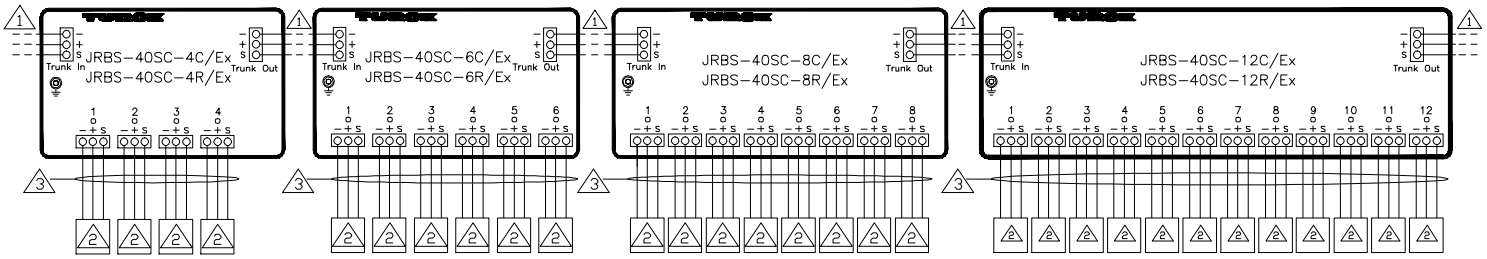
FM Approved JRBS Fieldbus Junctions

Nonincendive Equipment Junctions and Trunk–line with Nonincendive Field Wiring Circuit Spurs

HAZARDOUS (CLASSIFIED) LOCATION
Class I, Division 2, Group C or D



1. The trunk line must be installed using a Class I, Division 2 wiring method per the National Electrical Code (NEC), ANSI/NFPA 70. The fieldbus power supply must not exceed 30 V dc. See also Note 3.

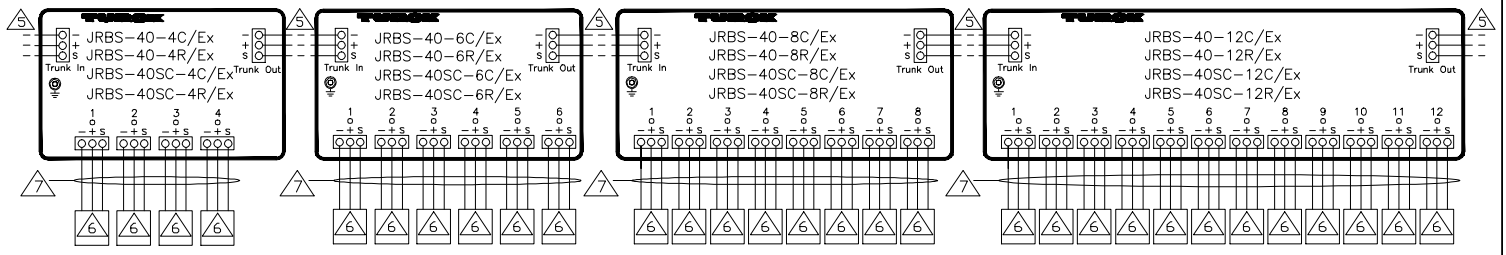
2. Field devices must be FM approved Nonincendive Field Wiring Apparatus with Nonincendive Field Wiring parameters as follows: $V_{max} \geq$ The supply voltage from the fieldbus power supply; $I_{max} \geq 63mA$; $C_i + C_{cable} \leq 0.1uF$; $L_i + L_{cable} \leq 1.0mH$
   If the electrical parameters of the cable are unknown, the following values may be used: Capacitance – 60pF/ft. Inductance – 0.2 µH/ft.

3. Installed as shown above, the JRBS junctions are Associated Nonincendive Field Wiring Apparatus. The spur circuits 1–4 (left), 1–6 (center), and 1–8 (right) are Nonincendive Field Wiring circuits with the following Nonincendive Field Wiring parameters with right angle output characteristic:
   V_{oc} = The supply voltage from the fieldbus power supply, which must not be > 30V.
   When $V_{oc} \leq 28V$, $I_{sc} = 63mA$, $C_a = 0.1uF$, $L_a = 1.0mH$. When $V_{oc} \leq 30V$, $I_{sc} = 63mA$, $C_a = 0.06uF$, $L_a = 1.0mH$.
   The spur circuits may thus be installed using any NEC wiring method suitable for equivalent non–hazardous locations.

4. The junctions must be installed in a suitable equipment enclosure in accordance with ANSI/ISA S82.01 and S82.03.

Nonincendive Equipment Junctions, Trunk–line, and Spurs

HAZARDOUS (CLASSIFIED) LOCATION
Class I, Division 2, Group A, B, C, or D



5. The trunk line must be installed using a Class I, Division 2 wiring method per the National Electrical Code (NEC), ANSI/NFPA 70. The fieldbus supply voltage must not exceed 30 V dc.

6. Field devices must be FM approved for use in Class I, Division 2 hazardous (classified) locations and be rated for the fieldbus supply voltage.

7. The spur circuits must be installed using a Class I, Division 2 wiring method per the National Electrical Code (NEC), ANSI/NFPA 70.

8. The junctions must be installed in a suitable equipment enclosure in accordance with ANSI/ISA S82.01 and S82.03.

Rev	Description	Drft	Date
D	Add '12–port models	BVL	12/3/10
C	Add 'R' code, remove '49E" and '49SE' codes	BVL	6/4/09
B	Add 'C' model code	BVL	8/7/07
A	Release	BVL	4/24/06

Drawing No.: NI–2.405

TURCK
3000 Campus Drive
Plymouth, MN 55441
Phone: (763) 553–7300

Title: Control Drawing for FM Approved JRBS Fieldbus Junctions

Scale: None

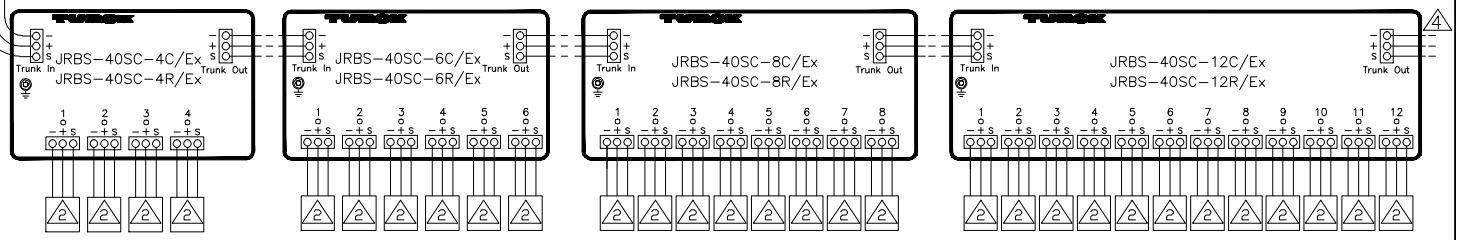
FM Approved JRBS Fieldbus Junctions

Intrinsically Safe for Division 1 With Entity Concept Parameters

FM Approved Associated Apparatus With Entity 1 Parameters:

NONHAZARDOUS LOCATION

HAZARDOUS (CLASSIFIED) LOCATION: Class I, Division 1, Group A,B,C or D



Entity Parameters for Model:	Terminal 2	V_{max} (V)	I_{max} (mA)	P_i (W)	C_i (nF)	L_i (mH)
JRBS-40-./Ex, JRBS-40SC-./Ex, JRBS-49E-./Ex, JRBS-49SE-./Ex	Trunk In	24	250	2.56	5	0

1. The entity concept allows interconnection of intrinsically safe apparatus and associated apparatus not specifically examined in combination as a system when the conditions below are met.

   $V_{max} \geq V_{oc}$ or V_t $\quad I_{max} \geq I_{sc}$ or I_t $\quad P_i \geq P_o$ $\quad \Sigma C_i + C_{cable} \leq C_a$ $\quad \Sigma L_i + L_{cable} \leq L_a$

2. FM approved intrinsically safe apparatus with input entity parameters (V_{max}, I_{max}, P_i, C_i, and L_i) compatible with output entity parameters (V_{oc} or V_t, I_{sc} or I_t, P_o, C_a, L_a) of the associated apparatus. Only the associated apparatus may supply power to the circuit. The JRBS 'Trunk Out' and drop connections (connectors 1-4, 1-6, or 1-8 depending on model) pass the entity paratmeters through from the associated apparatus unchanged.

3. Wiring methods must be in accordance with the National Electrical Code, ANSI/NFPA 70, and ANSI/ISA RP12.06.01.

4. To additional FM approved intrinsically safe apparatus with compatable entity parameters as detailed in Note 1 and Note 2.

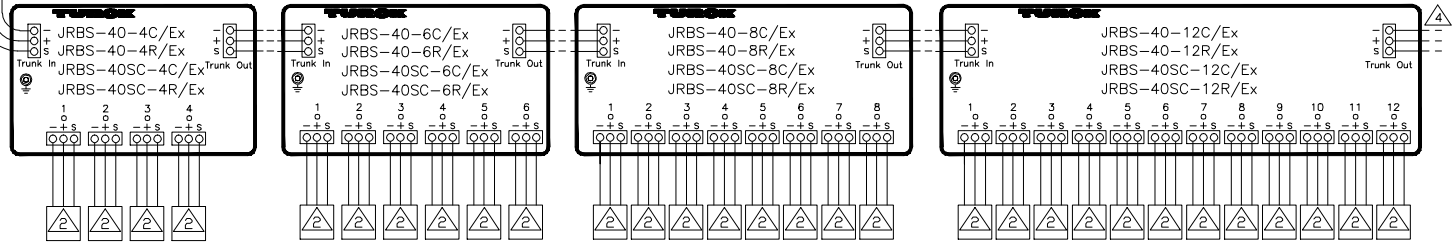
5. The junctions must be installed in a suitable equipment enclosure in accordance with ANSI/ISA S82.01 and S82.03.

Intrinsically Safe for Division 1 With FISCO Parameters

FM Approved Associated Apparatus With FISCO 1 Parameters:

NONHAZARDOUS LOCATION

HAZARDOUS (CLASSIFIED) LOCATION: Class I, Division 1, Group A,B,C or D



FISCO Parameters for Model:	Terminal 2	V_{max} (V)	I_{max} (mA)	P_i (W)
JRBS-40-./Ex, JRBS-40SC-./Ex, JRBS-49E-./Ex, JRBS-49SE-./Ex	Trunk In	17.5	380	5.32

1. The Fieldbus Intrinsic Safety Concept (FISCO) allows interconnection of FM approved FISCO intrinsically safe apparatus and associated apparatus not specifically examined as a system when the conditions below are met.

   $V_{max} \geq V_{oc}$ or V_t $\quad I_{max} \geq I_{sc}$ or I_t $\quad P_i \geq P_o$

2. FM approved intrinsically safe apparatus with FISCO input parameters (V_{max}, I_{max}, P_i) compatible with the FISCO output parameters (V_{oc}, I_{sc}, P_o) of the associated apparatus. Only the associated apparatus may supply power to the circuit. The JRBS 'Trunk Out' and drop connections (connectors 1-4, 1-6 or 1-8 depending on model) pass the FISCO paratmeters through from the associated apparatus unchanged.

3. Wiring methods must be in accordance with the National Electrical Code, ANSI/NFPA 70; ANSI/ISA RP12.06.01; and the requirements for the fieldbus intrinsically safe concept (FISCO) of ISA-60079-27.

4. To additional FM approved intrinsically safe apparatus with compatable FISCO parameters as detailed in Note 1 and Note 2.

5. The junctions must be installed in a suitable equipment enclosure in accordance with ANSI/ISA S82.01 and S82.03.

Rev	Description	Drft	Date		
D	Add 12-port models	BVL	12/3/10	Drawing No.: NI-2.405	
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FM Approved JRBS Fieldbus Junctions

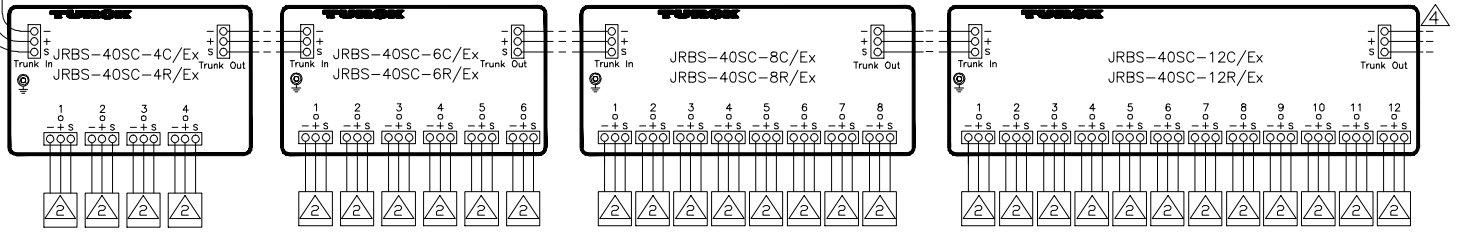
Intrinsically Safe for Class I, Zone 0 with Entity Parameters

FM APPROVED

FM Approved Associated Apparatus
With Entity △1 Parameters:

NONHAZARDOUS LOCATION

HAZARDOUS (CLASSIFIED) LOCATION: Class I, Zone 0, Group IIC, IIB or IIA



Entity Parameters for Model:	Terminal △2	V_{max} (V)	I_{max} (mA)	P_i (W)	C_i (nF)	L_i (mH)
JRBS-40-./Ex, JRBS-40SC-./Ex, JRBS-49E-./Ex, JRBS-49SE-./Ex	Trunk In	24	380	2.56	5	0

△1. The entity concept allows interconnection of intrinsically safe apparatus and associated apparatus not specifically examined in combination as a system when the conditions below are met.

$U_i \geq U_o$ $\quad I_i \geq I_o$ $\quad P_i \geq P_o$ $\quad \Sigma C_i + C_{cable} \leq C_a$ $\quad \Sigma L_i + L_{cable} \leq L_a$

△2. FM approved intrinsically safe apparatus with input entity parameters (V_{max}, I_{max}, P_i, C_i, and L_i) compatible with output entity parameters (V_{oc} or V_t, I_{sc} or I_t, P_o, C_a, L_a) of the associated apparatus. Only the associated apparatus may supply power to the circuit. The JRBS 'Trunk Out' and drop connections (connectors 1-4, 1-6, or 1-8 depending on model) pass the entity paratmeters through from the associated apparatus unchanged.

3. Wiring methods must be in accordance with the National Electrical Code, ANSI/NFPA 70; and ANSI/ISA RP12.06.01.

△4. To additional FM approved intrinsically safe apparatus with compatable entity parameters as detailed in Note 1 and Note 2.

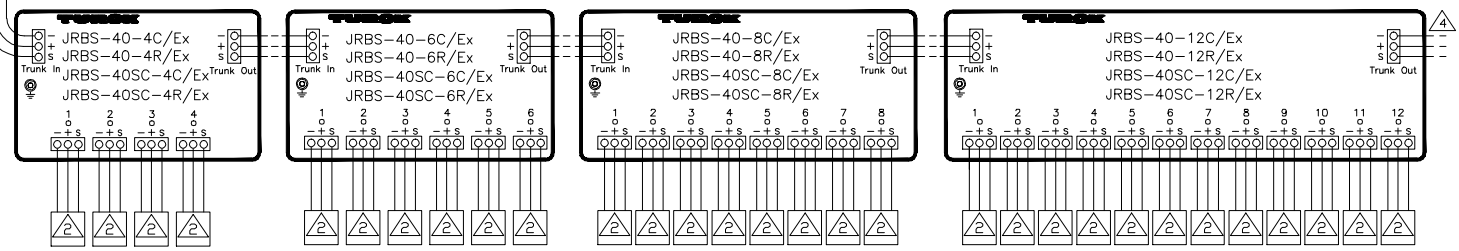
5. The junctions must be installed in a suitable equipment enclosure in accordance with ANSI/ISA S82.01 and S82.03.

Intrinsically Safe for Class I, Zone 0 With FISCO Parameters

FM Approved Associated Apparatus
With FISCO △1 Parameters:

NONHAZARDOUS LOCATION

HAZARDOUS (CLASSIFIED) LOCATION: Class I, Zone 0, Group IIC, IIB or IIA



FISCO Parameters for Model:	Terminal △2	V_{max} (V)	I_{max} (mA)	P_i (W)
JRBS-40-./Ex, JRBS-40SC-./Ex, JRBS-49E-./Ex, JRBS-49SE-./Ex	Trunk In	17.5	380	5.32

△1. The Fieldbus Intrinsic Safety Concept (FISCO) allows interconnection of FM approved FISCO intrinsically safe apparatus and associated apparatus not specifically examined as a system when the conditions below are met.

$U_i \geq U_o$ $\quad I_i \geq I_o$ $\quad P_i \geq P_o$

△2. FM approved intrinsically safe apparatus with FISCO input parameters (U_i, I_i, P_i) compatible with the FISCO output parameters (U_o, I_o, P_o) of the associated apparatus. Only the associated apparatus may supply power to the circuit. The JRBS 'Trunk Out' and drop connections (connectors 1-4, 1-6 or 1-8 depending on model) pass the FISCO paratmeters through from the associated apparatus unchanged.

3. Wiring methods must be in accordance with the National Electrical Code, ANSI/NFPA 70; ANSI/ISA RP12.06.01; and the requirements for the fieldbus intrinsically safe concept (FISCO) of ISA-60079-27.

△4. To additional FM approved intrinsically safe apparatus with compatable FISCO parameters as detailed in Note 1 and Note 2.

5. The junctions must be installed in a suitable equipment enclosure in accordance with ANSI/ISA S82.01 and S82.03.

Rev	Description	Drft	Date		
D	Add '12-port models	BVL	12/3/10	Drawing No.: NI-2.405	
				Scale: NONE	Sheet 3 of 3