

Coriolis Mass Flow and Density Meters CFS10 Series Mass Flowtubes for Standard and 3-A Sanitary Applications Style B

Give instrument Model Code when ordering.
*Parts preceded by an asterisk are recommended spare parts.
See Recommended Spare Parts Summary section for quantities.

TO ORDER PARTS, CALL 1-866-746-6477.

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MODEL CODE - FLOWTUBE WITH FLANGED OR THREADED END CONNECTIONS

Description	Model
CFS10 Series Mass Flowtube (Not Supplied with Cable to Transmitter) (a)	CFS10
Nominal Flowtube and Flange Size	
3 mm (1/8 in); Threaded 1/4 NPT, ANSI B2.1 Connection	-02
6 mm (1/4 in)	-03
15 mm (1/2 in)	-05
20 mm (3/4 in)	-08
25 mm (1 in)	-10
40 mm (1 1/2 in)	-15
50 mm (2 in)	-20
Flowtube Wetted Material	
AISI Type 316L Stainless Steel (316L ss)	S
Nickel alloy (Not available with Flowtube Size Codes -08, -15, and -20)	H
AISI Type 316L ss prepared with Sanitary Finish (Not with Flowtube Size Code -02)	C
End Connections (b)	
Threaded, NPT, ANSI B2.1 (Not available with Flowtube Size Codes -10, -15, or -20)	A
ANSI, Class 150 Flange (Not Available with Flowtube Size Code -02) (c)	C
ANSI, Class 300 Flange (Not Available with Flowtube Size Code -02) (c)	D
ANSI, Class 600 Flange (Not Available with Flowtube Size Code -02) (c)	E
EN 1092, PN 10/16, 25/40 Flange (Not Available with Flowtube Size Code -02) (c) (d) (e)	F
EN 1092, PN 100 Flange (Not Available with Flowtube Size Code -02) (c)	J
Electrical Safety (See Electrical Safety Specifications Section)	
ATEX, II 2 G, EEx ib, IIB; T2–T6 (f)	MMM
ATEX, II 3 G, EEx nA, II; T3–T6 (f)	LLL
CSA, Nonincendive for use in Class I, Division 2, Groups A, B, C, and D (f)	CNN
FM, Intrinsically Safe, Class I, Division 1, Groups C and D (f)	FBB
FM, Nonincendive for Class I, Division 2, Groups A, B, C, and D (f)	FNN
No Electrical Certifications/Approvals, CFT50 (f)	ZZZ
CSA/CSAus Division 1/Zone 0 Intrinsically Safe (g)	CAA
CSA/CSAus Division 2/Zone 2 Non-Incendive (g)	CCN
FM Division 1/Zone 0 Intrinsically Safe (g)	FAA
FM Division 2/Zone 2 Non-Incendive (g)	FFN
ATEX Intrinsic Safe Ex ia/ic (g)	AAA
ATEX Non Sparking Zone 2 Ex nA (g)	ANN
IECEX Intrinsic safe Ex ia/ic (g)	EAA
IECEX Non Sparking Zone 2 Ex nA (g)	ENN
EAC Intrinsic Safe Ex ia/ic (g)	RAA
EAC Non Sparking Zone 2 Ex nA (g)	RNN
INMETRO Intrinsic Safe Ex ia/ic (g)	BAA
INMETRO Non Sparking Zone 2 Ex nA (g)	BNN
KOSHA Non Sparking Zone 2 Ex nA (g)	KNN
No Electrical Certifications/Approvals, CFT51 (g)	YYY
Optional Selections	
Bidirectional Flow Calibration (Standard Factory Calibration is one direction)	-B
Cryogenic Applications for Temperatures below -130°C (-202°F) (h)	-C
Calibrated for use with a CFT50/CFT51 Transmitter (Default Calibration) (d)	-E
Calibrated for use with a CFT10 or CFT15 Transmitter (d)	-F
Dual Calibrations, for use with a CFT10, CFT15, CFT50, or CFT51 Transmitter (d)	-G
Material Certification of Process Wetted Metal (Conforms to EN 10204 3.1 Equivalent to Cert D)	-M
Tamperproof sealing for Terminal Block Cover (i)	-S
Weights and Measures Custody Transfer/NTEP	-T
- Includes Tamperproof Sealing Option -S	
- Must be combined with CFT50/CFT51 Transmitter Option -T	
- Calibration Option -E must also be specified	
Weights and Measures Industry Canada Approvals	-D
- Includes Tamperproof Sealing Option -S	
- Must be combined with CFT50/CFT51 Transmitter Option -D	
- Calibration Option -E must also be specified	
Radiography of Pressure Retaining Welds (j)	-X
Examples: CFS10-05SCFBB-BX; CFS10-10SFCNN-E	

- a. **IMPORTANT:** The flowtube is not supplied with cable for transmitter interconnection. Standard cable can be ordered separately. See "MODEL CODE - CABLE (RECOMMENDED)" for ordering information.
- b. Not available with Size Code -03 and Flowtube Wetted Material Code C.
- c. Size Code -03, 6 mm (1/4 in) flowtube, supplied with a 15 mm (1/2 in) flange connection.
- d. Specify only one of Calibration Options -E, -F, or -G.
- e. The PN 25/40 flange is used for PN 10/16 flange applications.
- f. Applies to tubes used with CFT50 only.
- g. Applies to tubes used with CFT51 only.
- h. Safety Code FBB cannot be applied on sizes 02, -03, -10, -15, and -20 when the Cryogenic Option is selected.
- i. Option -S not available with Electrical Safety Codes MMM and LLL.
- j. Per ASME Section V Boiler/Pressure Vessel Code, Nondestructive.

MODEL CODE - FLOWTUBE WITH SANITARY END CONNECTIONS

Description	Model
CFS10 Series Sanitary Mass Flowtube (a)	CFS10
Nominal Flowtube and End Connection Size	
6 mm (1/4 in); Process Connection Size is 1/2 in	-03
15 mm (1/2 in); Process Connection Size is 1 in	-05
20 mm (3/4 in); Process Connection Size is 1 in	-08
25 mm (1 in); Process Connection Size is 1 in	-10
40 mm (1 1/2 in); Process Connection Size is 1 1/2 in	-15
50 mm (2 in); Process Connection Size is 2 in	-20
Flowtube Wetted Material	
AISI Type 316L ss prepared for Sanitary Applications, 3-A Authorization No. 224	C
End Connections (Supplied in AISI Type 316 Stainless Steel Only)	
For Mating to DIN Coupling with External Thread, DIN 11851 (not available with Flowtube Size Code -03)	N
For Mating to Tri-Clamp Quick-Disconnect Ferrule	P
Electrical Safety	
ATEX, II 2 G, EEx ib, IIB (b)	MMM
ATEX, II 3 G, EEx nA, II (b)	LLL
CSA, Nonincendive for use in Class I, Division 2, Hazardous Locations (b)	CNN
FM, Intrinsically Safe, Class I, Division 1, Groups C and D (b)	FBB
FM, Nonincendive for Class I, Division 2, Groups A, B, C, and D (b)	FNN
No Electrical Certifications/Approvals, CFT50 (b)	ZZZ
CSA/CSAus Division 1/Zone 0 Intrinsically Safe (c)	CAA
CSA/CSAus Division 2/Zone 2 Non-Incendive (c)	CCN
FM Division 1/Zone 0 Intrinsically Safe (c)	FAA
FM Division 2/Zone 2 Non-Incendive (c)	FFN
ATEX Intrinsic safe Ex ia/ic (c)	AAA
ATEX Non Sparking Zone 2 Ex nA (c)	ANN
IECEX Intrinsic safe Ex ia/ic (c)	EAA
IECEX Non Sparking Zone 2 Ex nA (c)	ENN
EAC Intrinsic Safe Ex ia/ic (c)	RAA
EAC Non Sparking Zone 2 Ex nA (c)	RNN
INMETRO Intrinsic Safe Ex ia/ic (c)	BAA
INMETRO Non Sparking Zone 2 Ex nA (c)	BNN
KOSHA Non Sparking Zone 2 Ex nA (c)	KNN
No Electrical Certifications/Approvals, CFT51 (c)	YYY
Optional Selections	
Bidirectional Flow Calibration (Standard Factory Calibration is one direction)	-B
Calibrated for use with a CFT50/CFT51 Transmitter (Default Calibration) (d)	-E
Calibrated for use with a CFT10 or CFT15 Transmitter (d)	-F
Dual Calibrations, for use with a CFT10, CFT15, CFT50, or CFT51 Transmitter (d)	-G
Material Certification of Process Wetted Metal (Conforms to EN 10204 3.1 Equivalent to Cert D)	-M
Tamperproof sealing for Terminal Block Cover (e)	-S
Weights and Measures Custody Transfer/NTEP	-T
<ul style="list-style-type: none"> - Includes Tamperproof Sealing Option -S - Must be combined with CFT50/CFT51 Transmitter Option -T - Calibration Option -E must also be specified 	
Weights and Measures Industry Canada Approvals	-D
<ul style="list-style-type: none"> - Includes Tamperproof Sealing Option -S - Must be combined with CFT50/CFT51 Transmitter Option -D - Calibration Option -E must also be specified 	
Example: CFS10-05CPFBB-BM	

- a. IMPORTANT: The flowtube is not supplied with cable for transmitter interconnection. Standard cable can be ordered separately. See "MODEL CODE - CABLE (RECOMMENDED)" for ordering information.
- b. Applies to tubes used with CFT50 only.
- c. Applies to tubes used with CFT51 only.
- d. Specify only one of Calibration Options -E, -F, or -G.
- e. Option -S not available with Electrical Safety Codes MMM and LLL.

MODEL CODE - CABLE (RECOMMENDED)

MODEL CODE - CABLE (RECOMMENDED)

Description	Model
Cable Insulation Material (a)	
IPVC-Insulated Cable, -20 to +80°C (-4 to +176°F) Ambient Temperature	KFS1
FEP-Insulated Cable, -40 to +85°C (-40 to +185°F) Ambient Temperature	KFS2
Cable Length	
20 feet	-F0020
100 feet	-F0100
200 feet	-F0200
500 feet	-F0500
750 feet	-F0750
1000 feet	-F1000
6 meters	-M006
30 meters	-M030
60 meters	-M060
150 meters	-M150
225 meters	-M225
300 meters	-M300

a. See "CABLE SPECIFICATIONS".

CABLE SPECIFICATIONS

PVC Cable

Six twisted pairs of PVC-insulated, 22 AWG stranded, tinned, copper wire. Each pair has an aluminum-polyester shield with drain wire. Cable has a chrome-PVC outer jacket with ambient temperature limits of -20 to +80°C (-4 to +176°F). One end of cable is dressed and ready for connection to transmitter. Voltage rating is 30 V ac.

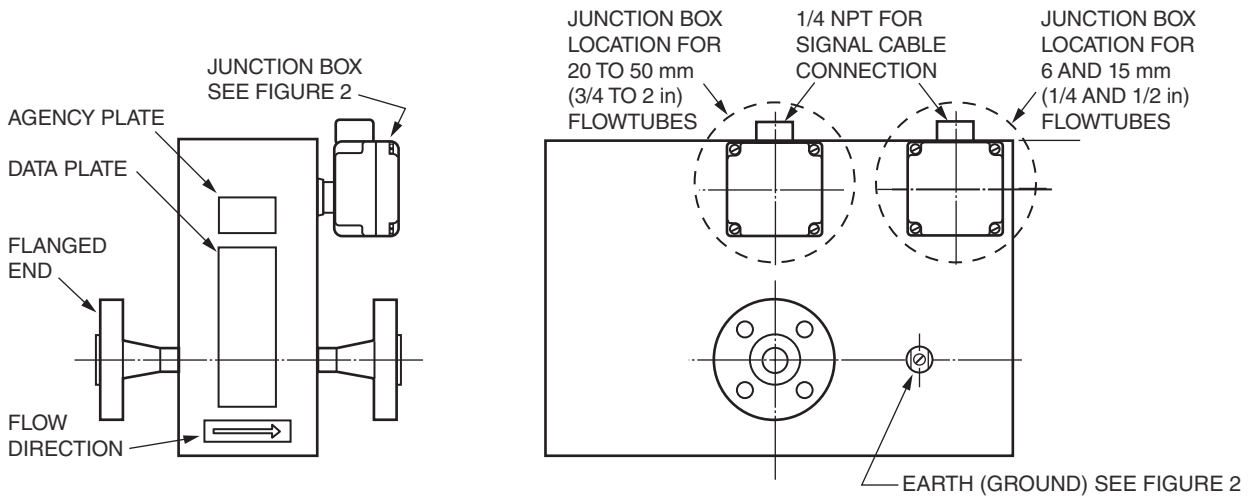
FEP Cable

Six twisted pairs of FEP-insulated 22 AWG stranded, tinned, copper wire. Each pair has an aluminum-polyester shield with drain wire. Cable has an FEP outer jacket with ambient temperature limits of -40 to +85°C (-40 to +185°F). One end of cable is dressed and ready for connection to transmitter. Voltage rating is 30 V ac.

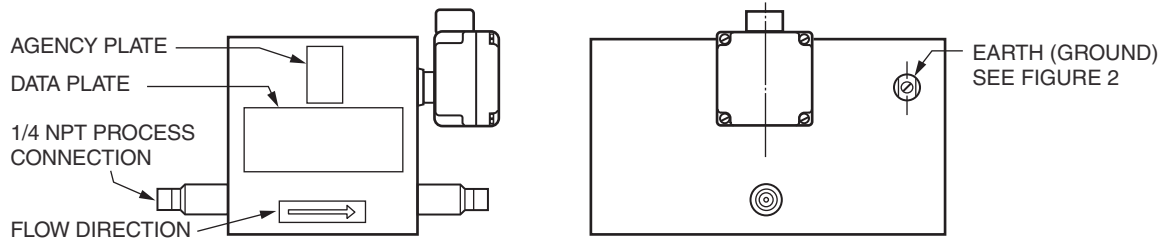
PARTS

Figure 1. Flowtube Assemblies

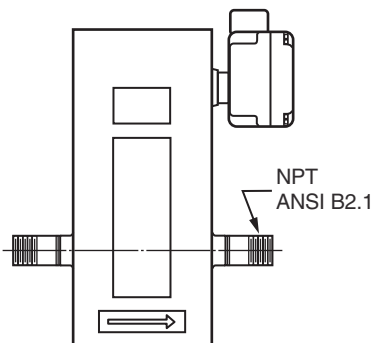
FLANGED END CODES C, D, E, F, and J FLOWTUBES, 6 TO 50 mm (1/4 TO 2 in) SIZES



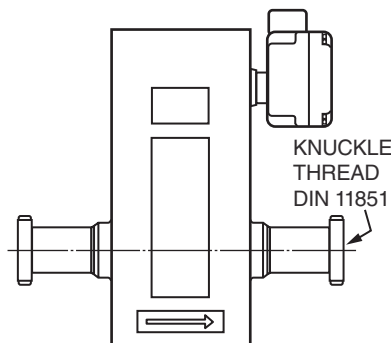
THREADED END CODE A FLOWTUBE, 3 mm (1/8 in) SIZE



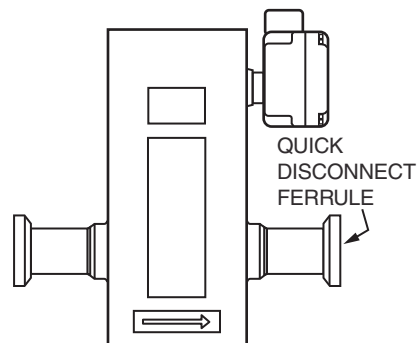
THREADED END CODE A FLOWTUBES, 6 TO 20 mm (1/4 TO 3/4 in) SIZES



SANITARY END CODE N FLOWTUBES, 15 TO 50 mm (1/2 TO 2 in) SIZES



SANITARY END CODE P FLOWTUBES, 6 TO 50 mm (1/4 TO 2 in) SIZES



— NOTE —

Flowtube assemblies (other than the junction box and external earth/ground parts - see Figure 2) cannot be disassembled, and must be replaced in their entirety. To replace a flowtube, refer to the Model Number on the data plate. The model number, in addition to process flow data, is required for a proper direct replacement of the flowtube. Contact Global Customer Support if you have questions.

Figure 2. Junction Box and Earth (Ground) Assemblies

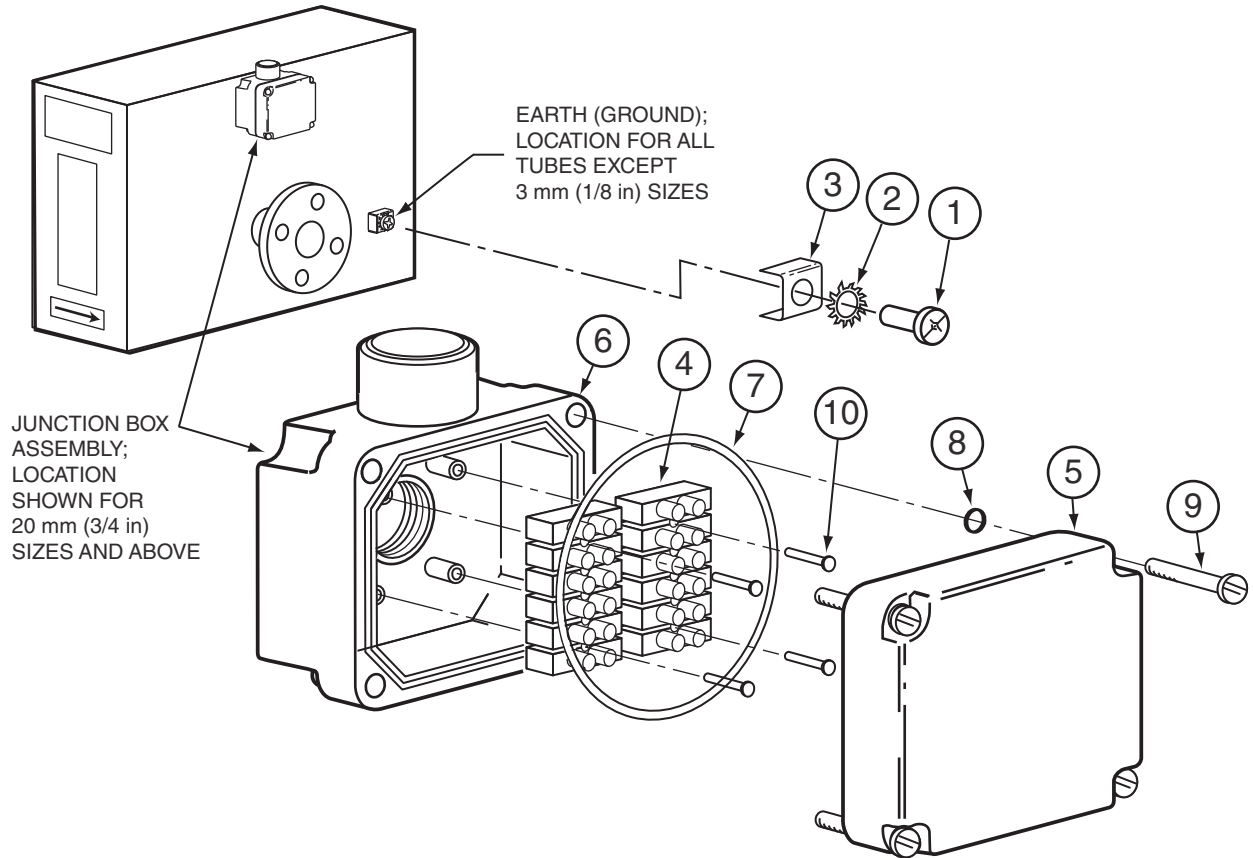


Table 1. Parts for Figure 2

Item	Part No.	Qty.	Part Name
1	X0124FY	1	Screw, Pan Head, Slotted, 0.164-32 x 0.312
2	X0143SB	1	Washer, Ext. Tooth, 0.164
3	C0141ZX	1	Clamp, Earth (Ground)
4	X0175NK	2	Terminal Block (6 pos)
5	G0117HU	1	Cover, Junction Box
6	G0117DD	1	Junction Box (without cover)
*7	G0117DG	1	Gasket, Tubular, Silicone
8	C0127CM	4	O-Ring (Screw Retainer), Buna-N
9	X0173UY	4	Screw, Pan Head, 0.164-32 x 1.00
10	X0119NP	4	Screw, Pan Head, Cross Recessed; 0.086-56 x 0.50

NOTES

- 1 See Figure 3 for Junction Box Extension Kit.
- 2 See Figure 4 for Junction Box with Custody Transfer Option -T and Tamperproof Sealing Option -S.

Figure 3. Junction Box Extension Kit

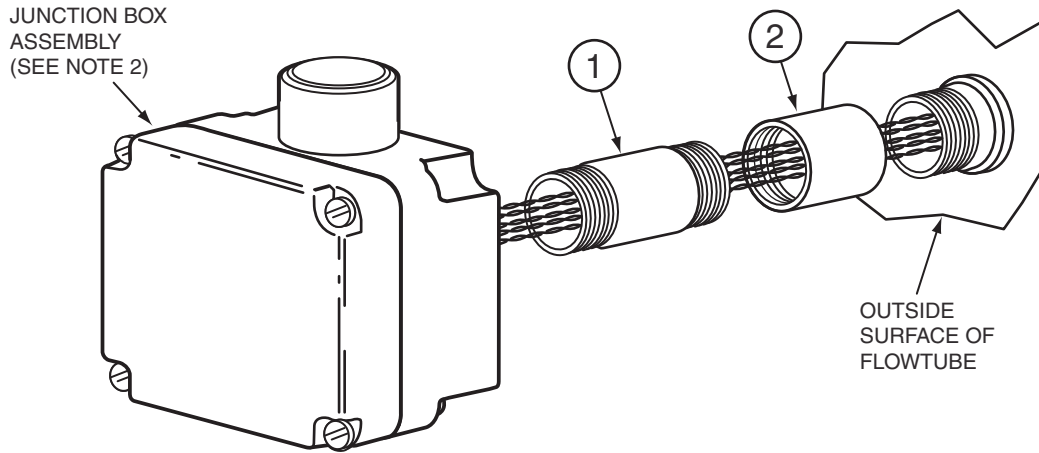


Table 2. Parts for Figure 3

Item	Part No.	Qty.	Part Name
1	X0178HC	1	Coupling, 304 ss, 3/4 NPT
2	X0178HD	1	Nipple, 304 ss, 3/4 NPT x 2.5

⚠ CAUTION

It is not recommend to use the junction box extension without the addition of a steam jacket or flowtube insulation.

— NOTES —

- 1 The normal clearance between the outside surface of the flowtube and the junction box is a nominal 12.7 mm (1/2 in). In order to adequately accommodate a steam jacket or insulation enveloping the flowtube outside surface, the clearance can be increased to a nominal 102 mm (4 in) by using the junction box extension kit.
- 2 To promote heat dissipation at elevated operating temperatures, maintain a distance of at least 12.7 mm (1/2 in) between the steam jacket or insulation and the surface of the junction box.

RECOMMENDED SPARE PARTS

Figure 4. Optional Custody Transfer - Option -T; Optional Tamperproof Sealing - Option -S

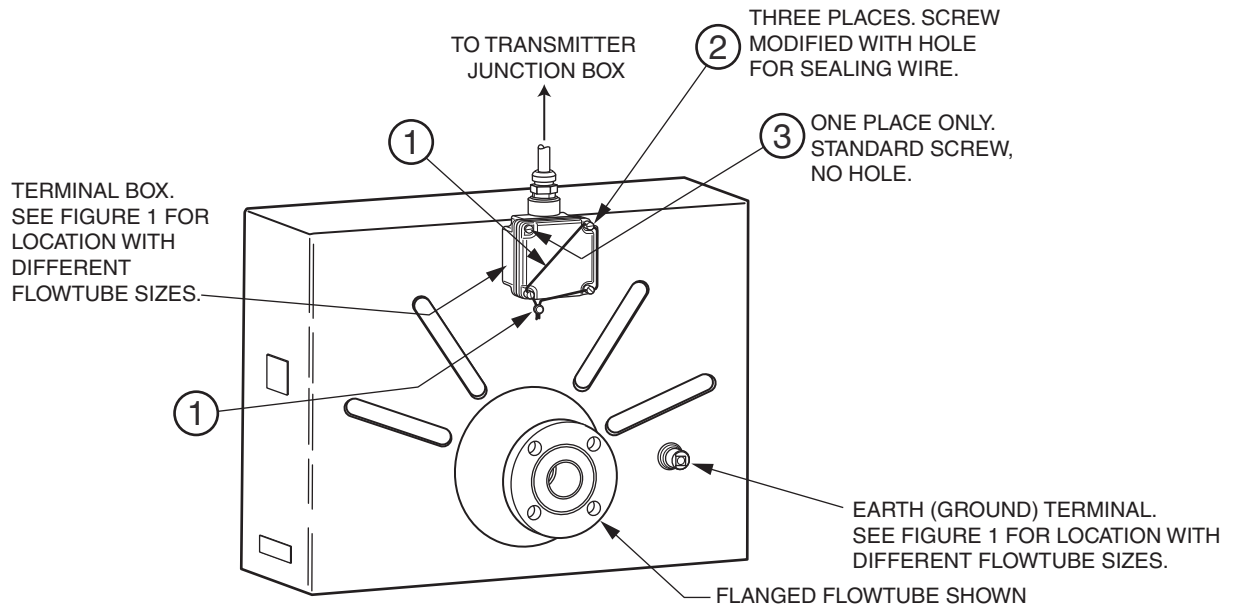


Table 3. Parts for Figure 4

Item	Part No.	Qty.	Part Name
*1	K0152JH	1	Kit, Tamperproof Sealing; includes sealing wire and one lead seal
2	G0118CT	3	Screw, Pan Hd; Modified; M4; with holes for Sealing Wire
3	X0174BN	1	Screw, Pan Hd; M4 x 10 mm

RECOMMENDED SPARE PARTS

Figure Number	Item Number	Part Number	Part Name	Number of Parts Recommended for		
				1 Inst.	5 Inst.	20 Inst.
2	7	G0117DG	Gasket, Tubular, Silicone	1	1	4
4	1	K0152JH (a)	Kit, Tamperproof Sealing	1	5	20

a. The Tamperproof Sealing Kit includes sealing wire and a lead seal.

Schneider Electric Systems USA, Inc.
38 Neponset Avenue
Foxboro, MA 02035
United States of America
<http://www.schneider-electric.com>

Global Customer Support
Inside U.S.: 1-866-746-6477
Outside U.S.: 1-508-549-2424
<https://pasupport.schneider-electric.com>

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