INSTALLATION MANUAL

K112

PRELIMINARY WARNINGS

The word **WARNING** preceded by the symbol ⚠ indicates conditions or actions that put the user's safety at risk.
The word **ATTENTION** preceded by the symbol ⚠ indicates conditions or actions that might damage the instrument or the connected equipment. The warranty shall become null and void in the event of improper use or tampering with the module or devices supplied by the manufacturer as necessary for its correct operation, and if the instructions contained in this manual are not followed.

	**WARNING**: The full content of this manual must be read before any operation. The module must only be used by qualified electricians. Specific documentation is available via QR-CODE shown on page 1.
	The module must be repaired and damaged parts replaced by the Manufacturer. The product is sensitive to electrostatic discharges. Take appropriate measures during any operation.
	Electrical and electronic waste disposal (applicable in the European Union and other countries with recycling). The symbol on the product or its packaging shows the product must be surrendered to a collection centre authorized to recycle electrical and electronic waste.

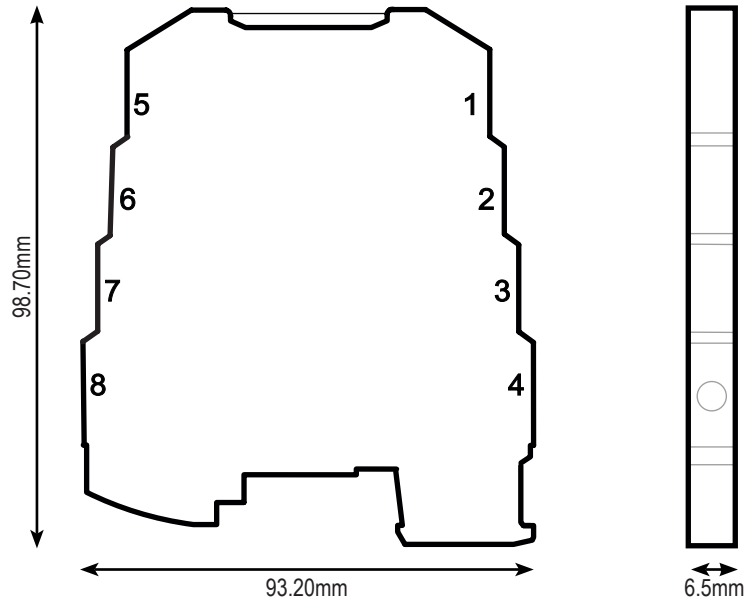
DOCUMENTATION

SENECA s.r.l.; Via Austria, 26 – 35127 – PADOVA – ITALY; Tel. +39.049.8705359 - Fax +39.049.8706287

CONTACT INFORMATION

Technical support	support@seneca.it	Product information	sales@seneca.it

MODULE LAYOUT



Weight: 45 g; **Enclosure:** PBT material, black.

LED MEANING

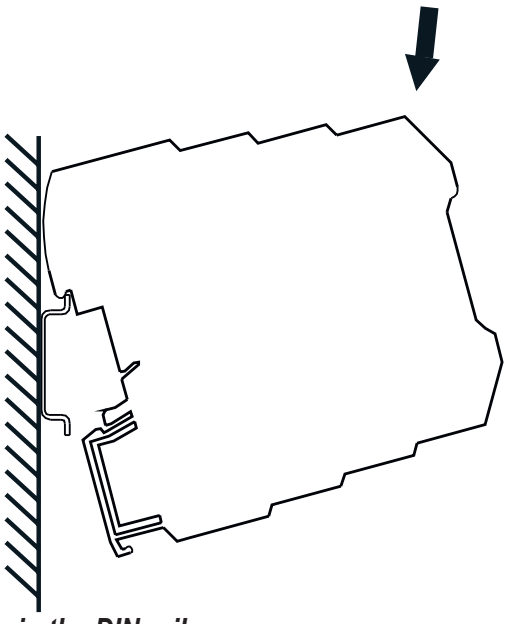
LED	STATUS	LED meaning
POWER (Green)	On	Device powered correctly
	Off	Device not powered
OUTPUT (Red)	On	Output active
	Off	Output disabled

ASSEMBLY

In order to facilitate ventilation of the module, we advise you to install it vertically, without fitting any raceways or other objects which could obstruct its ventilation. Do not install the module above appliances generating heat: We recommend installation in the lower part of the panel or of the enclosing compartment.

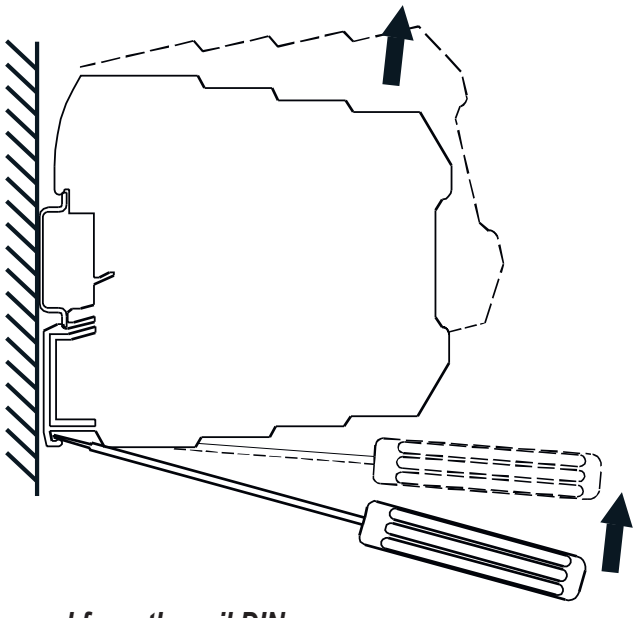
INSTALLATION REGULATIONS

The module has been designed for vertical installation on a DIN 46277 rail. Avoid mounting modules over heat-generating equipment. Installation in the bottom part of the electrical panel is recommended.
For long connections or in noisy environments, use a shielded cable for the RS485 line (refer to the Electrical Connections section)



Insertion in the DIN rail

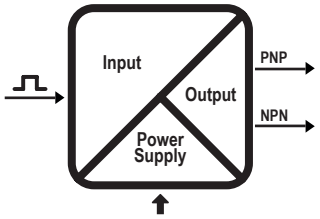
1. Hook the module in the upper part of the rail.
2. Press the module down.



Removal from the rail DIN

1. Lever with a screwdriver (as shown)
2. Rotate the module upwards.

TECHNICAL SPECIFICATIONS

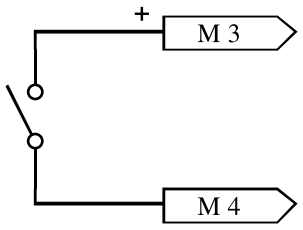
CERTIFICATIONS	CE https://www.seneca.it/products/k112/doc/CE_declaration
ENVIRONMENTAL CONDITIONS	Operating temperature: from -10°C to +65°C Humidity: 10% ÷ 90% non condensing. Storage temperature: from -40°C to +85°C Protection rating: IP20 Up to 2000 a.s.l.
INSULATION	 1500 V~
CONNECTIONS	Spring terminals, section 0.2 ÷ 2.5mm^2, wire stripping: ~8mm
POWER SUPPLY	
TERMINALS	M7 (+), M8 (-) or rear bus
VOLTAGE	19.2 ÷ 30Vdc
CONSUMPTION @24V	For 2-wire input devices: <25mA For 3-wire input devices, 20mA supplied: <45mA
INPUT	
TERMINALS	M1 (S_S+), M2 (PNP_{IN}), M3 (NPN_{IN}), M4 (S_S-)
INPUT TYPE	Mechanical contact, standard IEC 1131.2 type 1, NAMUR (DIN19234, EN 60947-5-6) 2/3 NPN or PNP wires (12 or 22 V), Reed, photocell, AICHI devices
SWITCHING THRESHOLD	M2 (NAMUR, std, PNP): ~1.6mA M3 (std, NPN): ~3mA
HYSTERESIS	~0.2mA
MAXIMUM CURRENT	M2 (NAMUR): ~8mA M2 (std, PNP): ~3.6mA M3 (std, NPN): ~5mA
MAXIMUM FREQUENCY	400Hz
MINIMUM ACTIVE TIME	0.2ms
MAXIMUM VOLTAGE	±28V
OUTPUT	
TERMINALS	M5: PNP “source” (closes on positive M7) M6: NPN “Sink” (closes on negative M8)
MAXIMUM CURRENT	± 200mA (per output)
PROTECTION	Self-resetting fuses
MAXIMUM VOLTAGE	± 30V continuous ± 50V impulsive
SENSOR POWER SUPPLY:	
AVAILABLE VOLTAGE	8 ± 0.6V /12 ± 1V / 22 ± 2V
INTERNAL SOURCE IMPEDANCES	NAMUR: ~1kΩ / Photocell: ~1kΩ M1-M4 (Supply to the sensor): ~40Ω
CURRENT 3 WIRES (M1 - M4)	Maximum continuous current: 22mA Short-circuit current: ~35mA (peak ~500mA)

ELECTRICAL CONNECTIONS

IinMax= Maximum input current
Is= Maximum sensor current
Rs= Maximum sensor resistance
Vs= Sensor supply
Isw= Switch current (switching point)
Rsw= Internal transistor resistance
Vsw= Maximum switching voltage

KEY		
1	ON	
0	OFF	

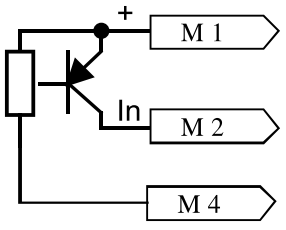
INPUT: IEC1131-Type1 standard contact



DIPSwitch settings			
1	2	3	4

Vs= 22 ± 2V
Isw= 3mA, IinMax= 5mA

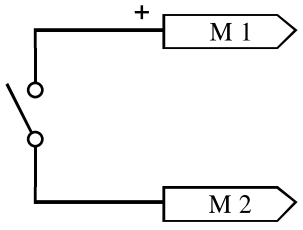
INPUT: PNP 24V (22V)



DIPSwitch settings			
1	2	3	4

Vs= 22 ± 2V, Is < 22mA
Isw= 1.6mA, IinMax= 3.6mA

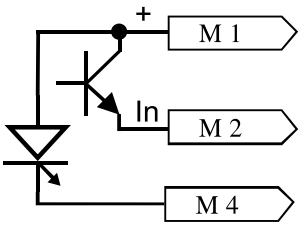
INPUT: NAMUR



DIPSwitch settings			
1	2	3	4

Vs= 8.0 ± 0.6V
Isw= 1.6mA, IinMax= 8mA

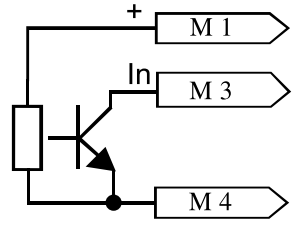
INPUT: Photo



DIPSwitch settings			
1	2	3	4

Vs= 22 ± 2V, Rs= 1kΩ
Isw= 1.6mA, IinMax= 3.6mA

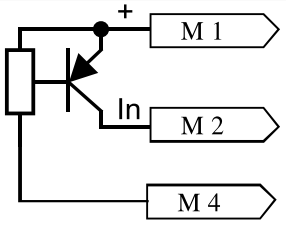
INPUT: NPN 24V (22V)



DIPSwitch settings			
1	2	3	4

Vs= 22 ± 2V, Is < 22mA
Isw= 3mA, IinMax= 5mA

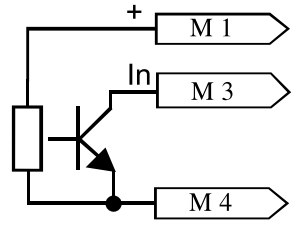
INPUT: PNP (12V)



DIPSwitch settings			
1	2	3	4

Vs= 12 ± 1V, Is < 22mA
Isw= 1.6mA, IinMax= 3.6mA

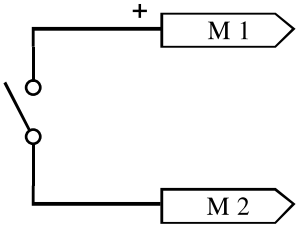
INPUT: NPN 12V



DIPSwitch settings			
1	2	3	4

Vs= 12 ± 1V, Is < 22mA
Isw= 3mA, IinMax= 5mA

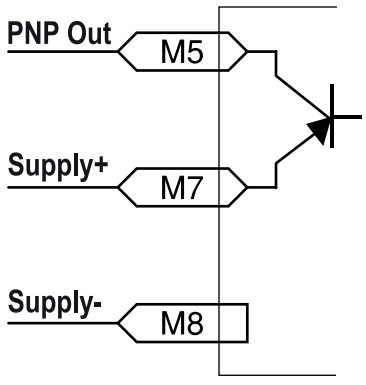
INPUT: Reed 12V



DIPSwitch settings			
1	2	3	4

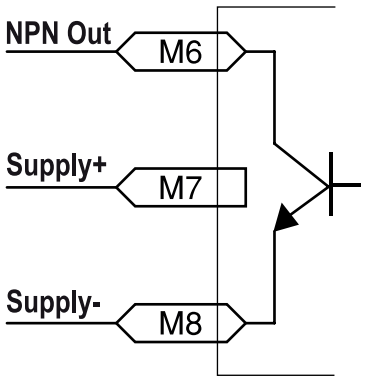
Vs= 12 ± 1V
Isw= 1.6mA, IinMax= 3.6mA

OUTPUT: PNP



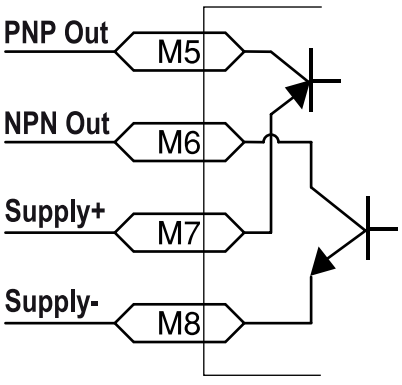
Isw= 200mA Max, Rsw= 3Ω Max
Vsw Max= 50V

OUTPUT: NPN



Isw= 200mA Max, Rsw= 2Ω Max
Vsw Max= 50V

OUTPUT: PNP & NPN



Isw= 200mA Max per channel