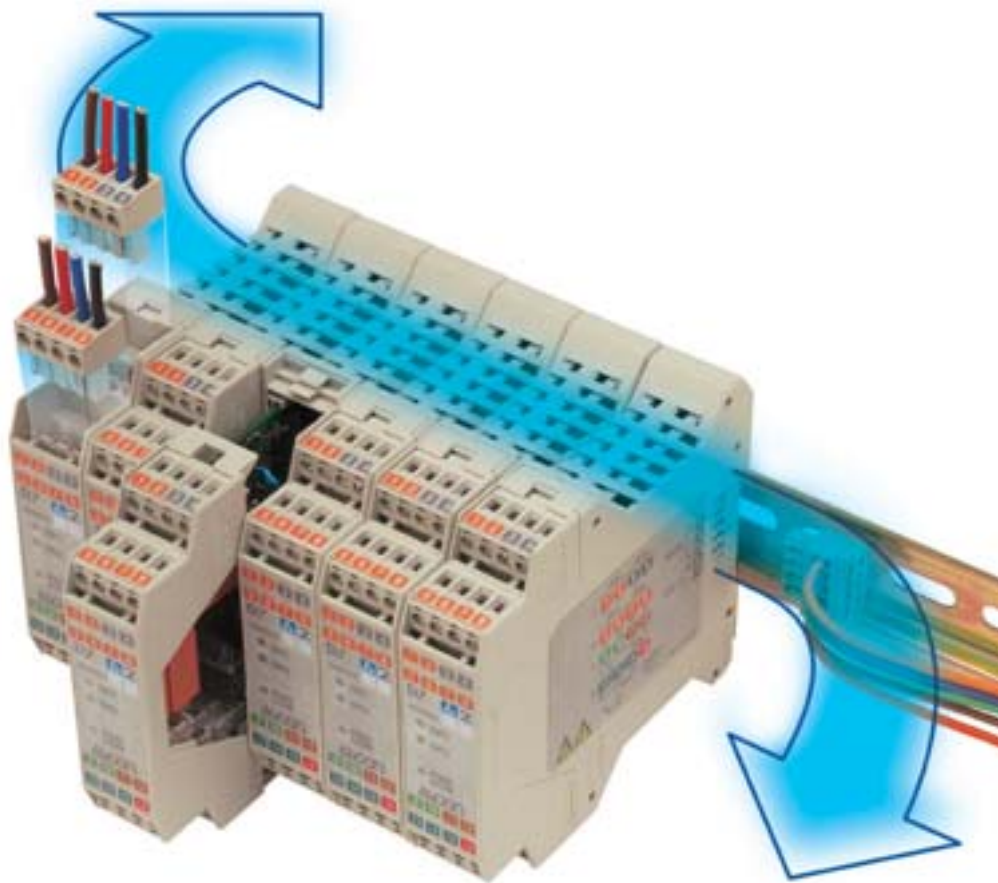


DIN rail mounting analogue and digital acquisition modules deltadue[®] series **D7 - D8 - D9** lines



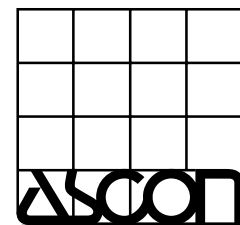
Analogue and digital acquisition modules with fieldbus, analogue transmitters with thresholds

- On-machine or rear panel mounting;
- Stand-alone or multiple modules systems with a common bus for power supply and RS485 Modbus;
- Suitable as I/O modules for:
 - Data Acquisition Systems (DAS);
 - PC Based Control Systems;
 - Supervision Systems (SCADA);
 - PLC systems;
- Analogue universal input transmitters with thresholds (D7);
- Equipped with special functions for inputs and outputs;
- PC configurable;
- Hot swappable;
- PROFIBUS DP, DeviceNet or CAN interfacing.

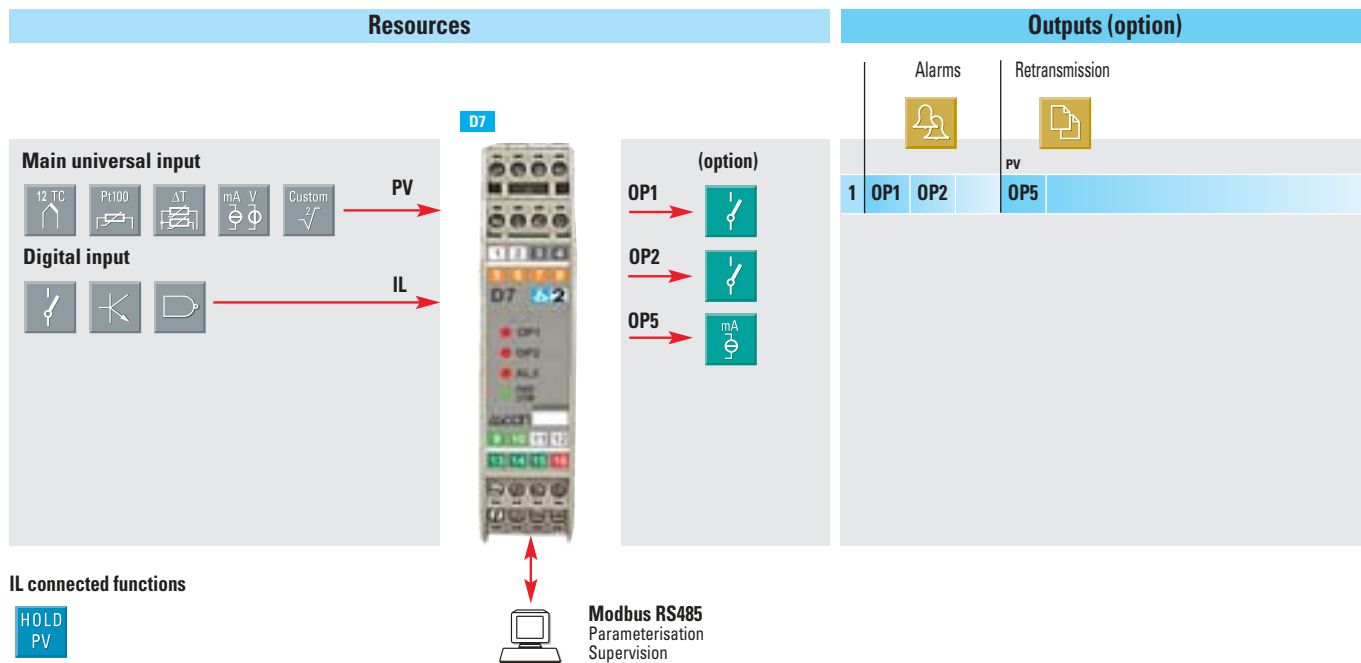


E

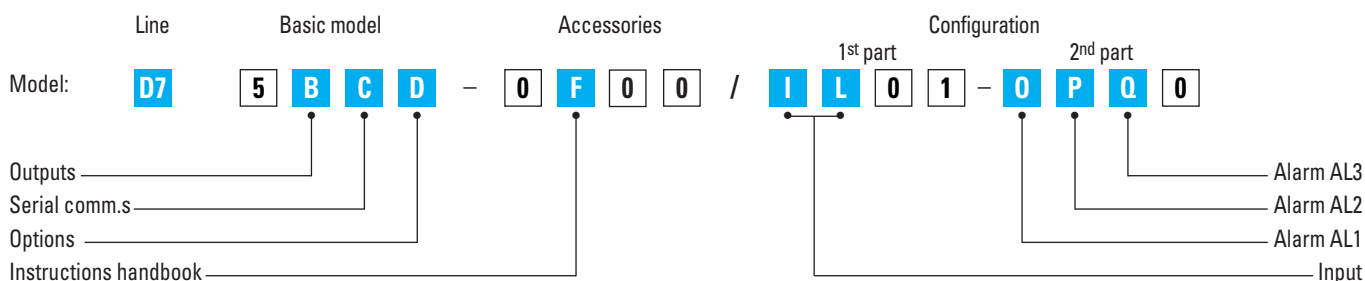
ISO 9001 certified



D7 line - Data acquisition, isolation, transmitter module with alarms



Ordering codes



Outputs	OP1	OP2	B
	None		0
	Relay	Relay	1
Serial communications			C
	CanBus		3
	RS 485 Modbus/Jbus SLAVE		5
Options			D
	None		0
	OP5 Retransmission		5
Instructions handbook			F
	Italian-English (std)		0
	French-English		1
	German-English		2
	Spanish-English		3

Inpt type	Range scale		I	L
TR Pt100 IEC751	-99.9...300.0 °C	-99.9...572.0 °F	0	0
TR Pt100 IEC751	-200...600 °C	-328...1112 °F	0	1
TC L Fe-Const DIN43710	0...600 °C	32...1112 °F	0	2
TC J Fe-Cu45% Ni IEC584	0...600 °C	32...1112 °F	0	3
TC T Cu-CuNi	-200...400 °C	-328...752 °F	0	4
TC K Chromel -Alumel IEC584	0...1200 °C	32...2192 °F	0	5
TC S Pt10%Rh-Pt IEC584	0...1600 °C	32...2912 °F	0	6
TC R Pt13%Rh-Pt IEC584	0...1600 °C	32...2912 °F	0	7
TC B Pt30%Rh-Pt	0...1800 °C	32...3272 °F	0	8
Pt6%Rh IEC584				
TC N Nichrosil-Nisil IEC584	0...1200 °C	32...2192 °F	0	9
TC E Ni10%CR-CuNi IEC584	0...600 °C	32...1112 °F	1	0
TC NI-NiMo 18%	0...1100 °C	32...2012 °F	1	1
TC W3%Re-W25%Re	0...2000 °C	32...3632 °F	1	2
TC W5%Re-W26%Re	0...2000 °C	32...3632 °F	1	3
0...50mV linear	Engineering units		1	4
10...50mV linear	Engineering units		1	5
mV "Custom" scale	On request		1	6

Installation kit common for all the modules

Each set of interconnected controllers requires one model **AD3-KIT/BA.RT.PC.CD** kit:

- Power supply and serial comm.s connector code AD3/BA
- Connector with termination resistor for serial comm.s code AD3/RT
- Couple of connector protections code AD3/PC
- CD Rom with configuration software tool code AD3/CD

AL1-AL2-AL3 type and function	0-P-Q
Disabled	0
Sensor break	1
Absolute	2
active high	2
active low	3

**If not differently specified the controller will be supplied with standard version
Model : D7 5050-0000**

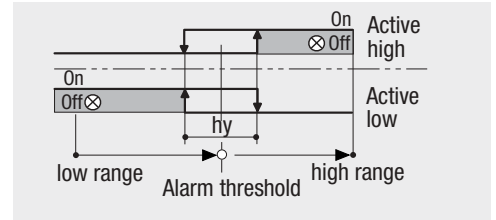
Technical data

Features at T. env. 25°C	Description			
Total configurability	By means of the configuration tool it is possible to select: - type of input - type of output - functionality of the alarms			
PV input	Common characteristics	A/D converter with resolution of 50,000 points Update measurement time: 0.2 s Sampling time: 0.5 s Input bias: - 60...+ 60 digit Input filter: 1...30 s OFF = 0		
	Accuracy	0.25% ±1 digit (for temperature sensor) 0.1% ±1 digit (for mA e mV)	Between 100...240Vac the error is minimal	
	Resistance thermometer (for ΔT: R1+R2 must be <320Ω)	Pt100Ω at 0°C (IEC 751) °C/°F selectable	2 or 3 wires connection Burnout (with any combination)	Line: 20Ω max. (3 wire) Input drift: 0.35°C/10°C Env. Temp. <0.35°C/10Ω Wire Res.
	Thermocouple	L,J,T,K,S,R,B,N,E W3,W5 (IEC 584) °C/°F selectable	Internal cold junction compensation with NTC Error 1°C/20°C ±0,5°C Burnout	Line 150Ω max. Input drift: <2μV/°C Env. Temp. <5μV/10Ω Wire Res.
	DC input (current)	0/4...20mA, 2.5Ω external shunt Rj >10MΩ	Burnout. Engineering units, decimal point position configurable low range: -999...9999 high range: -999...9999 (min range of 100 digits)	Input drift: <0.1%/20°C Env. Temp. <5μV/10Ω R. Wire Res.
	DC input (voltage)	10...50mV, 0...50mV Rj >10MΩ		
Digital input	The closure of external contact produces any of the following action:		Measure hold	
Operating mode	Data acquisition, isolator, transmitter with 1, 2 or 3 alarms (the 3 rd one only by serial comm.s)			
OP1-OP2 Outputs (Opt.)	SPST Relay NO, 2A/250Vac (4A/120Vac) for resistive load To meet the double isolation requirements OP1 and OP2 must have the same load type			
OP5 Analogue output (option)	PV retransmission	Galvanic isolation: 500Vac/1 min Resolution: 12 bit Accuracy: 0.1%	In current: 0/4...20mA, 750Ω/15V max.	
	Hysteresis	0.1...10.0%		
AL1- AL2 - AL3 alarms	Action	Active high Action low	Action Type Absolute threshold, whole range	
		Special functions	Sensor break Acknowledge (latching), activation inhibit (blocking)	
Serial Comm.s	RS485 isolated, Modbus/Jbus protocol, 1,200, 2,400, 4,800, 9,600 bit/s, two wires			
Auxiliary Supply	+24Vdc ±20% 30mA max. - for external transmitter supply			
Operational Safety	Measure input	Detection of out of range short circuit or sensor break with automatic activation of the safety strategies		
	Parameters	Parameter and configuration data are stored		
	Outputs lock	in a non volatile memory for an unlimited time		
General characteristics	Power supply (PTC protected)	24Vac (-20% +12%) 50/60Hz and 24Vdc (-15%+25%)	Power consumption 3W max.	
	Safety	EN61010-1 (IEC1010-1), installation class 2 (2.5kV), pollution class 2, instrument class II		
	Electromagnetic compatibility	Compliance to the CE standards		
	Protection	Terminal block IP20		
	Dimensions	Pitch: 22.5 mm - height: 99 mm - depth 114.5 mm		
Weight	155 g approx.			

Alarms

Three thresholds are available on the serial communications and can be addressed to the two relay outputs. Each alarm can be configured to be active high or low:

A - Function

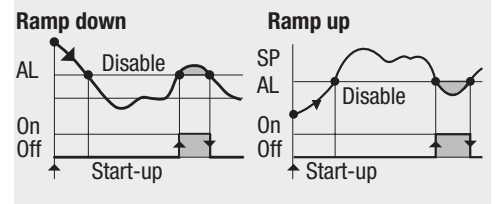


B - Functionality of the alarm acknowledge

Alarm acknowledge function

The alarm is memorized and available on the serial communications and/or on one of the output relays. By serial communications the alarm can be acknowledged. If the alarm disappears before the acknowledgment action the alarm status is maintained.

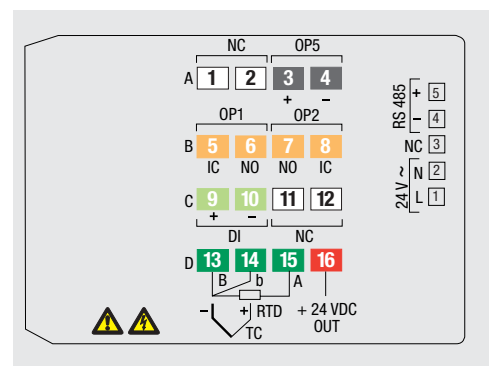
Start-up disabling



Digital input

The digital input is used to hold the measured value.

Electrical connections



D9 line - 2 independent channels acquisition module

Resources

Main universal inputs

12 TC, Pt100, ΔT, mA, V, Custom → PV1

12 TC, Pt100, ΔT, mA, V, Custom → PV2

Digital input for external commands

IL1

Digital output [1]

OP1, OP2, OP3, OP4

Digital inputs [2]

Operating modes

	Operating mode	Alarms
PV1	1 Acquisition	OP1 OP2 OP3 OP4
PV2	2 Acquisition	
PV1	3 Acquisition	OP1 OP2 OP3
PV2	4 Acquisition	OP4
PV1	5 Acquisition	OP1 OP2
PV2	6 Acquisition	OP3 OP4

Notes: 1. Each output (OP1...OP4) can freely be associated with one of the two inputs (PV1 or PV2).
2. When outputs OP3 and OP4 are not used as such, they can be connected to voltage or no voltage inputs.

IL1 connected functions

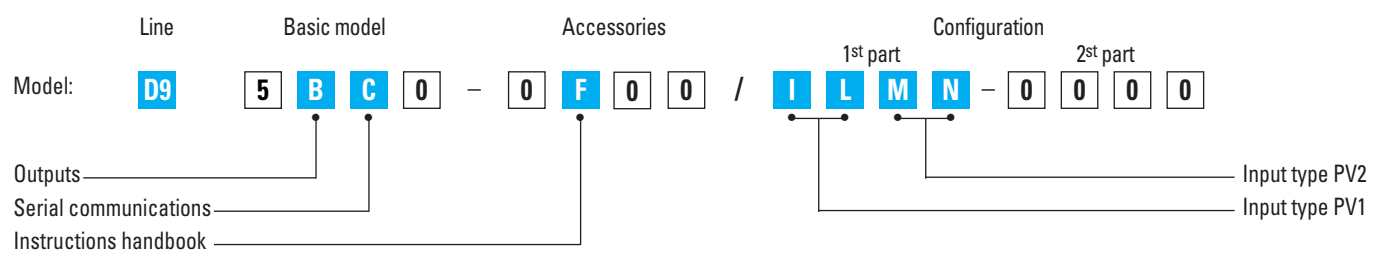
HOLD PV, ACK

Modbus RS485 Parameterisation Supervision

Available functions

Not

Ordering codes



OP1 and OP2 Outputs	B
Relay/Relay	1
Relay/SSR drive	2
SSR drive/SSR drive	3
SSR/SSR	4
SSR/SSR drive	5

Serial communications	C
CanBus	3
RS 485 Modbus/Jbus SLAVE	5

Instructions handbook	F
Italian-English (standard)	0
French-English	1
German-English	2
Spanish-English	3

Input type	Range scale	PV1	I	L
Input type	Range scale	PV2	M	N
TR Pt100 IEC751	-99.9...300.0 °C -99.9...572.0 °F		0	0
TR Pt100 IEC751	-200...600 °C -328...1112 °F		0	1
TC L Fe-Const DIN43710	0...600 °C 32...1112 °F		0	2
TC J Fe-Cu45% Ni IEC584	0...600 °C 32...1112 °F		0	3
TC T Cu-CuNi	-200...400 °C -328...752 °F		0	4
TC K Chromel -Alumel IEC584	0...1200 °C 32...2192 °F		0	5
TC S Pt10%Rh-Pt IEC584	0...1600 °C 32...2912 °F		0	6
TC R Pt13%Rh-Pt IEC584	0...1600 °C 32...2912 °F		0	7
TC B Pt30%Rh-Pt Pt6%Rh IEC584	0...1800 °C 32...3272 °F		0	8
TC N Nichrosil-Nisil IEC584	0...1200 °C 32...2192 °F		0	9
TC E Ni10%Cr-CuNi IEC584	0...600 °C 32...1112 °F		1	0
TC Ni-NiMo 18%	0...1100 °C 32...2012 °F		1	1
TC W3%Re-W25%Re	0...2000 °C 32...3632 °F		1	2
TC W5%Re-W26%Re	0...2000 °C 32...3632 °F		1	3
0...50mV linear	Engineering units		1	4
10...50mV linear	Engineering units		1	5
mV scala "Custom" scale	On request		1	6

If not differently specified the controller will be supplied with standard version
Model: D9 5350-0000

Technical data

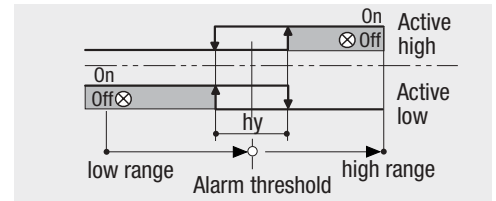
Features at T. env. 25°C	Description				
Total configurability	By means of the configuration tool it is possible to select: - type of input - type of output - type and functionality of the alarms				
PV1 and PV2 inputs	Common characteristics	A/D converter with resolution of 50,000 points Update measurement time: 0.2 s Sampling time: 0.5 s Input bias: -60...+60 digit Input filter: 1...30 s OFF = 0			
	Accuracy	0.25% ±1 digit (for temperature sensor) 0.1% ±1 digit (for mA and mV)	Between 100...240Vac the error is minimal		
	Resistance thermometer (for ΔT: R1+R2 dmust be <320Ω)	Pt100Ω at 0°C (IEC 751) °C/°F selectable	2 or 3 wires connection Burnout (with any combination)	Line: 20Ω max. (3 wires) Input drift: 0.35°C/10°C Env. Temp. <0.35°C/10Ω Wire Res.	
	Thermocouple	L,J,T,K,S,R,B,N,E,W3,W5 (IEC 584) °C/°F selectable	Internal cold junction compensation with NTC Error 1...20°C ±0.5°C ±0.5°C Burnout	Line 150Ω max. Input drift: <2μV/1°C Env. Temp. <5μV/10Ω Wire Res.	
	DC input (current)	0/4...20mA, 2.5Ω ext. shunt Rj >10MΩ	Burnout. Engineering inputs, decimal point position configurable	Input drift: <0.1%/20°C Env. Temp. <5μV/10Ω Wire Res.	
	DC input (voltage)	10...50mV, 0...50mV Rj >10MΩ	low range: -999...9999 high range: -999...9999 (min range: 100 digits)		
PV1 and PV2 mutual isolation	Isolation voltage 500 V				
Digital input	Closing the external contact allows:	Auto/Man mode change, switching between 2 stored setpoint, measure hold, alarms acknowledge, outputs lock			
Operating mode	2 acquisition channels with 1, 2, 3 or 4 alarms				
OP1-OP2 outputs	SPST relay NO, 2A/250Vac (4A/110 Vac) for resistive load SSR, 1A/250Vac for resistive load Non isolated logic: 0/5Vdc, ±10% 30 mA max. Too meet the double isolation requirements, OP1 and OP2 must have the same load type				
OP3-OP4 outputs	Non isolated logic: 0/5Vdc, ±10% 30 mA max.				
Outputs functions	For all the outputs the inversion function (NOT) is available				
AL1 - AL2 - AL3 - AL4 alarms	Hysteresys	0.1...10.0%			
	Action	Active high Active low Special functions	Action type	Deviation threshold ±range Band threshold 0...range	
	Source	Associates the alarms to PV1 and/or PV2			
	Alarm output	Allows to associate the alarm condition to OP1, OP2, OP3 and OP4 outputs. If this parameter is not configured, the alarm information is available on the internal status			
Serial communications	RS 485 isolated, Modbus/Jbus protocol, 1,200, 2,400, 4,800, 9,600 bit/s 2 wires				
Operational safety	Measure input	Detection of out of range, or input problems causes automatic activation of the safety strategies			
	Parameters	Parameters and configuration data are stored in a non volatile memory for an unlimited time			
	Outputs lock	in a non volatile memory for an unlimited time			
	Power supply (PTC protected)	24Vac (-20...+12%) 50/60Hz and 24Vdc (-15...+25%)	Power consumption 3 W max.		
General characteristics	Safety	EN61010-1 (IEC1010-1) installation class 2 (2.5kV), pollution class 2, instrument class II			
	Electromagnetic compatibility	Compliance to the CE standards			
	Protection	Terminal blocks IP20			
	Dimensions	Pitch: 22.5 mm - height: 99 mm - depth 114.5 mm			
	Weight	156 g approx.			

Alarms

Four thresholds can be addressed to the two relay outputs. For each alarm can be configured:

A - Source

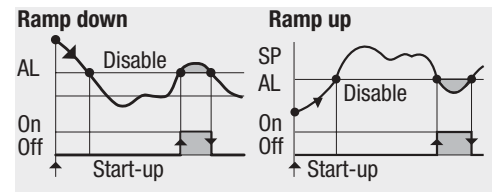
B - Type and mode of operation



C - Alarm acknowledge function

The alarm status remains until the acknowledge signal arrives through the serial communications port or the digital input. After this operation alarm status disappears only when the alarm condition is no longer present.

D - Start-up disabling



E - Sensor break function

F - Output associated to each alarm

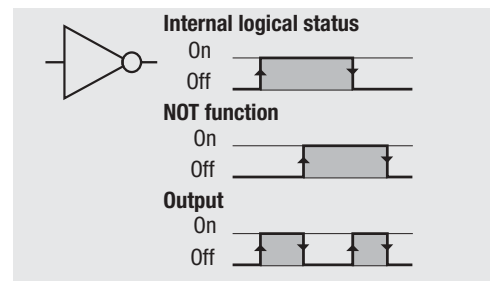
Digital input

During the configuration procedure, to the IL digital input can be connected one of the following functions:

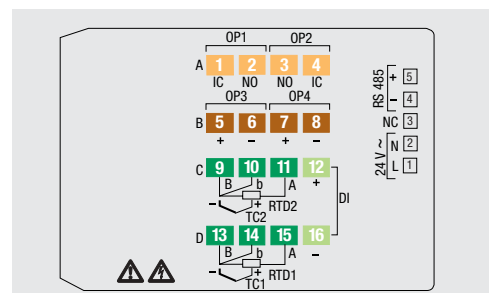
- PV HOLD;
- Alarm acknowledge;
- Outputs block.

Output functions

It's possible to set the inversion function (NOT) separately for each output.



Electrical connections



Technical data

Features at 25°C of environment temperature	Description		
Total configurability	By means of the configuration tool it is possible to select: - type of input - the functions to be applied to the inputs/outputs - type of output		
Inputs	6 digital inputs, in 2 groups optically isolated (DI1, DI2 and DI3, DI4, DI5, DI6)		
	DC inputs	Standard EN61131-2 compatible, voltage logical status 1 ≥ 5 Vdc, voltage logical status 0 ≤ 2 Vdc, admitted voltage: 24 Vdc max.	
	Frequency inputs (DI1 and DI2)	0...10 kHz	
	No voltage inputs	Minimum signal width: 16 ms	
Outputs	Relay SPST NA, 2A/250Vac (4A/120Vac) for resistive load; SSR, 1A/250Vac for resistive load; SSR drive, voltage 5Vdc ±20%, max. 30mA		
Serial communications	RS485 isolated, Modbus/Jbus protocol, 1,200, 2,400, 4,800, 9,600 bit/s, two wires		
Operational safety	Parameters	Parameter and configuration data are stored in a non volatile memory for an unlimited time	
General characteristics	Power supply (PTC protected)	24Vac (-25...+12%) 50/60Hz and 24Vdc (-15...+25%)	Consumption 3W max.
	Safety	EN61010-1 (IEC1010-1), installation class 2 (2.5kV), pollution class 2, instrument class II	
	Electromagnetic compatibility	Compliance to the CE standards	
	Protection	Terminal block IP20	
	Dimensions	Pitch: 22.5 mm - height: 99 mm - depth 114.5 mm	
	Weight	152 g approx.	

Digital inputs

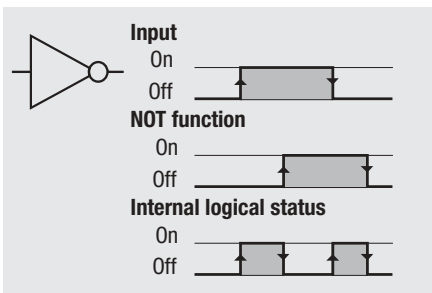
Processing functions

Processing functions, the result of which is available by serial communication, can be applied to the acquired value of the digital inputs. The functions are:

- NOT

It's possible to set the status inversion function (NOT) separately for each input

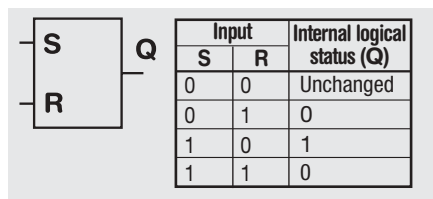
Note: the inversion function also influences the Toggle (TG.I_) and Flip-Flop (FF.I_) function inputs.



- FLIP-FLOP

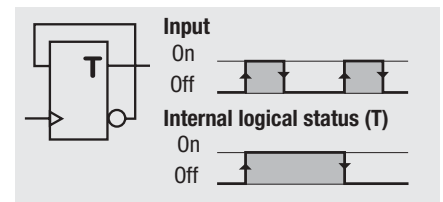
Bistable that switches to Q=1 on the rising edge of the input SET and switches to Q=0 on the rising edge of the input RESET (type SR). The inputs SET and RESET are made up of pairs of unalterable inputs (DI1-DI2, DI3-DI4, DI5-DI6).

DI1, DI3 and DI5 are associated with the command SET;
DI2, DI4, DI6 with the command RESET.



- TOGGLE

Bistable that switches on the rising edge (type T). Each input is associated with a logical status (T), whose value is inverted with each input operation from 0 to 1.



Frequency inputs

The inputs DI1 and DI2 can be configured to acquire frequency signals in the range 0,1...10 kHz.

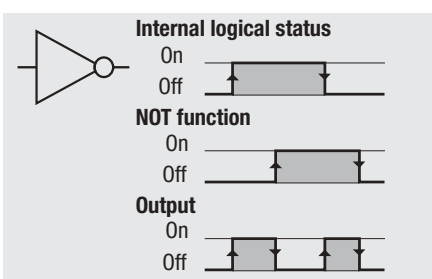
Outputs

Output operational method

Processing functions can be applied to the internal logical status. These are:

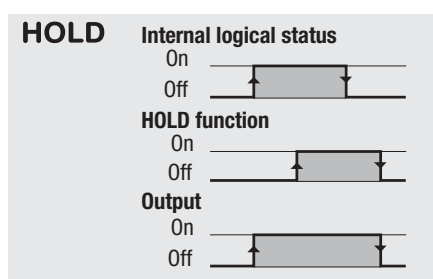
- NOT

It's possible to set the inversion function (NOT) separately for each output.



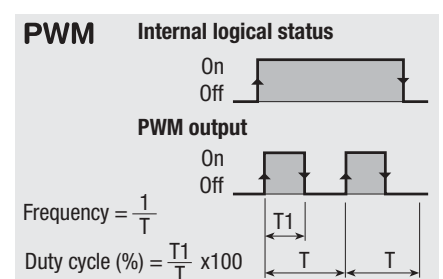
- HOLD

It's possible to set the status freezing function (HOLD) separately for each input

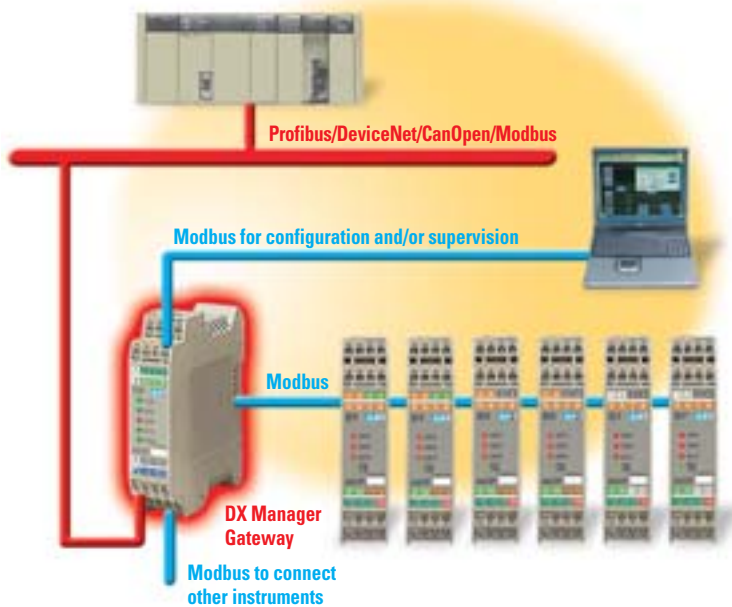


- PWM

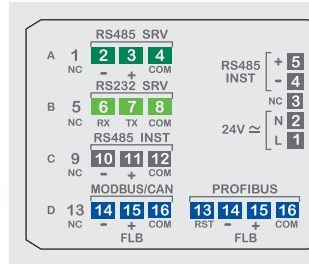
Outputs (without relays) can be configured as PWM (Pulse Width Modulation) outputs with adjustable frequency and duty cycle



DX line - Manager Gateway



Electrical connections



ASCON spa
 Via Falzarego, 9/11
 20021 Bollate
 (Milan) Italy
 Tel. +39 02 333 371
 Fax +39 02 350 4243
<http://www.ascon.it>
sales@ascon.it

Ordering codes

Line Basic model Accessories Configuration

Model: **DX** **5** **B** **C** **0** - **0** **F** **0** **0** / **0** **0** **0** **0**

N° of instruments backed up Instructions handbook

Fieldbus communications

Number of instruments to be backed up	B	Instructions handbook	F
4	1	Italian-English (standard)	0
8	2	French-English	1
16	3	German-English	2
32	4	Spanish-English	3

Fieldbus communications	C
None	0
CANopen	3
RS 485 Modbus/Jbus	5
Profibus DP slave	7

If not differently specified the controller will be supplied with standard version Model: DX 5100-0000

Technical data

Features at env. 25°C	Description		
Functions	Manager	OFF line configuration and parameterization. Backup of the configuration and parameter data of the connected modules. Hot swapping, automatic configuration and parameterization of the replaced modules	
	Gateway	Network adapter for Profibus DP, DeviceNet, CANopen and RS485/RS232 converter	
Communications ports	Instruments Bus	RS485 Modbus protocol master replicated on the terminal connectors (max. 19,200 baud)	
	Support	RS485, RS232 Modbus protocol slave, isolated (max. 38,400 baud)	
	Fieldbus	RS485 Modbus protocol slave, isolated (max. 57,600 baud)	
		Profibus DP slave	DP control: SPC3
DP interface: RS485 isolated, max. 12 Mb/s			
CAN 2.0b, isolated, max. 1Mb/s			
General characteristics	See the entry "General characteristics" of the other module for details		