

The S104 complies the electromagnetic compatibility prescriptions based on the 89/366/EEC directive.



Reference norms: EN 50081-2 Industry environment emission norm
EN 50082-2 Industry environment immunity norm

S 104 current/frequency converter transforms input signal that is in current or voltage into a series of pulses that have the same constant life.

An usual way to use it is when by a flow meter having an analogue output (for example 4-20mA) is necessary to have the total of flow.

GENERAL DESCRIPTION :

*** INPUT for:**

- current's loop 4-20mA and 0-20mA
- voltage 0-5Vdc, 1-5Vdc, 0-10Vdc and 2-10Vdc regulating by four DIP-switches.

*** INTEGRATION'S CONSTANT:**

programmable from 1 pulse per 27 minutes to 20 pulses per second by four DIP-switches on front.

A multiround trimmer allows to cover the range between a scale and the next.

*** VERY EASY CALIBRATION:**

can be done using a common tester, or a frequency meter.

FEATURES:

- Power supply : S104-1-ST 115/230Vac \pm 10% 50/60Hz
- Consumption : 1,5 VA
- Integrating constant : from 1 pulse / 27 min. to 20 pulses / s
- Retransmitted output : npn open collector 30V 300ms
Pulse's duration 40 ms
- Linearity : \pm 0,1 %
- Thermal creep : \pm 0,005 % / °C
- Temperature : 0° / +50° C
- Humidity : 90% at 40° C (not condensing)
- Size : 53,5 x 90 x 74 mm
- Weight : 270 g approx.
- Box : to couple on 35 mm bar.

INPUT'S PREARRANGEMENT:

To prearrange input is necessary to remove (before to do electrical connections) lower cover clamp (numbered from 1 to 9) and prearrange the four DIP-switches (see figure 1) to obtain the input you want (see table 1) :

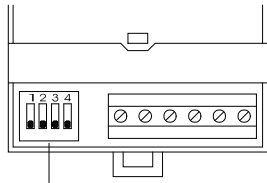


figure 1

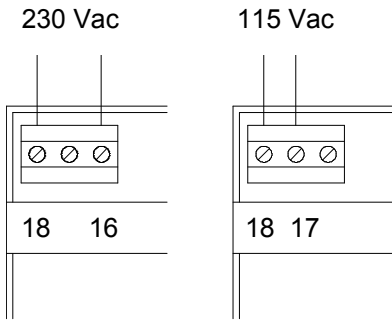
DIP-switch input's prearrangement

Table 1

INPUT SELECTION	
CURRENT 4-20mA	
CURRENT 0-20mA	
VOLTAGE 1-5Vdc	
VOLTAGE 0-5Vdc	
VOLTAGE 2-10Vdc	
VOLTAGE 0-10Vdc	

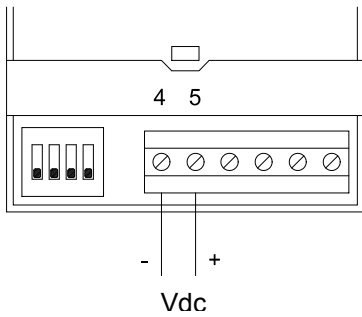
ELECTRICAL CONNECTIONS:

POWER S104-1-ST

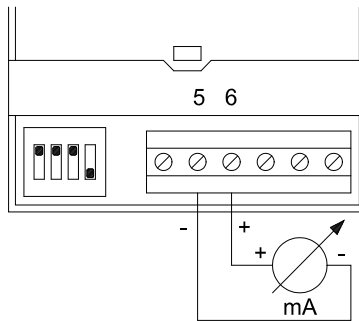


ANALOGIC INPUT

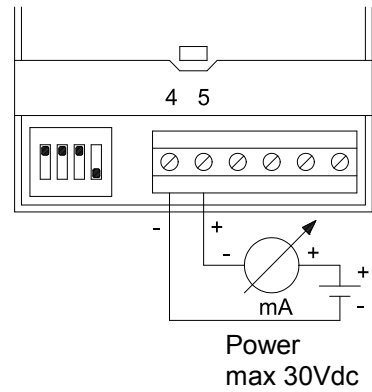
Input in Volt



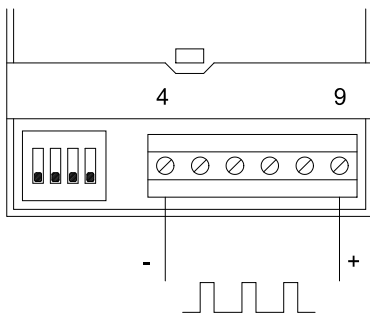
Input in mA
(loop's supply)



Input in mA
(external loop's supply)



PULSES OUTPUT:



















CALIBRATION (ONLY FOR WHIZ ENGINEERS):
EQUIPMENT CAN BE SELL - IF REQUIRED - CALIBRATED YET.

User can calibrate equipment by a common digital tester or by a frequency meter and a current or voltage generator in the way we teach you :

A) CALIBRATION BY A DIGITAL TESTER

If pulses/hour number can totalize P , you have to choose in the following table the scale containing number P, and prearrange the four DIP-switches “RANGE” present in front panel, in corresponding position given by table 2 :

Table 2

PULSES / HOUR			PULSES / HOUR		
IS	FS		IS	FS	
36000	- 72000		140,625	- 281,25	
18000	- 36000		70,312	140,625	
9000	- 18000		35,156	70,312	
4500	- 9000		17,578	- 35,156	
2250	- 4500		8,789	- 17,578	
1125	- 2250		4,394	- 8,789	
562,5	- 1125		2,197	- 4,394	
281,25	- 562,5		1,098	- 2,197	

Connect a tester prearranged on 10Vdc to clamps 4 (-) and 8 (+).
 Move the four DIP-switches “SELEZIONE INGRESSO” (see figure 1) in ON.
 Rotate calibration trimmer till appare value given by formula:

$$\text{Voltage to be read} = \frac{10 \times P \times K}{\text{FS}}$$

where: **P** is pulses/hour number to totalize
K is a calibration constant (you can find on equipment's label)
FS is full scale in selected scale on table 2.

At the end of calibration replace DIP-switches “SELEZIONE INGRESSO” (see figure 1) in position corresponding your sensor's output.

Example: to totalize 90 pulses / hour, put DIP-switches “RANGE” (on upper panel) in the configuration given by table 2.

Put the four DIP-switches “SELEZIONE INGRESSO” (see figure 1) in ON.

Rotate calibration trimmer till voltage will be read :

$$\text{Voltage to be read} = \frac{10 \times 90 \times 1,05}{140,625} = 6,72\text{Vdc}$$

At the end of operation replace DIP-switches “SELEZIONE INGRESSO” (see figure 1) in position corresponding your sensor's output.

B) CALIBRATION BY A FREQUENCY METER AND A CURRENT/VOLTAGE GENERATOR

Connect frequency meter to clamps 4 (-) and 7 (+).

Connect current or voltage generator at input and select by DIP-switches “SELEZIONE INGRESSO” (see figure 1) the appropriate input 's type.

Prearrange generator for full scale value.

If pulses/hour number to totalize is P , you have to choose in table 2 scale having number P.

Move the four DIP-switches “RANGE” (on upper panel) in position corresponding the desired full scale.

Rotate trimmer till frequency meter gives the frequency given by formula:

$$\text{Frequency to be read} = \frac{P}{FS} \times 10240$$