

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.

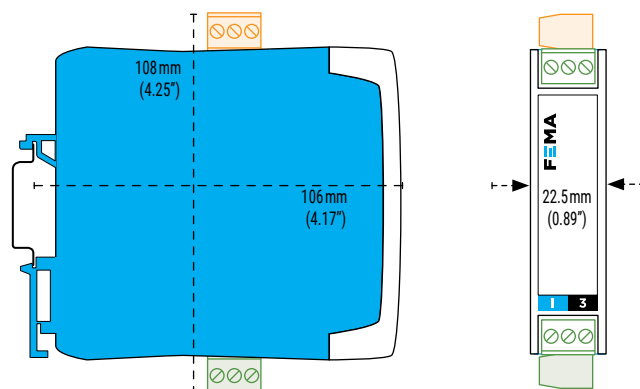
1. TECHNICAL SPECIFICATIONS

Input signal ranges	
process	4/20 mA, 0/10 Vdc (active and passive) excitation voltage +15Vdc @30mA
thermocouples	J, K, N, E, T, R and S
'Pt' and 'Ni' probes	Pt100 (2 and 3 wires, automatic compensation up to 300Ohm) Pt500, Pt1000, Ni100, Ni200, Ni1000 (2 wires) (see section 7)
'NTC' probes	
resistances	ranges for 100K, 50K, 25K, 10K, 5K and 2.5KOhms
potentiometers	from 500Ohm up to 20KOhm potentiometers
Accuracy at 25 °C	(see Table 3)
Thermal stability	150ppm/°
Step response	300mSec. (0% to 99% signal)
Output signal ranges	
mA signals	4/20mA (active and passive). Max. 22 mA. Min.. 1.5mA. Maximum load < 400 Ohm
Vdc signals	0/10Vdc. Max. 11 Vdc. Min.. -1 Vdc. Minimum load > 1 KOhm
Configuration	
keypad	2 keys
display	2 digits, 7 segments, 5mm 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 22.5mm
mounting	standard DIN rail (35x7.5mm)
connections	plug-in screw terminals (pitch 5.08mm)
housing material	polyamide V0
weight	<150 grams
packaging	130x80x45mm, cardboard

2. HOW TO ORDER

MODEL	CUSTOMIZATION
I3P	<input type="text"/>
	.XXXX (customized execution)

3. DIMENSIONS



4. FUNCTIONS INCLUDED

Function **'Force Low'** . . . temporarily forces the signal output to the minimum of the selected range (4mA or 0Vdc). 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 (20mA or 10Vdc). 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

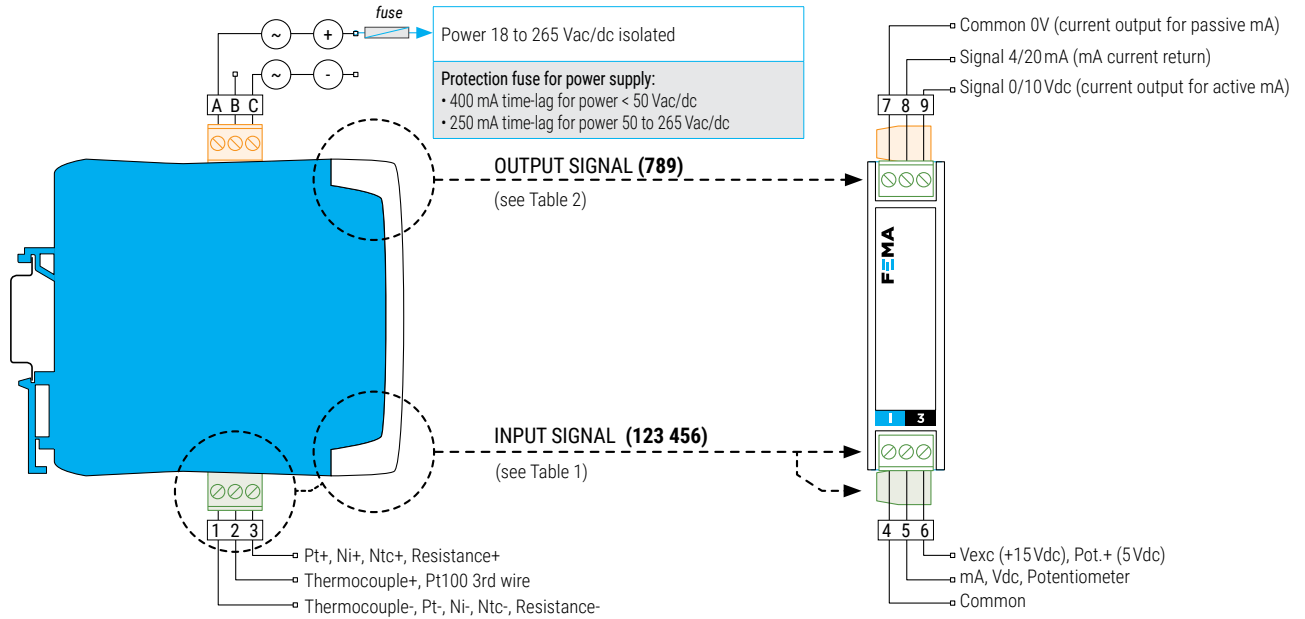


Table 1 | INPUT signal connections

Input signal	Input terminals					
	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+			

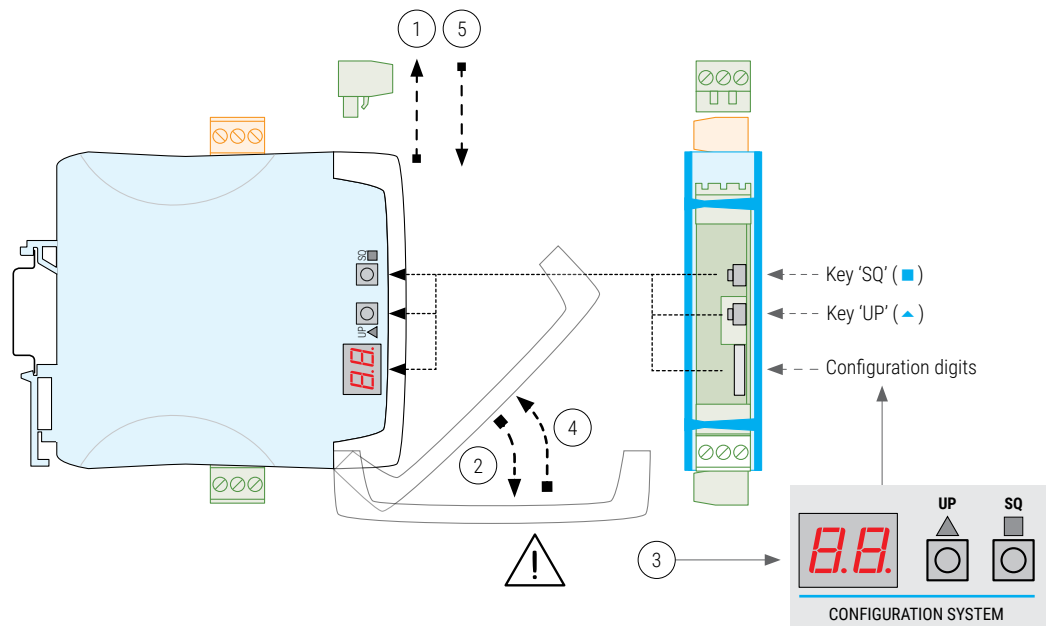
Table 2 | OUTPUT signal connections

Output signal	Output terminals			Connections
	7	8	9	
4/20 mA active		mA (in)	mA+ (in)	
4/20 mA passive	mA+ (out)	mA (in)		
0/10 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 4/20 mA and 0/10 Vdc, 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. 25 mA; Z _{in} =4.7 Ω)	
11	0/10 Vdc		
12	0/100 %	Potentiometer total error <1% FS	
13	0/100 KΩ	Resistance total error <1% FS	
14	0/50 KΩ		
15	0/25 KΩ		
16	0/10 KΩ		
17	0/5 KΩ		
18	0/2.5 KΩ		
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		
25	0/150 °C		
26	0/1350 °C		Thermocouple K total error <3° (includes cold junction error)
27	0/1000 °C		
28	0/800 °C		
29	0/600 °C		
30	0/450 °C		
31	0/300 °C		
32	0/150 °C		
33	0/1300 °C	Thermocouple N total error <3° (includes cold junction error)	
34	0/1000 °C		
35	0/800 °C		
36	0/600 °C		
37	0/450 °C		
38	0/300 °C		
39	0/150 °C		
40	[no function assigned]		---
41	0/900 °C	Thermocouple E total error <3° (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	Thermocouple S total error <5° (includes cold junction error)	
54	0/1750 °C		
55	0/1500 °C		
56	0/1200 °C		
57	0/900 °C	Pt100 total error <2°	
58	[no function assigned]		---
59	0/700 °C		
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	Pt1000 total error <2°	
72	0/630 °C		
73	0/300 °C		
74	-190/190 °C		
75	-60/180 °C	Ni100 total error <2°	
76	-60/120 °C		
77	-60/180 °C		
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)	
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
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Process	Temperature	Counter	Weight	Flow	Time
Frequency	Temperature	Speed	Vac	Aac	Integrators
Potentiometer	Temperature	Period	Ade	Vdc	Resistances
Digital	Digital	Digital	Digital	Custom	