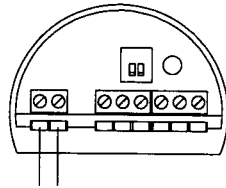


**EXPLOSIONPROOF INSTALLATION**

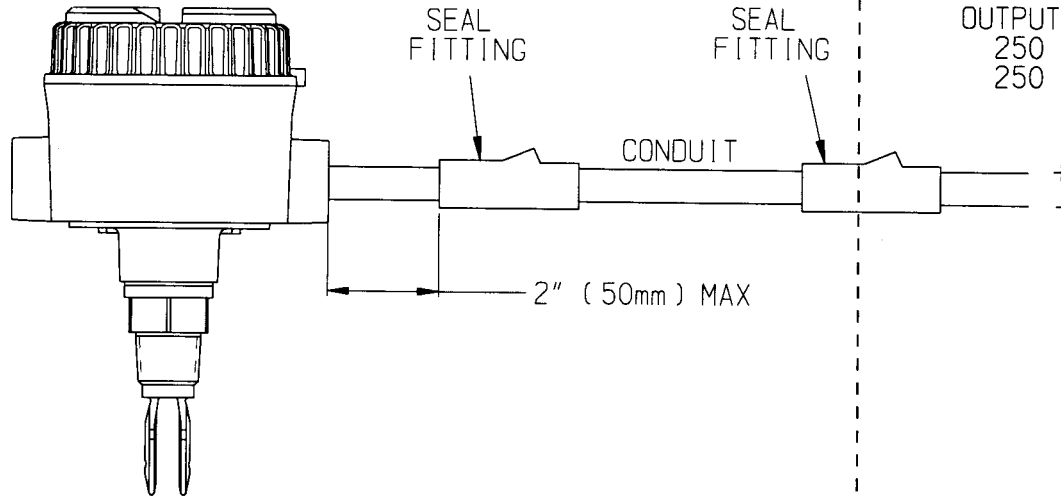
**HAZARDOUS (CLASSIFIED) AREA**

**NON-HAZARDOUS AREA**



XP CL I, DIV 1, GROUPS A-D  
 DIP CL II, III, DIV 1, GROUPS E-G  
 T5 Ta=60°C  
 TYPE 4, 4X IP66

MODEL # OF APPROVED SYSTEMS  
 TFL30-a  
 a= 14 CHARACTER EXPANDED  
 NUMBERING SYSTEM.  
 DOES NOT AFFECT SAFETY.



INPUT  
 20-72 VDC  
 20-250 VAC

OUTPUT  
 250 VAC, 5A, 750 VA  
 250 VDC, 1A, 54W

- NOTES:
1. THE INSTALLATION MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE® ANSI/NFPA 70.
  2. CONDUIT SEAL MUST BE 2" (50mm) MAXIMUM FROM ENCLOSURE.
  3. DUST TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

CERTIFIED	by _____			COPYRIGHT 2006
PO #	_____			AMETEK DREXELBROOK
ENG	_____			SCALE NONE
USER	_____			UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)
	2	6-06-215	SGA 6-15-06	DR. JJS 6-13-06
	1	11-04-333	SGA 3-14-05	CK. <i>aw</i>
DE #	ISS.	EDO/DSR NO.	APP'D	DATE

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215-674-1234  
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TF100 SERIES  
 FM CONTROL DRAWING  
 TFL30 EXPLOSIONPROOF  
 INSTALLATIONS

420-0004-283-CD

SHT. 1 OF 7  
 OF 7 2

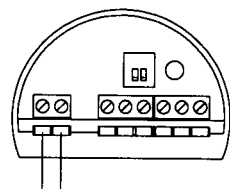
NO. 420-0004-283-CD

SHT 1 OF 7

DIV 2 W/O BARRIER INSTALLATION

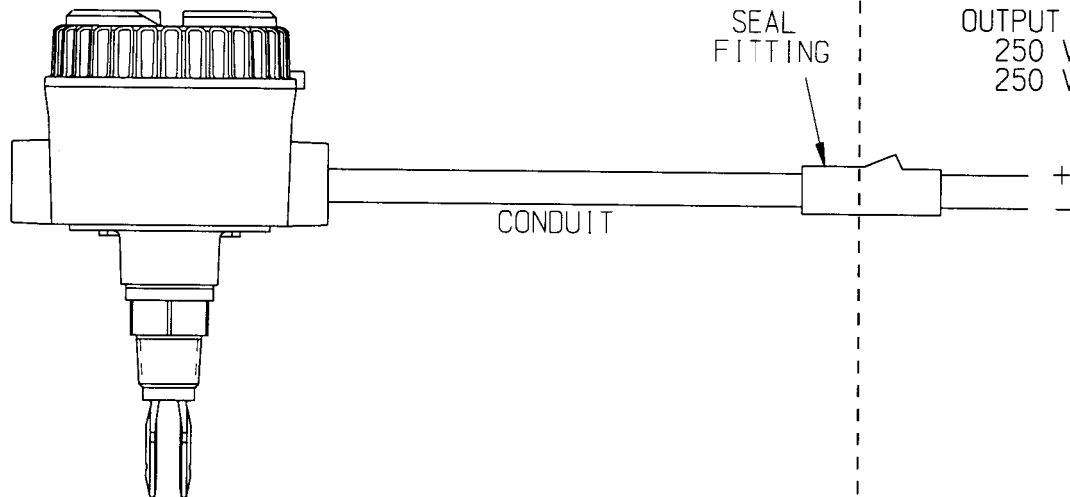
HAZARDOUS (CLASSIFIED) AREA

NON-HAZARDOUS AREA



NI CL I, DIV 2, GROUPS A-D  
 S II, III, DIV 2, GROUPS E-G  
 T5 Ta=60°C  
 TYPE 4, 4X 1P66

MODEL # OF APPROVED SYSTEMS  
 TFL30-a  
 a= 14 CHARACTER EXPANDED  
 NUMBERING SYSTEM.  
 DOES NOT AFFECT SAFETY.



INPUT  
 20-72 VDC  
 20-250 VAC

OUTPUT  
 250 VAC, 5A, 750 VA  
 250 VDC, 1A, 54W

- NOTES:
1. THE INSTALLATION MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE<sup>®</sup> ANSI/NFPA 70.
  2. DUST TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

CERTIFIED	by					COPYRIGHT 2006
PO #						AMETEK DREXELBROOK
ENG						SCALE NONE
USER						UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)
		2	6-06-215	<i>SGA</i>	6-15-06	DR. JJS 6-13-06
		1	11-04-333	SGA	3-14-05	CK. <i>CPW</i>
DE #		ISS.	EDO/DSR NO.	APP'D	DATE	

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TF100 SERIES  
 FM CONTROL DRAWING  
 TFL30 DIV 2 WITHOUT  
 BARRIER INSTALLATIONS

420-0004-283-CD

SHT. 2 OF 7  
 OF 7

ISS. 2

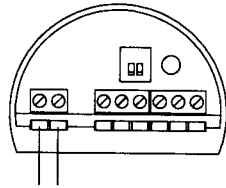
NO. 420-0004-283-CD

SHT 2 OF 7

EXPLOSIONPROOF INSTALLATION

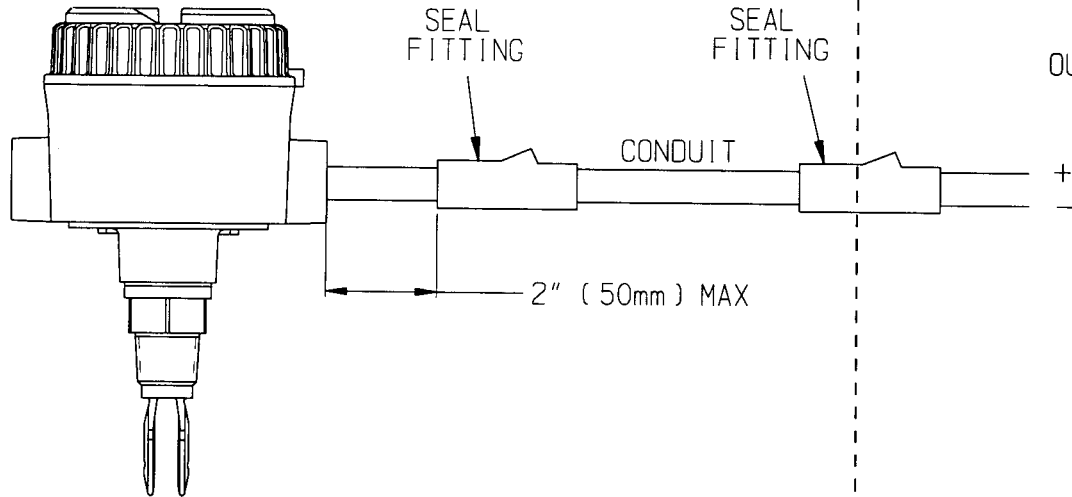
HAZARDOUS (CLASSIFIED) AREA

NON-HAZARDOUS AREA



XP CL I, DIV 1, GROUPS A-D  
 DIP CL II, III, DIV 1, GROUPS E-G  
 T5 Ta=60°C  
 TYPE 4, 4X 1P66.

MODEL # OF APPROVED SYSTEMS  
 TFP30-a  
 a= 14 CHARACTER EXPANDED  
 NUMBERING SYSTEM.  
 DOES NOT AFFECT SAFETY.



INPUT  
 10-55 VDC

OUTPUT  
 55 VDC MAX

- NOTES:
1. THE INSTALLATION MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE<sup>®</sup> ANSI/NFPA 70.
  2. CONDUIT SEAL MUST BE 2" (50mm) MAXIMUM FROM ENCLOSURE.
  3. DUST TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

CERTIFIED	by _____				COPYRIGHT 2006
PD # _____					AMETEK DREXELBROOK
ENG _____					SCALE NONE
USER _____					UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)
	2	6-06-215	SGA	3-14-05	DR. JJS 6-13-06
	1	11-04-333	SGA		CK. CPO
DE # _____	ISS	EDD/DSR NO	APP'D	DATE	

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TF100 SERIES  
 FM CONTROL DRAWING  
 TFP30 EXPLOSIONPROOF  
 INSTALLATIONS

420-0004-283-CD

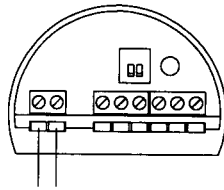
SHT. 3 OF 7  
 ISS. 2

No. 420-0004-283-CD  
 SHT 3 OF 7

DIV 2 W/O BARRIER INSTALLATION

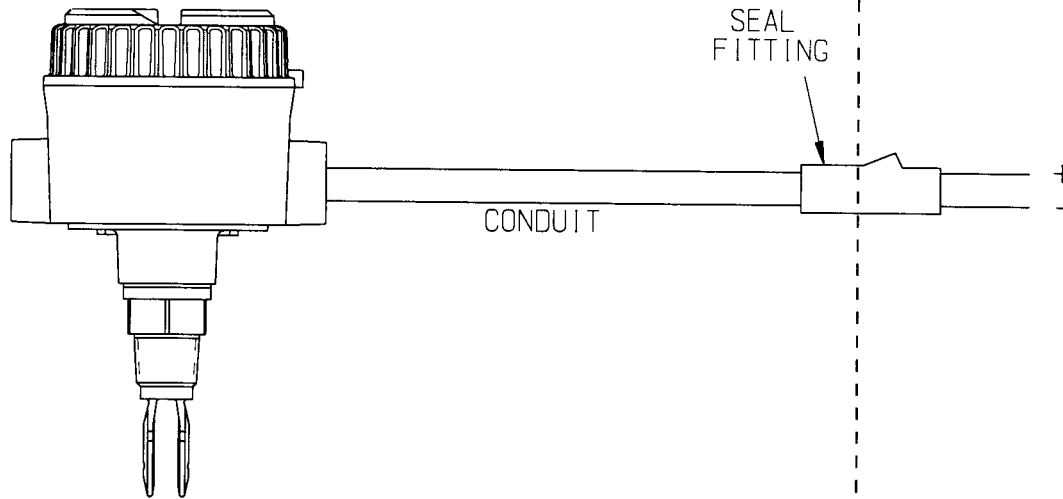
HAZARDOUS (CLASSIFIED) AREA

NON-HAZARDOUS AREA



NI CL I, DIV 2, GROUPS A-D  
 S II, III, DIV 2, GROUPS E-G  
 T5 Ta=60°C  
 TYPE 4, 4X IP66

MODEL # OF APPROVED SYSTEMS  
 TFP30-a  
 a= 14 CHARACTER EXPANDED  
 NUMBERING SYSTEM.  
 DOES NOT AFFECT SAFETY.



- NOTES:
1. THE INSTALLATION MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE® ANSI/NFPA 70.
  2. DUST TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

CERTIFIED	by _____			COPYRIGHT 2006
PD #	_____			AMETEK DREXELBROOK
ENG	_____			SCALE NONE
USER	_____			UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)
	2	6-06-215	<i>SGA</i>	6-15-08
	1	11-04-333	SGA	3-14-05
DE #	ISS.	EOD/DSR NO.	APP'D	DATE
				DR. JJS 6-13-06
				CK. <i>clw</i>

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TF100 SERIES  
 FM CONTROL DRAWING  
 TFP30 DIV 2 WITHOUT  
 BARRIER INSTALLATIONS

420-0004-283-CD

SHT. 4 OF 7  
 ISS. 2

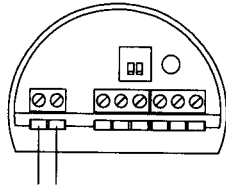
NO. 420-0004-283-CD

SHT. 4 OF 7

EXPLOSIONPROOF INSTALLATION

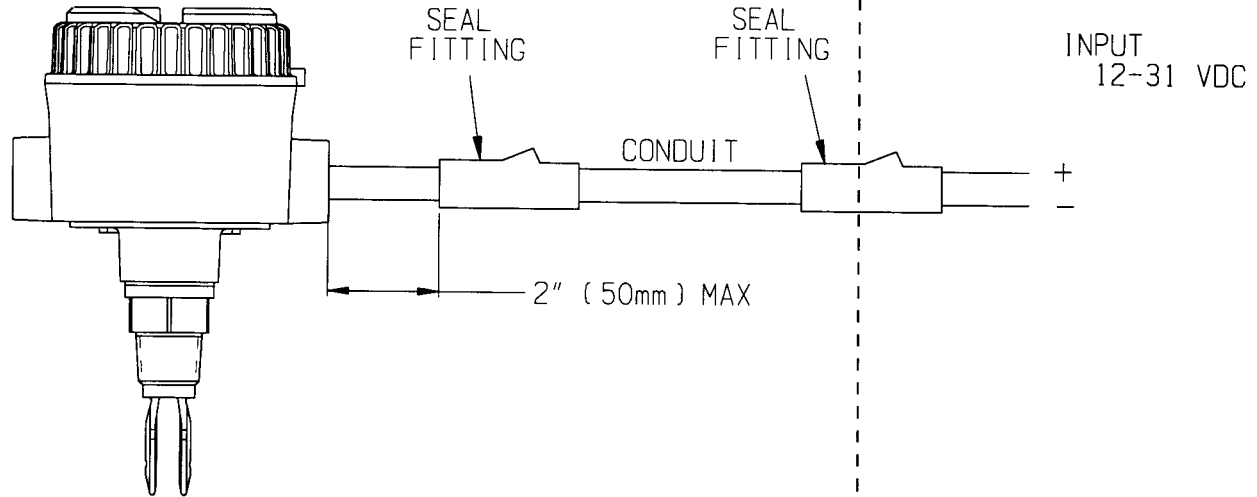
HAZARDOUS (CLASSIFIED) AREA

NON-HAZARDOUS AREA



XP CL I, DIV 1, GROUPS A-D  
 DIP CL II, III, DIV 1, GROUPS E-G  
 T5 Ta=60°C  
 TYPE 4, 4X 1P66

MODEL # OF APPROVED SYSTEMS  
 TFT30-a  
 a= 14 CHARACTER EXPANDED  
 NUMBERING SYSTEM.  
 DOES NOT AFFECT SAFETY.



- NOTES:
1. THE INSTALLATION MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE<sup>®</sup> ANSI/NFPA 70.
  2. CONDUIT SEAL MUST BE 2" (50mm) MAXIMUM FROM ENCLOSURE.
  3. DUST TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

CERTIFIED	by _____				COPYRIGHT 2006
PD # _____					AMETEK DREXELBROOK
ENG _____					SCALE NONE
USER _____					UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)
	2	6-06-215	<i>SGA</i>	6-15-06	DR. JJS 6-13-06
	1	11-04-333	SGA	3-14-05	CK. <i>CWD</i>
DE # _____	ISS.	EDD/DSR NO.	APP'D	DATE	

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TF100 SERIES  
 FM CONTROL DRAWING  
 TFT30 EXPLOSIONPROOF  
 INSTALLATIONS

420-0004-283-CD

SHT. 5 OF 7  
 ISS. 2

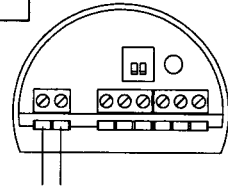
NO. 420-0004-283-CD SHT 5 OF 7

**DIVISION 2 & ZONE 2 INSTALLATION**

**HAZARDOUS (CLASSIFIED) AREA**

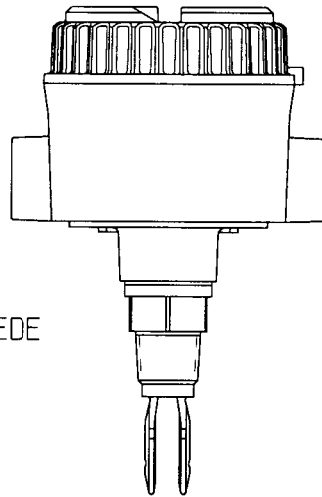
**NON-HAZARDOUS AREA**

NI CL I, DIV 2, GROUPS A-D  
 S II, III, DIV 2, GROUPS E-G  
 T5 Ta=60°C  
 TYPE 4, 4X 1P66



MODEL # OF APPROVED SYSTEMS  
 TFT30-a  
 a= 14 CHARACTER EXPANDED  
 NUMBERING SYSTEM.  
 DOES NOT AFFECT SAFETY.

FUNCTIONAL RATINGS  
 1. THESE RATINGS DO NOT SUPERSEDE  
 HAZARDOUS LOCATION VALUES.  
 NORMAL CURRENT = 4...20mA  
 NORMAL VOLTAGE = 12...31V



CONDUIT OR NON-INCENDIVE  
 FIELD WIRING

$V_{max} = 31 V$   
 $C_i = 0 \mu F$   
 $L_i = 0 mH$

SEAL  
 FITTING

FM APPROVED  
 ASSOCIATED N.I.  
 FIELD WIRING APPARATUS

INPUT  
 12-31 VDC

$V_t$  OR  $V_{oc} = 31 V$   
 $C_a$   
 $L_a$

FOR THIS CURRENT CONTROLLED  
 CIRCUIT, THE PARAMETER ( $I_{max}$ )  
 IS NOT REQUIRED AND NEED NOT  
 BE ALIGNED WITH PARAMETER  
 ( $I_{sc}$  OR  $I_t$ ) OF THE BARRIER OR  
 ASSOCIATED NONINCENDIVE FIELD  
 WIRING APPARATUS.

**DIVISION 2 AND ZONE 2 INSTALLATION (CURRENT CONTROLLED CIRCUIT)  
 NOTES:**

1. THE NONINCENDIVE FIELD WIRING CONCEPT ALLOWS INTERCONNECTION OF NONINCENDIVE FIELD WIRING APPARATUS WITH ASSOCIATED NONINCENDIVE FIELD WIRING APPARATUS USING ANY OF THE WIRING METHODS PERMITTED FOR UNCLASSIFIED LOCATIONS.
2.  $V_{max} \geq V_{oc}$  OR  $V_t$ .  $C_a \geq C_i + C_{cable}$ .  $L_a \geq L_i + L_{cable}$ .
3. THE INSTALLATION MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE<sup>®</sup> ANSI/NFPA 70.
4. DUST TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.

CERTIFIED	by _____				COPYRIGHT 2006
PD # _____					AMETEK DREXELBROOK
ENG _____					SCALE NONE
USER _____					UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)
	2	6-06-215	SGA	3-14-05	DR. JJS 6-13-06
DE # _____	ISS	EDD/DSR NO.	APP'D	DATE	CK. <i>CPW</i>

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TF100 SERIES  
 FM CONTROL DRAWING  
 TFT30 DIV 2 & ZONE 2  
 INSTALLATIONS

420-0004-283-CD

SHT. 6 OF 7  
 ISS. 2

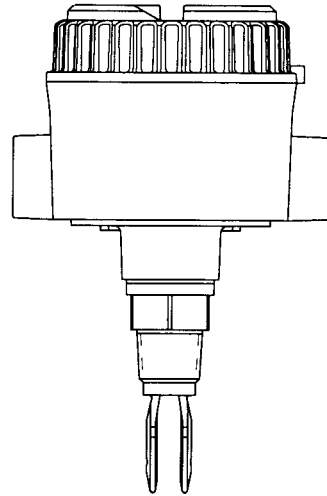
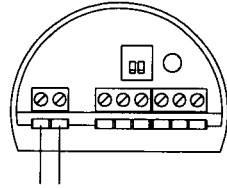
NO. 420-0004-283-CD SHT. 6 OF 7

ENTITY INSTALLATION

HAZARDOUS (CLASSIFIED) AREA

NON-HAZARDOUS AREA

IS CL I, II, III DIV 1, GROUPS A-G  
 CLASS 1, ZONE 0 AEx ia IIC  
 T4 Ta=60°C  
 TYPE 4, 4X IP66



MODEL # OF APPROVED SYSTEMS  
 TFT30-a  
 a= 14 CHARACTER EXPANDED  
 NUMBERING SYSTEM.  
 DOES NOT AFFECT SAFETY.

FM APPROVED  
 ASSOCIATED APPARATUS

+  
 -  
 $V_{DC} \leq 31V$   
 $I_{SC} \leq 116 mA$   
 $P_o \leq 667 mW$   
 $C_A \geq 0.0\mu F + C \text{ CABLE}$   
 $L_A \geq L_i + L \text{ CABLE}$

$U_i = 31 VDC$   
 $I_i = 116 mA$   
 $C_i = 0 \mu F$   
 $L_i = 0 mH$   
 $P_i = 667 mW$

NOTES:

1. THE INTRINSIC SAFETY ENTITY CONCEPT ALLOWS THE INTERCONNECTION OF TWO FM APPROVED INTRINSICALLY SAFE DEVICES WITH ENTITY PARAMETERS NOT SPECIFICALLY EXAMINED IN COMBINATION AS A SYSTEM WHEN:  
 $V_{oc} \text{ OR } U_o \text{ OR } V_t \leq V_{max}$ ,  $I_{sc} \text{ OR } I_o \text{ OR } I_t \leq I_{max}$ ,  $C_a \text{ OR } C_o \geq C_i + C_{cable}$ ,  $L_a \text{ OR } L_o \geq L_i + L_{cable}$ ,  $P_o \leq P_i$ .
2. IF THE ELECTRICAL PARAMETERS OF THE CABLES ARE UNKNOWN, THE FOLLOWING VALUES MAY BE USED:  
 $C_{cable} = 60pF/FT$ ,  $L_{cable} = 0.20\mu H/FT$ .
3. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.
4. CONTROL EQUIPMENT CONNECTED TO THE ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.
5. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA RP12.06.01 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) SECTIONS 504 AND 505.
6. THE CONFIGURATION OF THE ASSOCIATED APPARATUS MUST BE FM APPROVED UNDER ENTITY CONCEPT.
7. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.
8. THE TF SERIES ARE APPROVED FOR CLASS 1, ZONE 0, APPLICATIONS. IF CONNECTING AEX[ib] ASSOCIATED APPARATUS OR AEX[ib] I.S. APPARATUS TO THE TF SERIES, THE I.S. CIRCUIT IS ONLY SUITABLE FOR CLASS 1, ZONE 1, OR CLASS 1, ZONE 2, AND IS NOT SUITABLE FOR CLASS 1, ZONE 0 OR CLASS 1, DIVISION 1, HAZARDOUS (CLASSIFIED) LOCATIONS.
9. NO REVISION TO DRAWING WITHOUT PRIOR AGENCY APPROVAL.

CERTIFIED	by _____				COPYRIGHT 2006
PO # _____					AMETEK DREXELBROOK
ENG _____					SCALE NONE
USER _____					UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)
	2	6-06-215	SGA	3-14-05	DR. JJS 6-13-06
	1	11-04-333	SGA		CK. CW
DE # _____	ISS.	EDO/DSR NO.	APP'D	DATE	



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TF100 SERIES  
 FM CONTROL DRAWING  
 TFT30 ENTITY  
 INSTALLATIONS

420-0004-283-CD

SHT. 7 OF 7  
 OF 7 2

No. 420-0004-283-CD

SHT 7 OF 7