Rev 1.0 del 19.01.2023

CRM – Precision Converter to Generate 1 - 25mA signal

1. SAFETY WARNINGS

1.1. Important

- Read these instructions carefully before installation.
- Before use, follow all the instructions for installation and electrical connection.
- Keep these instructions with the simulator for future reference.
- Comply with current technical and safety standards.
- The installation and start-up of the converter must be done in a workmanlike manner by a qualified operator.
- ATTENTION: IMPROPER installation can cause damage.
- DO NOT tamper with and DO NOT disassemble the simulator components; doing so voids THE WARRANTY and may cause damage.
- In compliance with safety regulations, protection against any contact with electrical parts must be ensured by correctly installing the simulator; all parts that ensure protection must be fixed in such a way that they cannot be removed without the help of a tool.
- NEVER touch the electrical parts of the circuit with power on.
- Make sure that the working conditions (temperature of use, humidity, etc.) are within the limits indicated (see point 4).
- Do not install the simulator near: heat sources, where the ambient temperature can exceed 50 ° C, places subjected to rain, humidity, dust, excessive mechanical vibrations.

2. DESCRIPTION OF 1-25mA SIGNAL GENERATOR

The **CRM** converter is a simple electromechanical transducer, which generates the command signal from 1 mA to 25 mA.
It is used to simulate the 1 mA to 25 mA command signal of a sensor and / or transducer, thanks to the precision wire potentiometer and multi-turn resolution (10 turns).
The **CRM** allows you to accurately vary the value of the output signal (mA), applicable for the control of systems and actuators designed to receive the 0 (4) - 20mA command signal, such as EC motors, inverters, shutters and motorized valves, lighting systems etc.
The **CRM** is designed for direct connection of a multimeter, to read the 1-25 mA output command signal in Vdc.

ATTENTION: The converter must be powered directly by the regulation system to which it is connected, with a voltage output of 10-24 Vdc (max 25,0 mA).

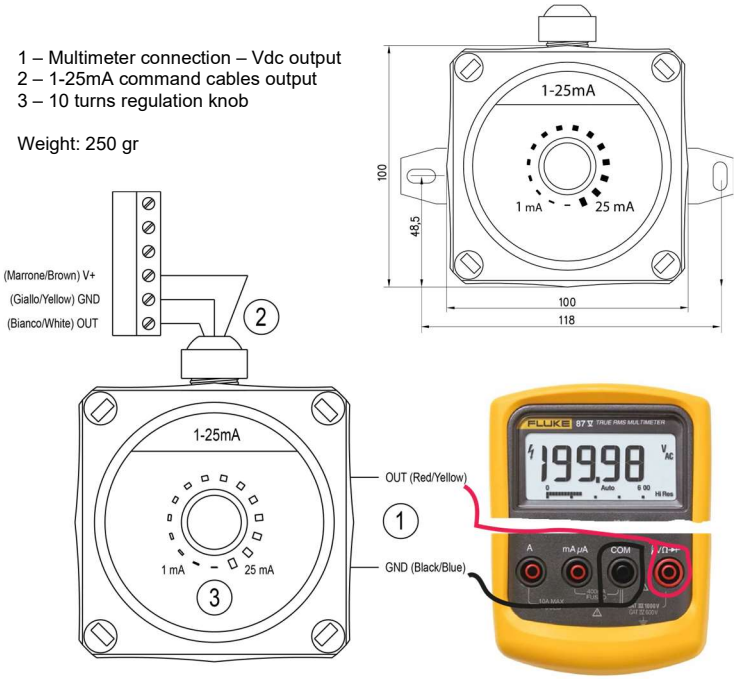
The main advantages are:

- It accurately generates the current command signal (1)4-20(25) mA to simulate the sensor / transducer
- Equipped with terminals for direct connection of a digital multimeter to read the value in mA converted to Vdc
- Suitable for direct connection with the most common analog interfaces for PLC, MCU and industrial controllers
- Simple to connect and functional for immediate use with direct reading in Vdc of the generated mA command.

3. Legend & CRM Mechanical Dimensions

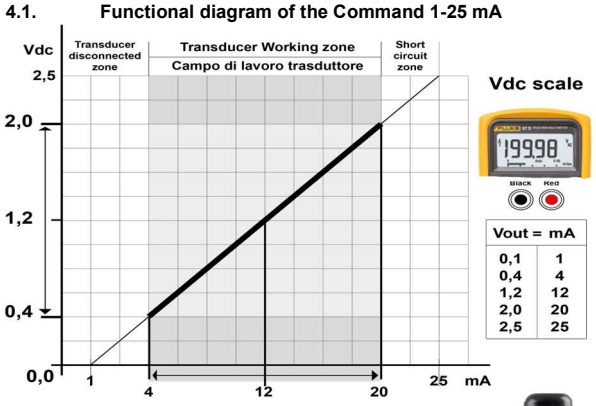
1 – Multimeter connection – Vdc output
2 – 1-25mA command cables output
3 – 10 turns regulation knob

Weight: 250 gr



4. OPERATION

4.1. Functional diagram of the Command 1-25 mA



Vout =	mA
0,1	1
0,4	4
1,2	12
2,0	20
2,5	25

5. TECHNICAL DATA



Power supply:
Voltage: 10-24 Vdc (± 10%) - max. 25 mA

Output Signal:
Analogue: n°1 output 1-25 mA

Protection:
Protection class: IP54

Container:
Material: Polycarbonate

Environmental working conditions:
Working Temperature: from 0 °C to 50 °C
Storage temperature: from 0 °C to 65 °C
Humidity: from 0% to 85% RH (non-condensing)
Vibration: ≤ 1 g (9.8 m/s²)

Directives	Reference Standard	Description
2006/95/UE	EN 60335-1	Safety of household and similar electrical appliances

The instrument must be disposed of according to local regulations on the collection of electrical and electronic equipment.

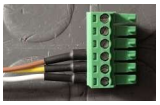
Legend of 1-25 mA Command CONVERTER components

1



MULTIMETER Connection Terminals:
Red/yellow bushing = Command signal
Black/blue bushing = GND
Connect the multimeter and measure the Vdc output voltage, which can be linearly converted into a current command (mA), using the following formula:
I = V / Ri where Ri is the input resistance of the device (SELPRO is 100 ohm).
Here is an example:
Voltmeter reading = 0.8 V reads INPUT = 8 mA

2



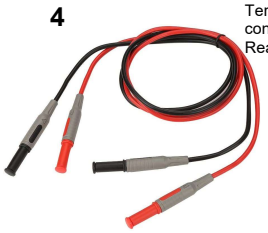
Cable set for the quick connection to the regulator.
The CRM converter is supplied already wired with the conductors as indicated in point 3, to be connected directly to the adjusting device, and simulates the management of the 1-25mA command input.

3

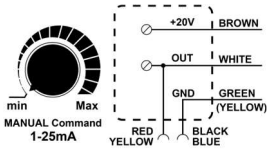


0-25mA control manual command
The converter has a 10-turn knob, which is used to finely modulate the variation of the 1-25 mA output command.
By turning the knob clockwise, from 0,5 mA, you get an increase in the output, up to 25 mA.
By turning the knob counterclockwise, you get a decrease in the output, up to 0.5 mA.

4



Terminal for the quick connection of the multimeter to the converter.
Reading is in Vdc (see the Vdc/mA conversion of chart 4.1)



SELPRO Srl – Via Piamarta 5/11 – 25021 Bagnolo Mella (BS) – selpro.it – info@selpro.it – Tel. +39 0306821611 – Fax +39 030622274