Series ISC

SIGNAL CONVERTERS
WITH GALVANIC ISOLATION

MODEL
ISC-PT100

GENERAL INFORMATION

The ISC series of Isolated Signal Converters, allow to convert process signals, temperatures, electrical signals, etc, to current loops or voltage signals for further retransmision, while introducing into the system galvanic isolation barriers between the input, the output and the power supply circuits.

The ISC series of Isolated Signal Converters, offer an excellent relation between signal conversion speed and measure accuracy. Offering up to a 0.2% accuracy and down to 70ms response time, these units can process information coming from probes or transducers, in such a way that can be quickly retransmitted in a fast and accurate form to remote data acquisition systems or PLC's. The isolated signal converters of the ISC series are ideal to integrate into 12 bit data acquisition systems.

Its powerful galvanic isolation of 3.500 V introduces high security to the measuring systems, preventing the propagation of those phenomenon which usually cause damage, such as transient peaks or energy shocks in any of the circuits of the system. The galvanic isolation also acts as a strong CE barrier. The decoupling created between the circuits avoids pernicious effects on the output, such as ground loops or signal leaks, which distort the acquired data and are extremely difficult to isolate once introduced into the signal.

The isolation offered by the ISC series of Isolated Signal Converters is a 3 way isolation. Thus, all the benefits exposed above are applicable to any of the three circuits composing the instrument : input, output and power.

Recalibration of the instruments is realized in a fast and easy way. Opening the frontal cover grants access to the configuration jumpers. Additional Span and Offset potentiometers are directly accessible from the frontal part. These potentiometers are highly decoupled, minimizing the iterations needed to obtain a correct adjustment.

In order to obtain a higher and quickest benefit of the ISC units, we recommend you to read carefully the information provided in this manual before proceeding to the installation of the instrument. In this manual you will find all technical data, both electrical and mechanical, needed for a correct instalation and utilization.

Note : The units of the ISC Isolated Signal Converters have attached a characteristics label on the side of the instrument. Check that this information matches with your requirements for this specific application, and very specially check the value and type of the Power Supply.

QUICK GUIDE

The ISC units have a frontal cover which can be opened down. This cover gives access to the Span and Offset potentiometers, and to the selection jumpers for input and output signal ranges.

To open the frontal cover, press slightly the sides of the cover at the upper side, close to the OUTPUT terminals, as indicated on Figure1.

The cover is free to open down, as shown on Figure2.

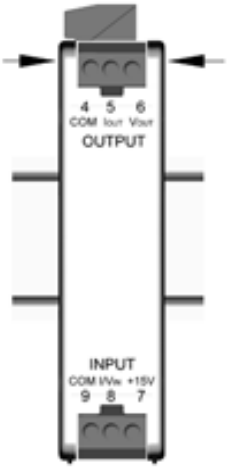


FIGURE1
FRONT VIEW WITH COVER

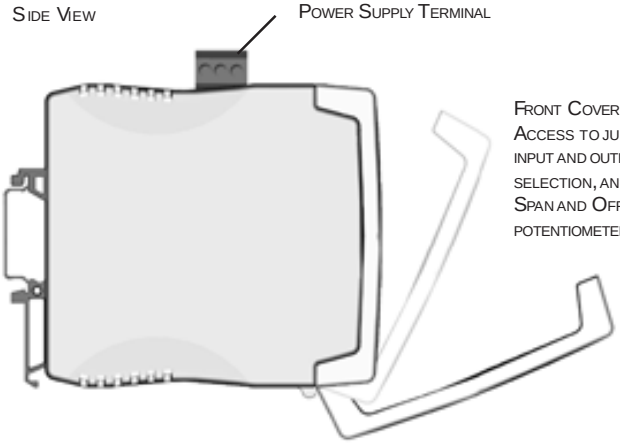
POWER SUPPLY CONNECTIONS

ISC units are powered through the plug-in terminal positioned on the upper side of the instrument. This terminal is placed in a transverse axis, different from the other terminals. Close to the power supply terminal there is a small yellow label with indications on the connections for AC and DC

IMPORTANT !! Check that the power supply indicated on the white label attached to the side of the instrument, matches with the power supply you want to connect.

For more accurate information on the power supply connections, please see page 6 of this manual.

FIGURE2
SIDE VIEW



SIGNAL ADJUSTMENT

To proceed to adjust a range of input and output signals, first select with the appropriate jumpers, the signal ranges which include your desired adjustment. Then proceed to the adjustment.

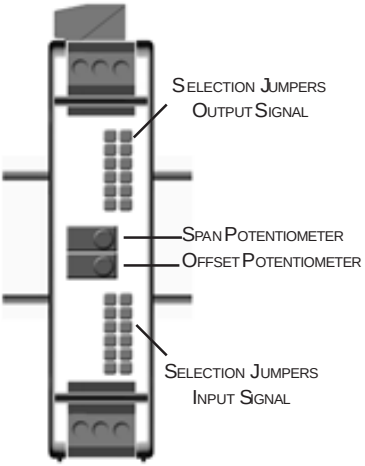


FIGURE 3
Front View
without Cover

Selection Jumpers : Output Signal Range

0/20mA (4/20mA) 0/10Vdc 0/1Vdc

Selection Jumpers : Input Signal Range
(See next page)

Adjustment

1.- Connect input signal to terminals *(7 «signal+», 9 «signal-» and 8 to sense of the 3 wire probe, or shortcircuited to terminal 9)*.

2.- Connect a multimeter to the output signal terminals *(4 and 5 for mA or 4 and 6 for Vdc).*

(Values in brackets are examples for a calibration 0/100ºC = 0/10Vdc)

3.- Input a zero signal *(0 ºC).*
Operate offset potentiometer until getting a zero output *(0Vdc).*

4.- Input the difference between the high and low input levels *(100 - 0= 100 ºC).*
output levels *(10-0=10Vdc)*.

5.- Input low input level *(0 ºC).*
Operate offset potentiometer until getting the low level output *(0Vdc)*.

6.- Input high input level and check that that the output also matches the desired level *(100 ºC=10Vdc).*

If more accurate measure is needed, repeate steps 5 and 6.

Most of the input / output combinations will be properly adjusted within the instrument accuracy after these steps. Close frontal cover once calibration is finished.

-25ºC to +75ºC

Max Deviation : 0.2ºC
Min. Adjust : -25ºC / +25ºC
Max. Adjust : -25ºC / +75ºC

Signal follow up to -35ºC
Signal follow up to +95ºC

**Deviation indicated does not include deviations due to thermal drift*

-50ºC to +150ºC

Max Deviation : 0.4ºC
Min. Adjust : -50ºC / +75ºC
Max. Adjust: -50ºC / +150ºC

Signal follow up to -65ºC
Signal follow up to +170ºC

**Deviation indicated does not include deviations due to thermal drift*

0ºC to +100ºC

Max Deviation : 0.2ºC
Min. Adjust : 0ºC / +50ºC
Max. Adjust : 0ºC / +100ºC

Signal follow up to -10ºC
Signal follow up to +120ºC

**Deviation indicated does not include deviations due to thermal drift*

0ºC to +200ºC

Max Deviation : 0.4ºC
Min. Adjust : 0ºC / +100ºC
Max. Adjust : 0ºC / +200ºC

Signal follow up to -15ºC
Signal follow up to +215ºC

**Deviation indicated does not include deviations due to thermal drift*

0ºC to +300ºC

Max. Deviation : 0.6ºC
Min. Adjust : 0ºC / +150ºC
Max. Adjust : 0ºC / +300ºC

Signal follow up to -25ºC
Signal follow up to +350ºC

**Deviation indicated does not include deviations due to thermal drift*

0ºC to +600ºC

Max. Deviation : 1.3ºC
Min. Adjust : 0ºC / +450ºC
Max. Adjust : 0ºC / +600ºC

Signal follow up to -50ºC
Signal follow up to +800ºC

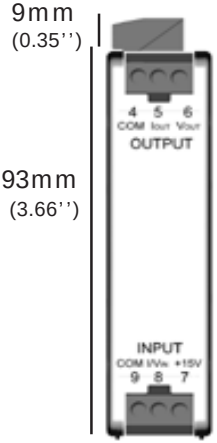
**Deviation indicated does not include deviations due to thermal drift*

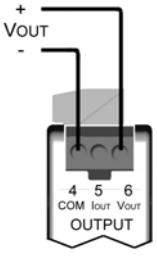
0ºC to +450ºC

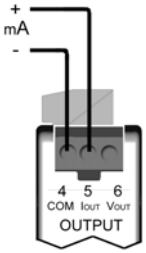
Max. Deviation : 0.9ºC
Min. Adjust : 0ºC / +300ºC
Max. Adjust : 0ºC / +450ºC

Signal follow up to -50ºC

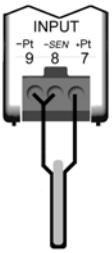
DIMENSIONS AND CONNECTIONS

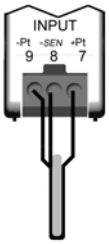






Output Connections



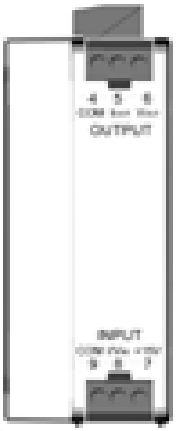


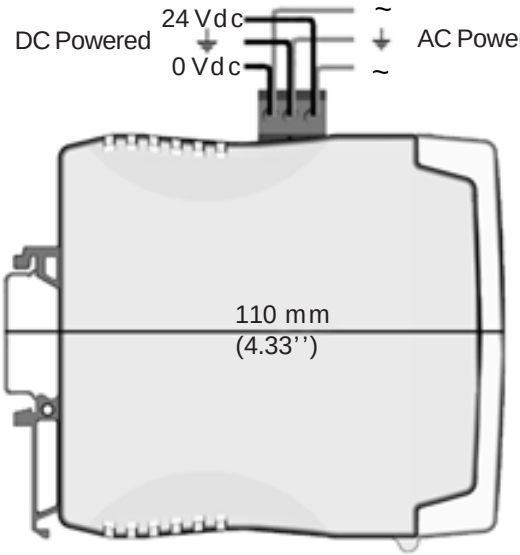
Input Connections

Pt100 Probe

Pt100 Probe

Special Wide for AC Power models





TECHNICAL DATA : Unit ISC-PT100

INPUT SIGNAL from PT100 PROBE

RANGES	0/650 ºC
	0/450 ºC
	0/300 ºC
	0/200 ºC
	0/100 ºC
	-50/+150 ºC
	-25/+75 ºC

*(*morei nformation on page 6)*

PROBE	PT100 / RTD
	2 or 3 wires
	Alpha 0.00385

Up to 10 Ohms compensation of ohmic cable resistance.

OUTPUT SIGNAL in VDC

RANGES	0/10 Vdc
	0/1 Vdc
Max Output	11Vdc approx.
Min Output	-1Vdc approx.
Min Load R	≥1KOhm

OUTPUT SIGNAL in mA

RANGES	0/20mA (4/20mA)
Max Output	22mA approx.
Min Output	-1.5mA approx.
Max Load R	≤400 Ohms

POWER SUPPLY

DC Power	24Vdc ±10%
AC Power	230Vac ±10% 50/60 Hz

MECHANICAL DIMENSIONS

DC Units	22.5 x 93 x 110 mm
AC Units	37.0 x 93 x 110 mm
Weight DC	120 gr.
Weight AC	200 gr.

Standard DIN rail mounting, as specified on DIN46277 and DIN EN 50022
37.5 x 7.5 mm (1.38 x 0.3 ´´)

GALVANIC ISOLATION LEVELS

DC Units	
Input - Output	3K5*(60 seconds)*
Power-Input	3K5*(60 seconds)*
Power- Output	1K V*(60 seconds)*

AC Units	
Input - Output	3K5 *(60 seconds)*
Power- Input	3K5 *(60 seconds)*
Power - Output	3K5 *(60 seconds)*

All isolation levels are tested during a time of 60 seconds, with current leaks <1mA

Note : Indicated isolation levels are also indicated sometimes named as STRENGTHENED ISOLATION levels, for systems with Polution Level 2

MATERIALS

Box and Cover in Poliamide PA6 UL94 V-2 blue color