

MODEL · I3P

PROCESS & TEMPERATURES



Signal converter isolated, multisignal, for DIN rail mount.

Configurable to measure process (mA and Vdc, provides excitation voltage), thermocouples (J, K, N, E, T, R and S), Pt100 probes (2 and 3 wires), Pt500, Pt1000, Ni100, Ni200, Ni1000, NTC, potentiometers and resistances.

Configurable output for 4/20mA and 0/10Vdc. Universal power supply from 18 to 265Vac/dc. 3 way isolation between input, output and power circuits. Easy and fast configuration through configuration codes. Plug-in screw terminal connections.

Functions to generate low and high output signals, to validate remote instrumentation. 'Password' function to block access to configuration. Designed for industrial environment, for a wide range of applications, reduced cost, excellent quality and optional customization. Recommended for OEM applications.

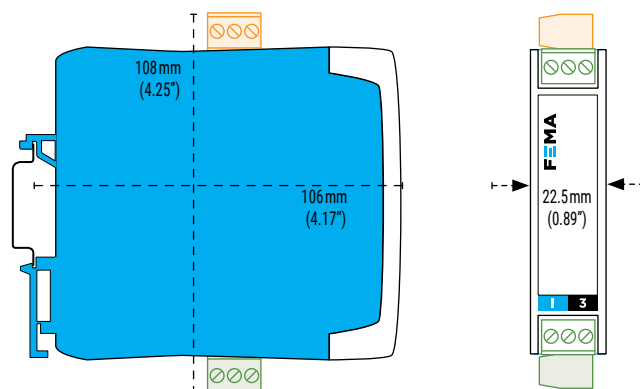
1. TECHNICAL SPECIFICATIONS

Input signal ranges	
process	4/20 mA, 0/10 Vdc (active and passive) excitation voltage +15 Vdc @30 mA
thermocouples	J, K, N, E, T, R and S (automatic compensation of the thermocouple cold junction)
'Pt' and 'Ni' probes	Pt100 (2 and 3 wires, automatic compensation up to 30 Ohm) Pt500, Pt1000, Ni100, Ni200, Ni1000 (2 wires) (see section 7)
'NTC' probes	ranges for 100 K, 50 K, 25 K, 10 K, 5 K and 2.5 K Ohms
resistances	from 500 Ohm up to 20 K Ohm potentiometers
potentiometers	
Accuracy at 25 °C	(see Table 3)
Thermal stability	150 ppm/°
Step response	300 mSec. (0% to 99% signal)
Output signal ranges	
mA signals	4/20 mA (active and passive). Max. 22 mA. Min.. 1.5 mA. Maximum load < 400 Ohm
Vdc signals	0/10 Vdc. Max. 11 Vdc. Min.. -1 Vdc. Minimum load > 1 K Ohm
Configuration	
keypad	2 keys
display	2 digits, 7 segments, 5 mm height, red color
Power	
voltage range	18 a 265 Vac/dc isolated (20 to 240 Vac/dc ±10%)
AC frequency	45 to 65 Hz
consumption	<1.0 W
power wires	1 mm ² to 2.5 mm ² (AWG17 to AWG14)
overvoltage category	2
Isolation	
input - output	2300 Veff (60 seconds)
power - input	2300 Veff (60 seconds)
power - output	2300 Veff (60 seconds)
IP protection	IP30
Impact protection	IK06
Temperature	
operation	from 0 to +50 °C
storage	from -20 to +70 °C
'warm-up' time	15 minutes
Mechanical	
size	106 x 108 x 22.5 mm
mounting	standard DIN rail (35 x 7.5 mm)
connections	plug-in screw terminals (pitch 5.08 mm)
housing material	polyamide V0
weight	<150 grams
packaging	130 x 80 x 45 mm, cardboard

2. HOW TO ORDER

MODEL	CUSTOMIZATION
I3P	.XXXX (customized execution)

3. DIMENSIONS



4. FUNCTIONS INCLUDED

Function **'Force Low'** . . . temporarily forces the signal output to the minimum of the selected range (4 mA or 0 Vdc). Tool to validate the function of the remote elements connected to the output.

Function **'Force High'** . . . temporarily forces the signal output to the maximum of the selected range (20 mA or 10 Vdc). Tool to validate the function of the remote elements connected to the output.

Function **'Password'** . . . prevents access from unauthorized operators to **'configuration mode'** and **'tools'** menu.

5. CONNECTIONS: INPUT & OUTPUT

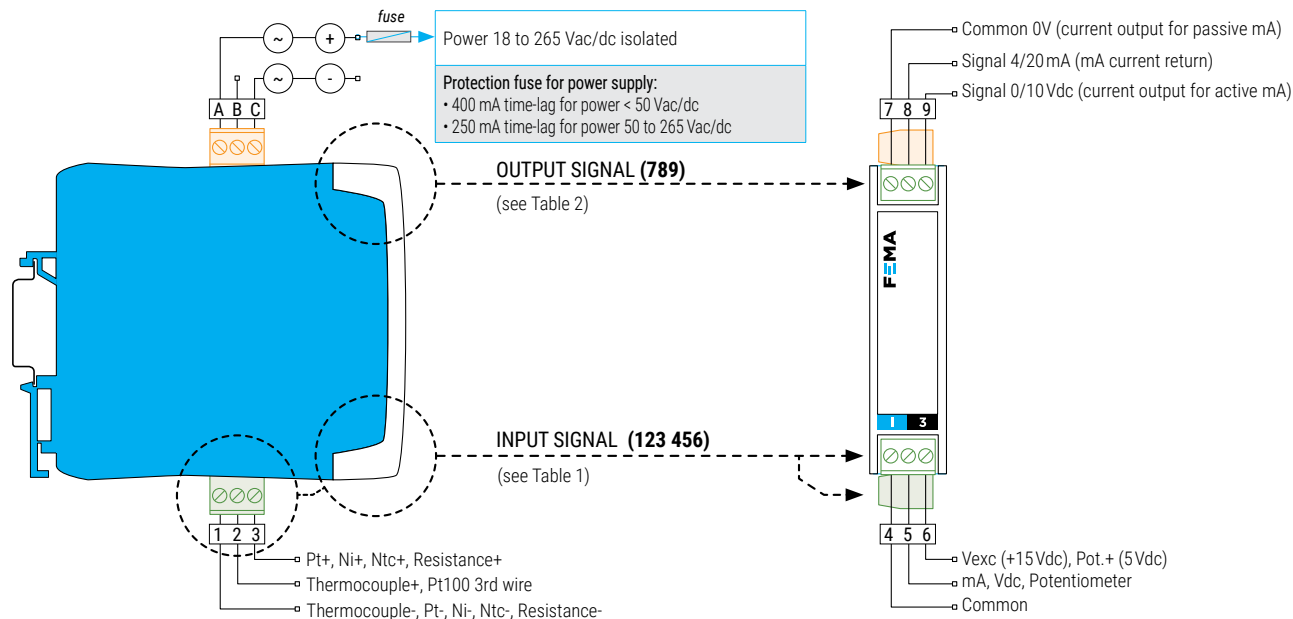


Table 1 | INPUT signal connections

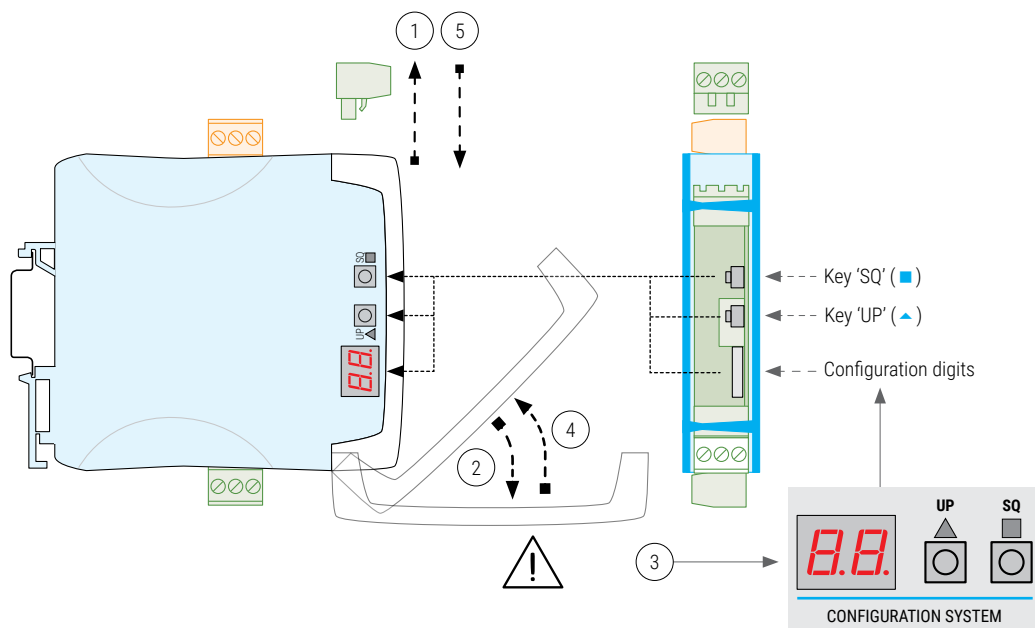
Input signal	1	2	3	4	5	6
4/20 mA passive					mA-	Vexc
4/20 mA active				mA-	mA+	
0/10 Vdc				common	+Vdc	
0/10 Vdc with Vexc				common	+Vdc	Vexc
Potentiometer				Pot.-	Potent.	Pot.+
Resistance	Res-		Res+			
NTC	NTC-		NTC+			
Thermocouple	tc-	tc+				
Pt100 (3 wires)	Pt-	Pt- (3' wire)	Pt+			
Pt100 (2 wires)	Pt- (shortcircuit 1 and 2)		Pt+			
Pt1000, Pt500	Pt-		Pt+			
Ni100, Ni500, Ni1000	Ni-		Ni+			

Table 2 | OUTPUT signal connections

Output signal	7	8	9	Connections
4/20 mA active		mA (in)	mA+ (in)	mA-, mA+
4/20 mA passive	mA+ (out)	mA (in)		mA+, mA-
0/10 Vdc	common		+Vdc	common, +Vdc

6. Configuration system

1. Remove the output signal terminal
2. Open the front cover
3. Configure the instrument
4. Close the front cover
5. Place the output signal terminal



Opening the front cover reduces the security level of the operator. If dangerous voltages are connected to any of the input terminals, remove both input signal terminals before opening the front cover. Operation must be performed by qualified personnel.

7. CONFIGURATION CODES - INPUT AND OUTPUT SIGNAL RANGES

To activate one of the input signal ranges (see Table 3) access the 'configuration system' (see section 6). To access the 'configuration menu' press the 'SQ' (▲) key, press the 'UP' (▲) key to select the desired code, and validate with the 'SQ' (■) key.

To configure the output signal range to 4/20mA and 0/10Vdc, press both keys 'UP' (▲) and 'SQ' (■). The actual output signal configuration is identified with the active decimal point (decimal point to the right for 4/20 mA, decimal point to the left for 0/10 Vdc).

For detailed description, see the User's Manual (see section 8).

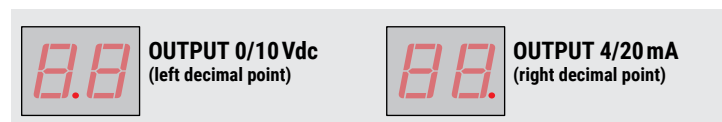


Table 3 | Input signal - Configuration codes

Code	Input signal range		Technical specs.
00 a 09	[no function assigned]		---
10	4/20 mA	Process	error <0.30% FS (max. 25mA; Z _{in} =4.7Ω)
11	0/10 Vdc		error <0.30% FS (max. 25 Vdc; Z _{in} =1 MΩ)
12	0/100 %	Potentiometer	total error <1% FS
13	0/100 KΩhm	Resistance	total error <1% FS
14	0/50 KΩhm		
15	0/25 KΩhm		
16	0/10 KΩhm		
17	0/5 KΩhm		
18	0/2.5 KΩhm		
19	0/1200 °C	Thermocouple J	total error <3° (includes cold junction error)
20	0/1000 °C		
21	0/800 °C		
22	0/600 °C		
23	0/450 °C		
24	0/300 °C	Thermocouple K	total error <3° (includes cold junction error)
25	0/150 °C		
26	0/1350 °C		
27	0/1000 °C		
28	0/800 °C		
29	0/600 °C	Thermocouple N	total error <3° (includes cold junction error)
30	0/450 °C		
31	0/300 °C		
32	0/150 °C		
33	0/1300 °C		
34	0/1000 °C	Thermocouple E	total error <3° (includes cold junction error)
35	0/800 °C		
36	0/600 °C		
37	0/450 °C		
38	0/300 °C		
39	0/150 °C	Thermocouple T	total error <3° (includes cold junction error)
40	[no function assigned]		
41	0/900 °C	Thermocouple R	total error <5° (includes cold junction error)
42	0/600 °C		

Table 3 | Input signal - Configuration codes

Code	Input signal range		Technical specs.
43	0/450 °C	Thermocouple E	total error <3° (includes cold junction error)
44	0/300 °C		
45	0/150 °C		
46	0/400 °C	Thermocouple T	total error <3° (includes cold junction error)
47	0/300 °C		
48	0/200 °C		
49	0/100 °C		
50	0/1750 °C	Thermocouple R	total error <5° (includes cold junction error)
51	0/1500 °C		
52	0/1200 °C		
53	0/900 °C		
54	0/1750 °C	Thermocouple S	total error <5° (includes cold junction error)
55	0/1500 °C		
56	0/1200 °C		
57	0/900 °C		
58	[no function assigned]		---
59	0/700 °C	Pt100	total error <2°
60	0/600 °C		
61	0/500 °C		
62	0/400 °C		
63	0/300 °C		
64	0/200 °C		
65	0/100 °C		
66	-50/+50 °C		
67	-100/+100 °C		
68	-200/+200 °C		
69	0/630 °C	Pt500	total error <2°
70	0/300 °C		
71	-150/150 °C		
72	0/630 °C	Pt1000	total error <2°
73	0/300 °C		
74	-190/190 °C		
75	-60/180 °C	Ni100	total error <2°
76	-60/120 °C	Ni200	
77	-60/180 °C	Ni1000	
78 a 80	[no function assigned]		---
81	-60/150 °C	NTC (R ₂₅ =10K y β=3500)	total error <2°
82	-60/150 °C	NTC (44006)	total error <2°
83	0/100 °C	NTC (44006)	
84 a 94	[no function assigned]		---
95	Function 'password'		---
96	Pt100 'Alpha' (01=0.0385, 02=0.0390)		---
97	Factory default configuration		---
98	Firmware version		---
98 a 99	[no function assigned]		---
---	Exit the menu and discard changes		---

8. ADDITIONAL DOCUMENTATION

User's manual

www.fema.es/docs/4788_I3P_manual_en.pdf

Datasheet

www.fema.es/docs/4790_I3P_datasheet_en.pdf

Quick installation guide

www.fema.es/docs/4792_I3P_installation_en.pdf

Web

www.fema.es/docs/Serie_I3

9. OTHER SIGNAL CONVERTERS ... AND MORE



SERIES I3 SERIES OEM

output signal 4/20 mA, 0/10 Vdc
configuration by codes (inside)
isolation 3 ways



SERIES I4 FULLY CONFIGURABLE

output signal 4/20 mA, 0/10 Vdc, ...
configuration by menu (front)
isolation 3 ways



SERIES I5 FIELD BUS

output signal Modbus RTU, CANbus, ...
configuration by menu (front)
isolation 3 ways



SERIES B LARGE FORMAT DISPLAYS

digit 60 and 100 mm
reading 25 and 50 meters
mounting wall, panel, hanging
housing metallic IP65

50 YEARS 1969-2019	Q ISO 9001 Certified Quality	CE EN-61010-1 Security	CE EN-61326-1 Electromagnetic C.	5 YEARS Extended Warranty
---------------------------------	---	-------------------------------------	---	--

