



INTELLIGENT JUNCTION BOXES

JM400

- Easy and safe connection for sensors, actuators and measuring instruments to the fieldbus (Foundation Fieldbus and Profibus) and HART®
- Rugged assembly for industrial and hazardous areas
- Reduces wiring costs as well as minimizes design costs of the process control system
- Reduces stops, start-up time, and simplifies electrical maintenance
- The weather proof housing prevents water, oil and dust from reaching the connections
- 4 input/output connections used according to the application convenience
- Internal bus terminator
- Cables can be handled separately without interference from their wires
- The trunk bus is separated from the spurs
- Spurs have protection against short circuits on the Foundation™ fieldbus and Profibus -PA networks (optional, see ordering code)
- Housing in aluminum or stainless steel
- Locking mechanism
- External grounding terminal
- Does not require specific bracket



Accessories

JM400

Smar junction boxes were specially designed to facilitate connections to fieldbus, HART® and conventional 4-20 mA instrumentation. The IP66/68 rating of its housings, associated with appropriate cable glands, protects electrical connections from dust, water, oil and condensation. They can be used indoors or outdoors and resist the most severe environmental conditions.

smar
Technology Company

The JM400 is a junction box especially designed for fieldbus and conventional instrumentation connections, for sensor and actuators connections.

The IP66/68 rating matched with the adequate cable glands prevents water, oil, dust, and other mixtures from reaching the connections.

It may be used indoors or outdoors and can withstand the most severe environments. The cover with internal threads allows an easy access to the terminals, without the use of special tools.

The terminals are twin type at the four ends. They can be used as the input and output of the bus according to the application convenience, keeping apart the wires that should be disconnected in case of device maintenance.

This arrangement makes possible the disconnection of devices keeping the continuity of the whole bus, and also avoiding short-circuits.

The trunk bus is separated from the spur. This ensures that any intervention in spurs does not interfere in the operation of the main bus.

The JM400-C3 offers protection against short circuits in the spurs (between + and - terminals), limiting the current to 50 mA on each spur. Thus, the short circuit does not propagate between the spurs nor in the main trunk. This option has short circuit indication LED and built-in terminator.

In normal operation, each short circuit protective consumes less than 1 mA. After removing the short circuit, the spur returns to normal operation, the circuit protection is disabled and the LED is dimmed.



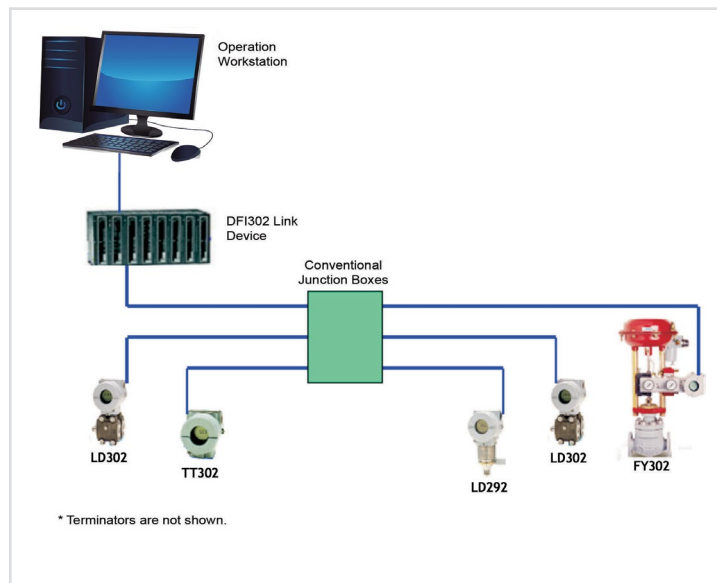
Fieldbus Optimized Through Junction Boxes

Fieldbus presents several benefits, like cable reduction and installation flexibility. Several topologies can be used; the cable reduction will depend on the chosen topology.

But what really happens when we build a FOUNDATION™ fieldbus or PROFIBUS-PA installation ?

Most installations will not benefit from this reduction, due to the use of conventional junction boxes that distributes wires to several field devices. When using conventional junction boxes, the topology used will most likely be the star topology. With this topology many devices will be derived from the same junction box, with each device requiring a pair of wires.

Star Topology



To really optimize cable amount a bus topology must be used. A true cost-effective bus topology can only be achieved using distributed junction boxes.

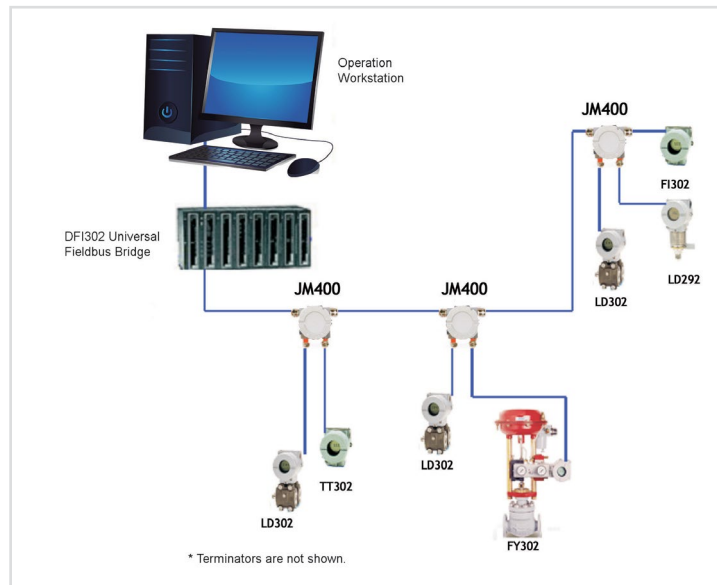
Specially designed for Fieldbus topology JM400 improves the cable reduction allowing Fieldbus installations to reach their maximum savings and flexibility.

The JM400 junction boxes can be placed nearby the devices and do not require special supports to be mounted on.

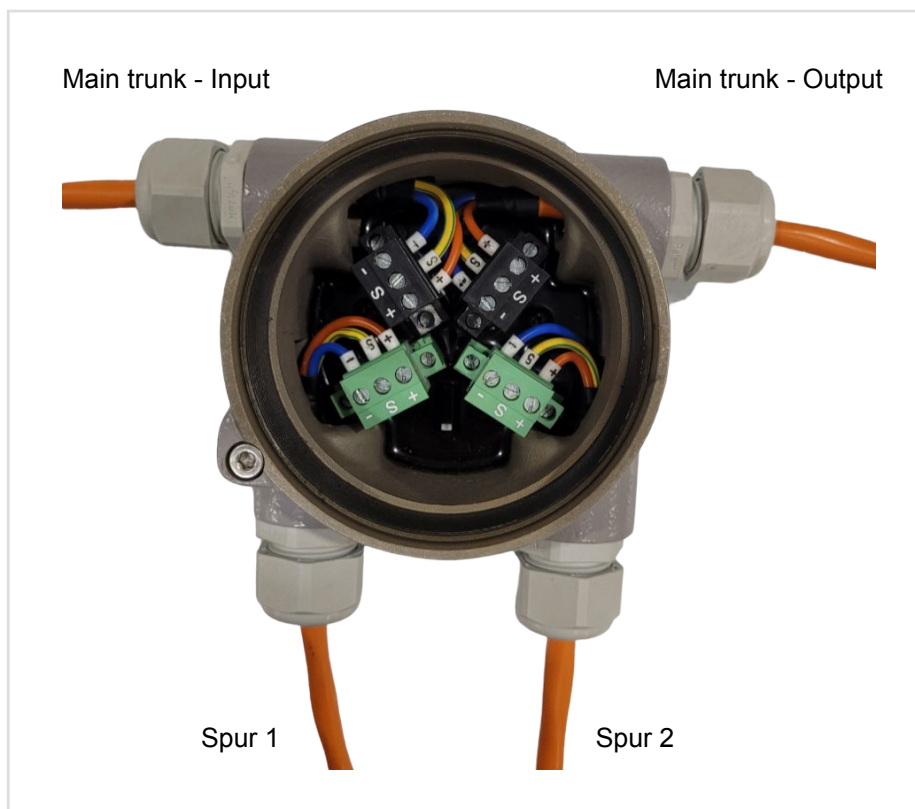
These features make this type of junction box perfect for Fieldbus installations, reducing wiring and make easier maintenance.

The installations used in conventional instrumentation also can be benefited by JM400 features.

Bus Topology



Connections of Main Trunk and Spurs

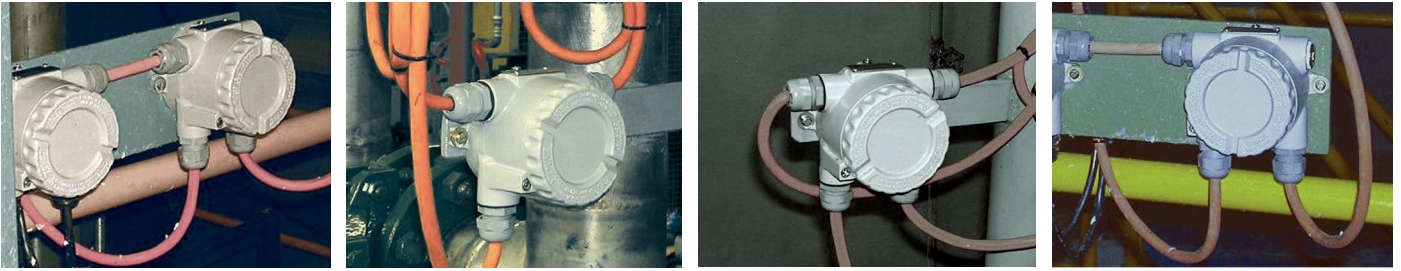


Functional Specifications										
Application	Derivation of industrial network cabling to connecting transmitters, analyzers and actuators in hazardous areas or not.									
Communication Protocol	HART ⁽¹⁾ , FOUNDATION™ fieldbus and PROFIBUS-PA (in compliance with IEC61158-2).									
Hazardous Areas Certification⁽¹⁾	Certificate CEPEL - 05.0899 X Explosion Proof - Ex d, Grupos IIC and IIIC, Temperature Class T5/T6, EPL Gb and Db									
	<table border="1"> <tbody> <tr> <td>16 A</td> <td>T6</td> <td>T5</td> </tr> <tr> <td>23 A</td> <td>T6</td> <td>T5</td> </tr> <tr> <td>T_{amb}</td> <td>40 °C</td> <td>60 °C</td> </tr> </tbody> </table>	16 A	T6	T5	23 A	T6	T5	T _{amb}	40 °C	60 °C
	16 A	T6	T5							
23 A	T6	T5								
T _{amb}	40 °C	60 °C								
Electrical Characteristics Nominal Voltage: 750 V Nominal Current: 16 and 23 A										
Power Supply⁽²⁾	Powered by bus: 9 - 32 Vdc									
Maximum Current in the Trunk⁽²⁾	2.5 A									
Quiescent Current per Spur⁽²⁾	< 1 mA (normal operation)									
Maximum Current per Spur⁽²⁾	50 mA (short-circuited)									
Maximum Voltage Drop per Spur⁽²⁾	0.3V@20mA									
Number of Electrical Connections	4									
Spur Connections	Removable terminal blocks with 3-way screw, 2.5 mm ²									
Terminator⁽²⁾	Through switch, 100 Ω resistor with 1µF capacitor									
Status LED⁽²⁾	ON (red): spur short-circuited OFF: spur in normal operation									

Physical Specifications	
Electrical Connection	½ - 14 NPT PG 13,5 M20 x 1,5
Housing Material	Aluminum or stainless steel, saline environment included
Cover	With window for indicator, in aluminum or stainless steel ⁽²⁾ Without window for indicator, in aluminum or stainless steel
Protection Degree	IP66/68 (Aluminum SAE 336 or A356) IP66/68W (Stainless steel AISI 316)
Operation Temperature	-20°C to 70°C
Storage	-40°C to 85°C
Relative Humidity	0 to 95% non-condensing
Weight	Approximately 0.7 kg (Aluminum) and 1.8 kg (stainless steel)
Mounting	Can be fixed on the wall or on a panel

Notes:
1 - Unavailable for model C3
2 - Only for model C3

Note:
The certificate number with "X" indicates that:
- The equipment when used in ambient temperature of 60° C a cable must be used with minimum isolation of 95°C
- Install the equipment in systems that assure the electric continuity of the earth, once the housing does not have external earth.



Ordering Code

JM400		FUNCTION BOXES	
		COD. Electrical Connections	
0	1/2-14 NPT		
A	M20 x 1.5		
B	PG 13.5 DIN		
		COD. Painting	
P0	Gray Munsell N6.5		
P8	Without Painting		
		COD. Identification Plate	
I5	INMETRO (EX D)		
I6	Without certification		
IL	INMETRO (IP68)		
IO	INMETRO (EX T) DUST		
		COD. Housing Material	
H0	Aluminum		
H1	Stainless Steel		
H2	Aluminum for saline environment (IPW/ Type X)		
H3	Stainless Steel 316 for saline environment (IPW/ Type X)		
H4	Copper Free Aluminum (IPW/TYPER X)		
		COD. Connections Types	
C2	Screw		
C3	By screw with spur electronic protection		
JM400		A	P0
		I5	H0
		C2	

Identification Plates	
I5	INMETRO (Ex d)
I6	Without Certification
IL	INMETRO (IP68)
IO	INMETRO (Ex T) Dust

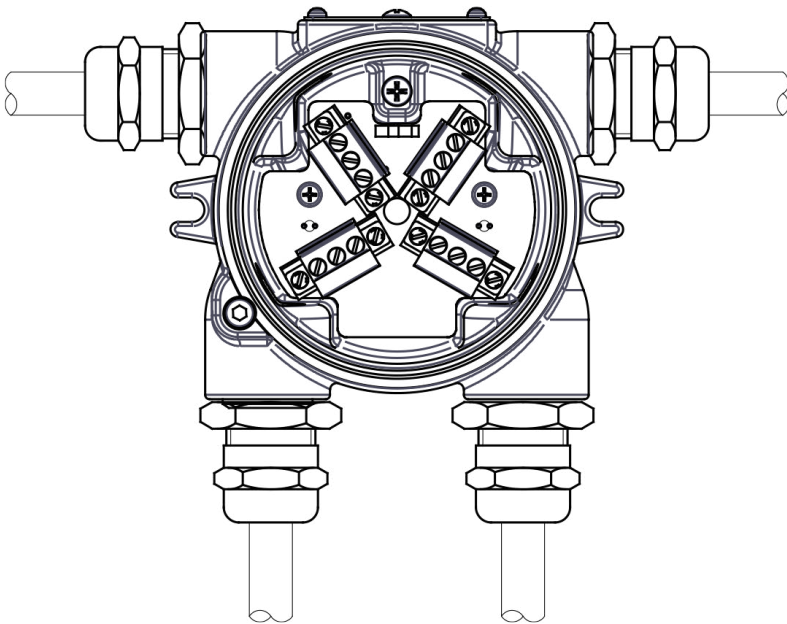
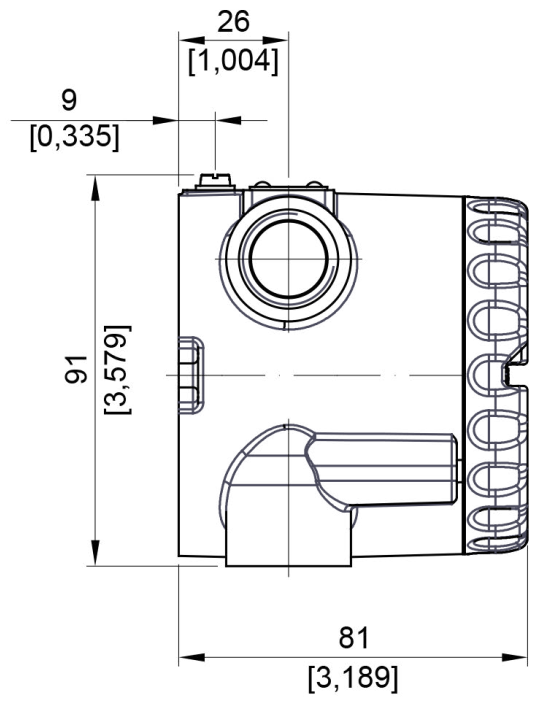
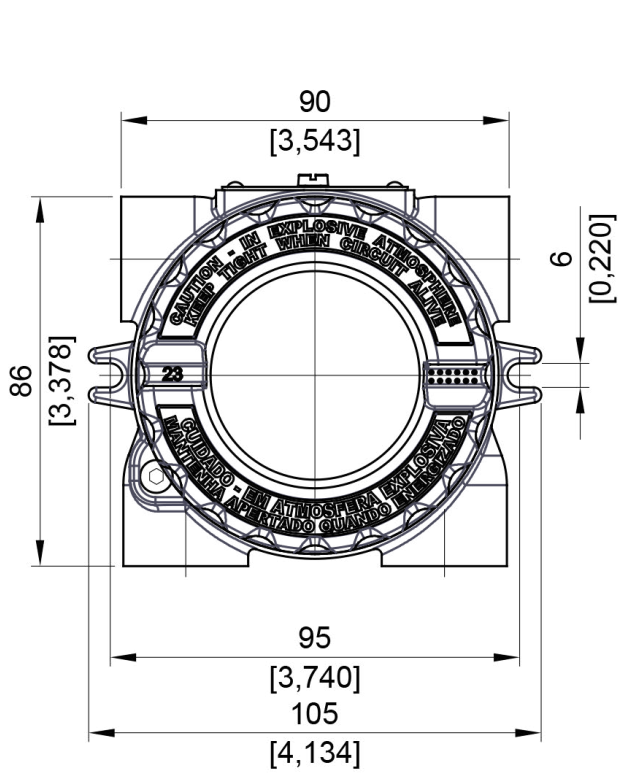
Spare Parts	
400-1541-1	Cover with window
400-1541-0	Cover without window
204-0120	Locking mechanism screw
204-0122	O-ring
400-0812	¼ female NPT to ½ male NPT reduction sleeve, 316 SST Ex d
400-0810	M20 X 1.5 external hexagonal plug , 316 SST BR Ex d
400-0811	PG 13.5 external hexagonal plug, 316 SST
400-1484	½ " NPT internal hexagonal plug , 316 SST BR Ex d
400-1267	Terminal block
400-1369	Housing

Grounding

The housing grounding must be done via ground screw, external, next to the identification plate.



Dimensions are mm.



JM400

Intelligent Junction Boxes



Contact us



Rua Dr. Antônio Furlan Junior, 1028 - Sertãozinho, SP - CEP: 14170-480
insales@smar.com.br | +55 (16) 3946-3599 | www.smar.com

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Updated addresses are available on our website.

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