

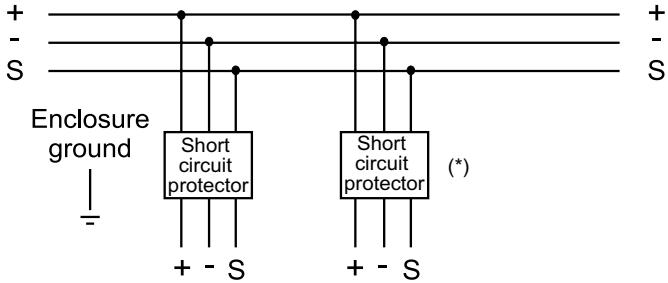
JM400

Quick Installation Guide

JM400 is a junction box that allows easy and safe connections for fieldbus and standard instrumentation wiring as well as for sensors, actuators and measuring instruments, in hazardous areas or not. It can be attached directly to the panel or wall, using appropriated screws.

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.

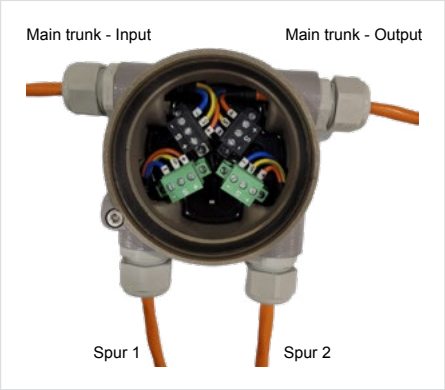


(*) The short circuit protectors are only available for the JM400-C3 model.

Ensuring electromagnetic compatibility (EMC), explosion protection and personal protection are the aspects to be considered when designing the shielding and grounding of a fieldbus system.

Evaluate your system grounding and check with the fieldbus system supplier the possibility to ground or not the bus shield, within the JM400.

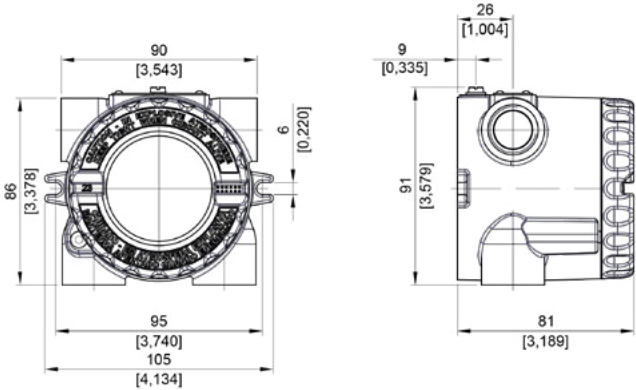
1. Power off the connections.
2. Remove the JM400 housing cover.
3. Remove the 3-ways female connectors. The black connectors are related to the main trunk and the green ones to the spurs.
4. Connect the positive wire to the "+" label in the internal terminal, and the negative wire to the "-" label, as well as the shield cable in the "S" label. Special attention should be taken when handling and connecting the shield and wires to avoid short circuits, shield interruption and/or improper grounding in contact with the housing. If the bus terminator (BT302) is necessary, connect it to the female connector and arrange it adequately. The JM400-C3 has a switch to enable the bus terminator.
5. Connect the female connectors in the male receivers, and tighten the side screws.
6. Ground the JM400's housing and the shield according to the area safe requirements.
7. Close the housing cover, checking if it is tightened to keep weather proof and explosion proof conditions.



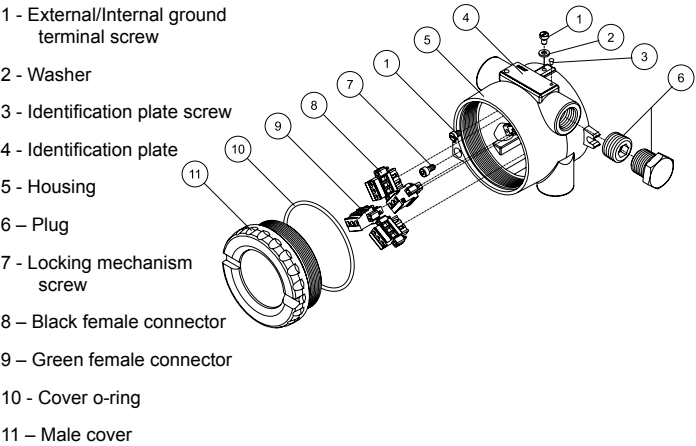
Disassembling Procedure

With the power disconnected, refer to JM400 exploded view to disassemble.

Indicative dimensions



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	¾ 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



Step 1: Mounting the JM400

1. Mount the JM400 in easy access place to connections. The JM400 must be properly located so as to minimize the length of spurs to the devices.
2. Choose the right plugs and cable glands if necessary to meet explosion proof requirements. Plug and seal unused conduit connections to comply with IP66/68 protection requirements.

Step 2: Wiring Connection

The JM400 has an internal connection structure as the following diagram:

Certifications Information

European Directive Information

Consult www.smar.com for the EC declarations of conformity and certificates.

Authorized representative/importer located within the Community:

Smar Europe BV De Oude Wereld 116 2408 TM Alphen aan den Rijn
Netherlands

Hazardous locations general information

Ex Standards:

IEC 60079-0 General Requirements

IEC 60079-1 Flameproof Enclosures “d”

IEC 60079-7 Increased Safe “e”

IEC 60079-11 Intrinsic Safety “i”

IEC 60079-18 Encapsulation “m”

IEC 60079-26 Equipment with Separation Elements or combined Levels of Protection

IEC 60079-31 Equipment dust ignition protection by enclosure “t”

IEC 60529 Classification of degrees of protection provided by enclosures (IP Code)

IEC 60079-10 Classification of Hazardous Areas

IEC 60079-14 Electrical installation design, selection and erection

IEC 60079-17 Electrical Installations, Inspections and Maintenance

IEC 60079-19 Equipment repair, overhaul and reclamation

ISO/IEC 80079-34 Application of quality systems for equipment manufacture

Warning:

Explosions could result in death or serious injury, besides financial damage.

Installation of this instrument in hazardous areas must be in accordance with the local standards and type of protection. Before proceedings with installation make sure that the certificate parameters are in accordance with the classified hazardous area.

Maintenance and Repair

The instrument modification or replaced parts supplied by any other supplier than authorized representative of Smar is prohibited and will void the Certification.

Marking Label

The instrument is marked with type of protection options. The

certification is valid only when the type of protection is indicated by the user. Once a particular type of protection is installed, do not reinstall it using any other type of protection.

Explosionproof / Flameproof application

Only use Explosionproof/Flameproof certified Plugs, Adapters and Cable glands.

The electrical connections entries must be connected using a conduit with sealed unit or closed using metal cable gland or metal blanking plug with at least IP66.

Do not remove the housing covers when powered on.

Enclosure

The electronic housing and sensor threads installed in hazardous areas must have a minimum of 6 fully engaged threads. The covers must be tightening with at least 8 turns, to avoid the penetration of humidity or corrosive gases, and until it touches the housing. Then, tighten more 1/3 turn (120°) to guarantee the sealing.

Lock the housing and covers using the locking screw.

The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction.

Care must be taken during installation and use to prevent impact or friction.

Degree of Protection of enclosure (IP)

IPx8: Second numeral meaning continuous immersion in water under special condition defined as 10m for a period of 24 hours (Ref: IEC60529).

IPW/ TypeX: Supplementary letter W or X meaning special condition defined as saline environment tested in saturated solution of NaCl 5% w/w at 35°C for a period of 200 hours (Ref: NEMA 250/ IEC60529).

For enclosure with IP/IPW/TypeX applications, all NPT threads must apply a proper water-proof sealant (a non-hardening silicone group sealant is recommended).

Hazardous Locations Approvals

INMETRO NCC

Prova de Explosão (NCC 24.0152X)

Ex db IIC T* Gb

Ex tb IIIC T* °C Db

Tamb: -20 °C a +60 °C para T5 ou T100 °C

Tamb: -20 °C a +40 °C para T6 ou T85 °C

IP66/68 ou IP66W/68W

Observações:

O número do certificado é finalizado pela letra “X” para indicar que durante a instalação do equipamento, é de responsabilidade do usuário:

- Utilizar um cabo com isolamento mínima de 950C quando o equipamento for utilizado em ambiente com temperatura acima de 60°C;

- Instalar o equipamento em sistemas de eletroduto que garantam a continuidade elétrica do aterramento ou a equipotencialidade do sistema, uma vez que o invólucro não possui terminal de aterramento externo.

O produto adicionalmente marcado com a letra suplementar “W” indica que o equipamento foi ensaiado em uma solução saturada a 5% de NaCl p/p, à 35 °C, pelo tempo de 200 h e foi aprovado para uso em atmosferas salinas, condicionado à utilização de acessórios de instalação no mesmo material do equipamento e de buíões de aço inoxidável ASTM-A240, para fechamento das entradas roscadas não utilizadas.

Os planos de pintura P1 são permitidos apenas para equipamento fornecido com plaqueta de identificação com marcação para grupo de gás IIB.

O grau de proteção IP68 só é garantido se nas entradas roscadas de ½” NPT for utilizado vedante não endurecível à base de silicone.

Este certificado é válido apenas para os produtos dos modelos avaliados. Qualquer modificação nos projetos, bem como a utilização de componentes ou materiais diferentes daqueles definidos pela documentação descritiva dos produtos, sem a prévia autorização, invalidará este certificado.

As atividades de instalação, inspeção, manutenção, reparo, revisão e recuperação dos equipamentos são de responsabilidade dos usuários e devem ser executadas de acordo com os requisitos das normas técnicas vigentes e com as recomendações do fabricante.

Normas Aplicáveis:

ABNT NBR IEC 60079-0:2020 Atmosferas explosivas - Parte 0: Equipamentos – Requisitos gerais

ABNT NBR IEC 60079-1:2016 Atmosferas explosivas - Parte 1: Proteção de equipamento por invólucro à prova de explosão “d”

ABNT NBR IEC 60079-31:2022 Atmosferas explosivas - Parte 31: Proteção de equipamentos contra ignição de poeira por invólucros “t”

ABNT NBR IEC 60529:2017 Graus de proteção providos por invólucros (Código IP)

Desenhos 102A1837, 102A1838, 102A1852, 102A1853, 102A1855, 102A1856, 102A2071, 102A2072, 102A2073, 102A2074, 102A2075, 102A2076, 102A2141, 102A2142, 102A2143

Identification Plates

INMETRO NCC

smar JM400-C1 193704
0000000 - 0000
Segurança INMETRO
Ex db IIC T5/T6 Gb NCC 24.0152 X
IP66 ou IP68W 10m/24h
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C1 193804
0000000 - 0000
Segurança INMETRO
Ex db IIC T5/T6 Gb NCC 24.0152 X
IP66 ou IP68 10m/24h
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C1 214102
0000000 - 0000
Segurança INMETRO
Ex tb IIIC T100°C/T85°C Db NCC 24.0152 X
IP66 ou IP68 10m/24h
16 A T85°C T100°C
23 A T85°C T100°C
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C1 207103
0000000 - 0000
Segurança INMETRO
Ex db IIB T5/T6 Gb NCC 24.0152 X
IP66 ou IP68W 10m/24h
P1/P2 Pintura
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C1 207203
0000000 - 0000
Segurança INMETRO
Ex db IIB T5/T6 Gb NCC 24.0152 X
IP66 ou IP68 10m/24h
P1/P2 Pintura
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C2 195204
0000000 - 0000
Segurança INMETRO
Ex db IIC T5/T6 Gb NCC 24.0152 X
IP66 ou IP68W 10m/24h
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C2 195304
0000000 - 0000
Segurança INMETRO
Ex db IIC T5/T6 Gb NCC 24.0152 X
IP66 ou IP68 10m/24h
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C2 214202
0000000 - 0000
Segurança INMETRO
Ex tb IIIC T100°C/T85°C Db NCC 24.0152 X
IP66 ou IP68 10m/24h
16 A T85°C T100°C
23 A T85°C T100°C
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C2 207303
0000000 - 0000
Segurança INMETRO
Ex db IIB T5/T6 Gb NCC 24.0152 X
IP66 ou IP68W 10m/24h
P1/P2 Pintura
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C2 207403
0000000 - 0000
Segurança INMETRO
Ex db IIB T5/T6 Gb NCC 24.0152 X
IP66 ou IP68 10m/24h
P1/P2 Pintura
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C3 195504
0000000 - 0000
Segurança INMETRO
Ex db IIC T5/T6 Gb NCC 24.0152 X
IP66 ou IP68W 10m/24h
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C3 195604
0000000 - 0000
Segurança INMETRO
Ex db IIC T5/T6 Gb NCC 24.0152 X
IP66 ou IP68 10m/24h
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C3 214302
0000000 - 0000
Segurança INMETRO
Ex tb IIIC T100°C/T85°C Db NCC 24.0152 X
IP66 ou IP68 10m/24h
16 A T85°C T100°C
23 A T85°C T100°C
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C3 207503
0000000 - 0000
Segurança INMETRO
Ex db IIB T5/T6 Gb NCC 24.0152 X
IP66 ou IP68W 10m/24h
P1/P2 Pintura
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480

smar JM400-C3 207603
0000000 - 0000
Segurança INMETRO
Ex db IIB T5/T6 Gb NCC 24.0152 X
IP66 ou IP68 10m/24h
P1/P2 Pintura
16 A T6 T5
23 A T6 T5
Tamb 40°C 60°C
Nova Smar SA Av. Dr. Antônio Furlan Jr, 1028 Sertãozinho-SP Brasil 14170-480



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