

## APPLICATION NOTES

Digital Input Module:  
3506X (32 Channels)

AND

GMI Termination Board:  
TBE-D5016-TRI-012 (16 Slots) for Single  
Channels GMI Modules through  
I/O CABLE: 4X00226-3xx

OR

TBE-D5016-TRI-012 (16 Slots) for Dual  
Channels GMI Modules through  
I/O CABLE: 4X00226-3xx

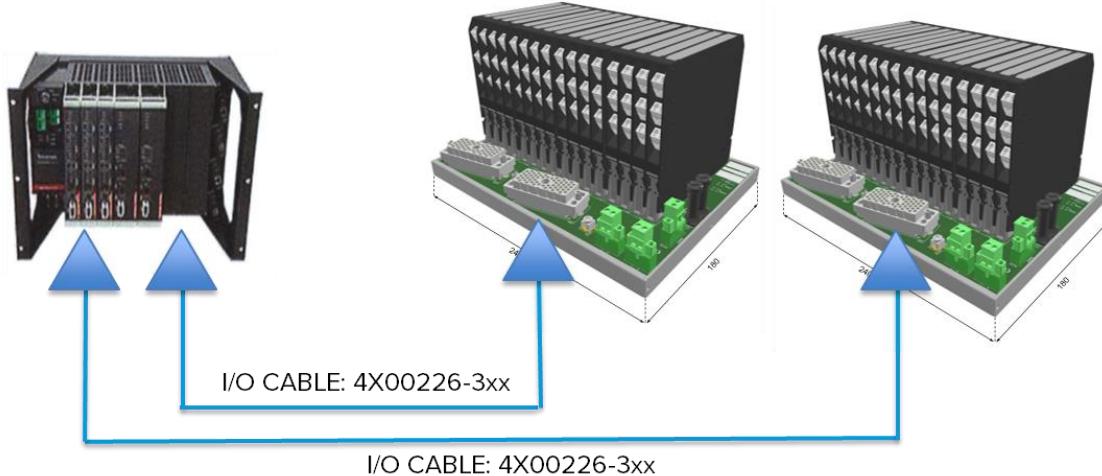
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## 1. INTRODUCTION

### WITH SINGLE CHANNEL GMI MODULES

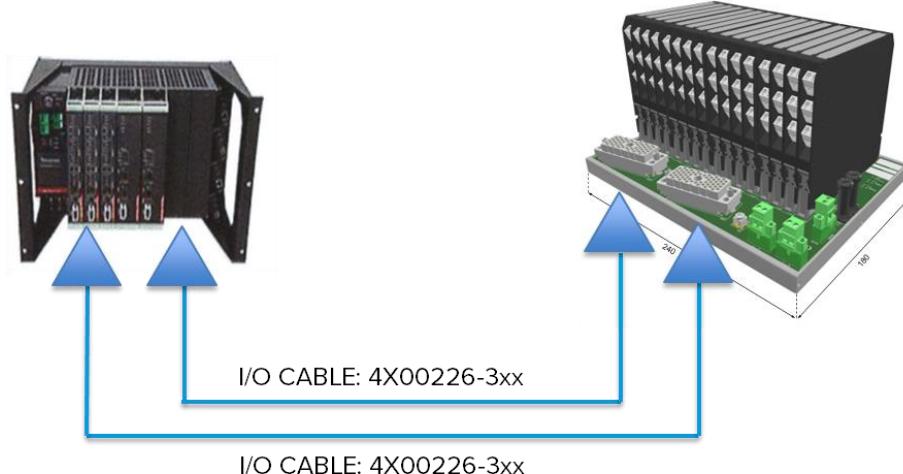
DI Module 3506X (32 CH)



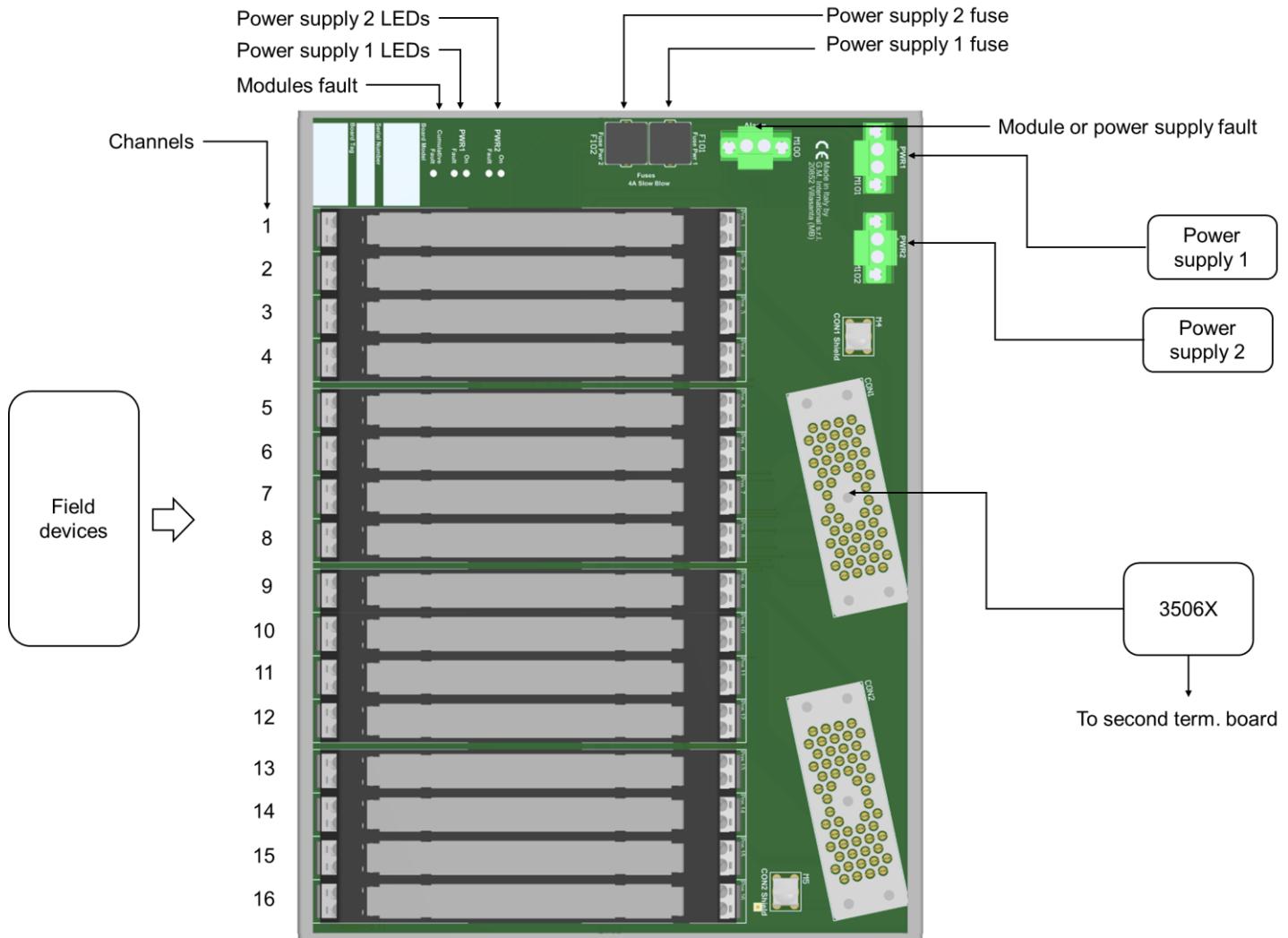
### WITH DOUBLE CHANNEL GMI MODULES

DI Module 3506X (32 CH)

TBE-D5016-TRI-012 (16 SLOTS)



## TBE-D5016-TRI-012 has 16 slots available for GMI modules



## 2. EQUIPMENT TO BE USED

### 2.1 Tricon CX I/O Module

3506X –Digital Output Module, 32 Channels

### 2.2 GMI Termination Boards

TBE-D5016-TRI-012 SIL3 Termination Board 16 Positions for Tricon CX 3506X (Single/Dual Channel).

### 2.3 GMI Interface Modules

#### 2.3.1 DIGITAL INPUT – DI IS

MOD.	DESCRIPTION	L.F. DETECTION	OUTPUT	SIL	REMARKS	ZONE2/ DIV2
D5031S	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	SOLID STATE	3		YES
D5032S	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	RELAY	3		YES
D5037S	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	SOLID STATE	2		YES
D5093S	24 TO 220 VAC/VDC SWITCH REPEATER	NO	SOLID STATE	3		YES
D5031D	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	SOLID STATE	3	DUAL CHANNEL	YES
D5032D	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	RELAY	3	DUAL CHANNEL	YES
D5037D	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	SOLID STATE	2	DUAL CHANNEL	YES
D5093D	24 TO 220 VAC/VDC SWITCH REPEATER	NO	SOLID STATE	3	DUAL CHANNEL	YES

#### 2.3.2 SUPERVISED DIGITAL INPUT – SDI IS

MOD.	DESCRIPTION	L.F. DETECTION	L.F. TRANSP.	OUTPUT	SIL	REMARKS	ZONE2/ DIV2
D5038SA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	3		YES
D5039SA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	2		YES
D5038XA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	3	DUPPLICATOR	YES
D5039XA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	2	DUPPLICATOR	YES
D5038DA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	3	DUAL CHANNEL	YES
D5039DA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	2	DUAL CHANNEL	YES

#### 2.3.3 DIGITAL INPUT – DI NIS

MOD.	DESCRIPTION	L.F. DETECTION	OUTPUT	SIL	REMARKS	ZONE2/ DIV2
D6031S	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	SOLID STATE	3		NO
D6032S	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	RELAY	3		NO
D6037S	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	SOLID STATE	2		NO
D6001S	PASS THROUGH MODULE	NO	PASS THROUGH	3		YES
D6031D	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	SOLID STATE	3	DUAL CHANNEL	NO
D6032D	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	RELAY	3	DUAL CHANNEL	NO
D6037D	SWITCH/PROXIMITY DETECTOR/REPEATER	YES	SOLID STATE	2	DUAL CHANNEL	NO
D6001D	PASS THROUGH MODULE	NO	PASS THROUGH	3	DUAL CHANNEL	YES

## 2.3.4 SUPERVISED DIGITAL INPUT – SDI NIS

MOD.	DESCRIPTION	L.F. DETECTION	L.F. TRANSP.	OUTPUT	SIL	REMARKS	ZONE2/ DIV2
D6038SA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	3		NO
D6038XA	SWITCH/DETECTOR REPEATER	YES	YES	SOLID STATE	3	DUPPLICATOR	NO
D6039SA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	2		NO
D6039XA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	2	DUPPLICATOR	NO
D6001S	PASS THROUGH MODULE	NO	YES	PASS THROUGH	3		YES
D6038DA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	3	DUAL CHANNEL	NO
D6039DA	SWITCH/PROXIMITY DETECTOR REPEATER	YES	YES	SOLID STATE	2	DUAL CHANNEL	NO
D6001D	PASS THROUGH MODULE	NO	YES	PASS THROUGH	3	DUAL CHANNEL	YES

### 3. TRICON CX – System Configuration and Remarks

- Install the 3506X in proper slot.
- Connect the I/O cable between FET and GMI Termination Board.
- Power Monitor not supported on 3506X using TBE-D5016-TRI-012 and I/O cable 4X00226-3xx
- Typical Point Setup for Field Fault Monitoring:
  - Point Option = Supervised

### 4. TERMINATION BOARD CONNECTION & SETUP

- **TBE-D5016-TRI-012** has NO Hardware Switch Setting.
- Connect the I/O Cable between FET and GMI termination board.
- Connect the Power Supply 24VDC to Terminals Supply 1 (+,-) and Supply 2 (+,-).

## 5. GMI MODULE SETTINGS AND CONFIGURATION

### 5.1 GMI Modules Switch Settings

<b>TBE-D5016-TRI-012</b>	NO Hardware Setting
<b>D5031S</b>	SW1, Factory Default, 1-to 8 OFF, No LFD, In/Out Direct
<b>D5031D</b>	SW1, Factory Default, 1-to 8 OFF, No LFD, In/Out Direct
<b>D5032S</b>	SW1, Factory Default, 1-to 8 OFF, No LFD, In/Out Direct
<b>D5032D</b>	SW1, Factory Default, 1-to 8 OFF, No LFD, In/Out Direct
<b>D5037S</b>	SW1, Factory Default, 1-to 4 OFF, No LFD, In/Out Direct
<b>D5037D</b>	SW1, Factory Default, 1-to 4 OFF, No LFD, In/Out Direct
<b>D5093S</b>	SW1, 1 ON, 2-to-5 OFF, In 24Vdc
<b>D5093D</b>	SW1, 1 ON, 2-to-5 OFF, In 24Vdc SW2, 1 ON, 2-to-5 OFF, In 24Vdc
<b>D5038SA</b>	SW1, 1 ON, 2-3-4 OFF, LFD, In/out Direct
<b>D5038DA</b>	SW1, 1-3 ON, 2-4 OFF, LFD, In/out Direct
<b>D5038XA</b>	SW1, 1 ON, 2-3-4 OFF, LFD, In/out Direct
<b>D5039SA</b>	SW1, 1 ON, 2-3-4 OFF, LFD, In/out Direct
<b>D5039DA</b>	SW1, 1-3 ON, 2-4 OFF, LFD, In/out Direct
<b>D5039XA</b>	SW1, 1 ON, 2-3-4 OFF, LFD, In/out Direct
<b>D6001S, D6001D</b>	No setting

Above switch settings refer to the interface between GMI Modules and Triconex CX I/O module.  
 Additional settings might be considered depending on field specific requirements; please refer to GMI Data Sheets and Instruction Manuals for further details.

## 5.2 GMI Configurations and Remarks

### 5.2.1 LINE FAULT DETECTION (LFD)

GMI Barriers D5031S, D5031D, D5032S, D5032D, D5037S, D5037D provide Line open/short circuit diagnostic. Load Fault Detection contact (transistor) is available at barrier terminals 3-4, to be connected to digital input cards for alarming if required. A cumulative fault alarm is available at the termination board terminals (Module Fault), to be connected to digital input cards for alarmin, if required.

For models D5038SA, D5038DA, D5038XA, D5039SA, D5039DA, D5039XA, the Line Fault Detection (LDF) can be transferred to the DI channels of the DI Card 3506X, using the Supervised function of the card, avoiding connecting the alarm contacts to digital input cards.

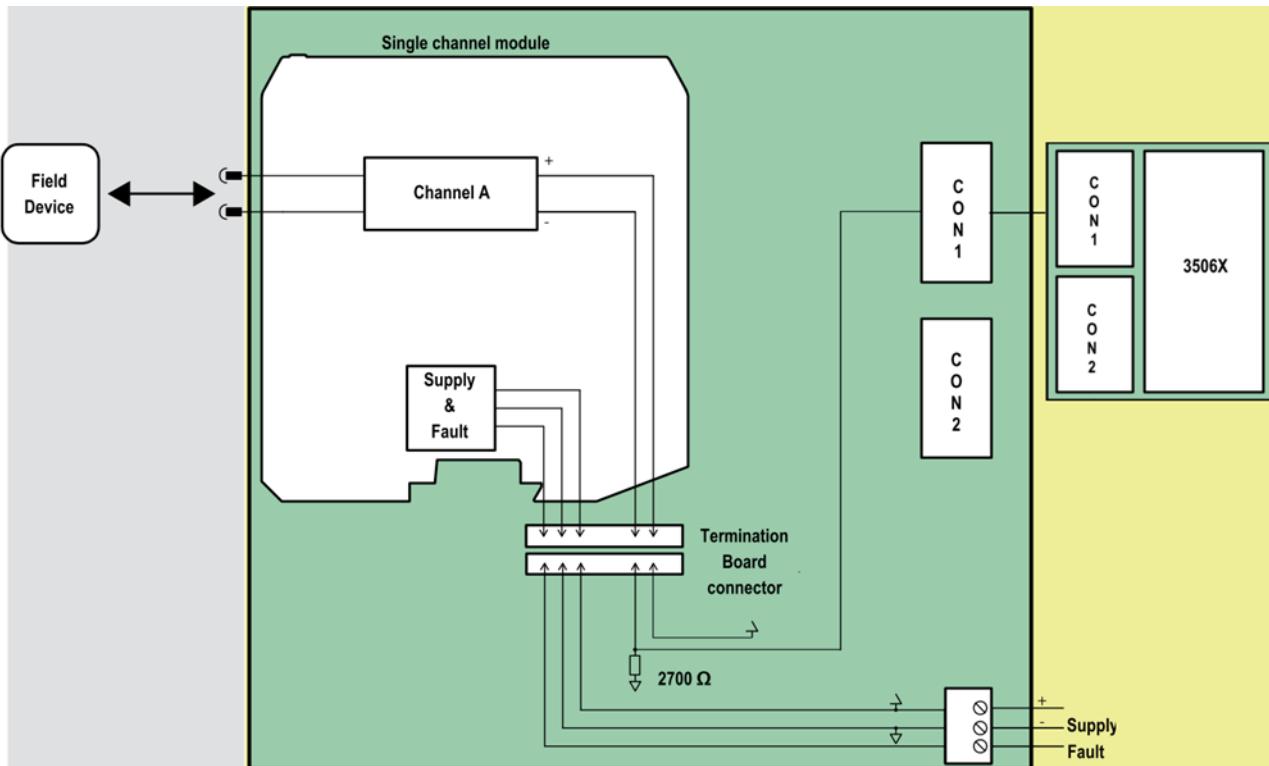
This functionality can be achieved with the following set-up:

Configure the relevant input channel of the DI Module 3506X

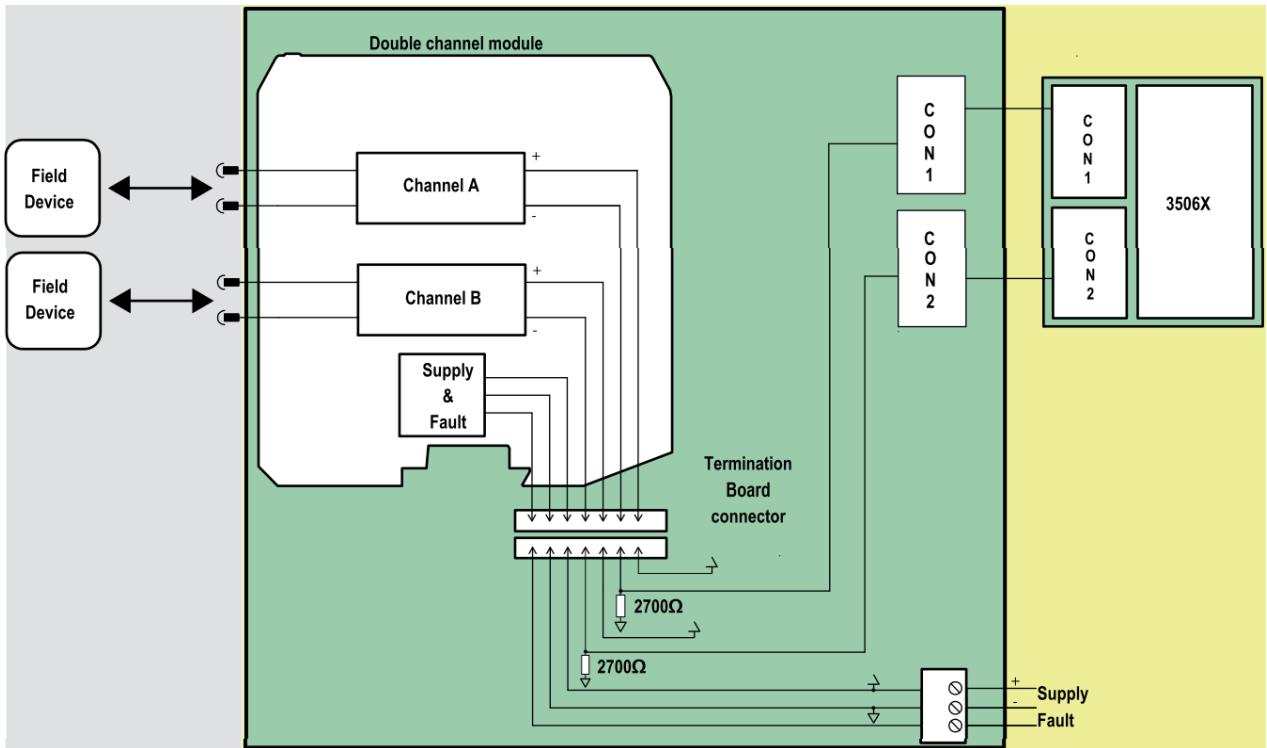
Slot 1: 3506X Supervised Discrete Input, 24 V, 32 points							
	Field Power Monitoring 1	Field Power Monitoring 2	Tagname	Physical Address	Point Option	R(Adjust) Ohms (-32768 - 32767)	Trigger State
>			01.01.01	01.01.01	Non-Supervised	0	Disabled
			01.01.02	01.01.02	Non-Supervised	0	Disabled
			01.01.03	01.01.03	Non-Supervised	0	Disabled
			01.01.04	01.01.04	Non-Supervised	0	Disabled
			01.01.05	01.01.05	Non-Supervised	0	Disabled
			01.01.06	01.01.06	Non-Supervised	0	Disabled
			01.01.07	01.01.07	Non-Supervised	0	Disabled
			01.01.08	01.01.08	Non-Supervised	0	Disabled
			01.01.09	01.01.09	Non-Supervised	0	Disabled
			01.01.10	01.01.10	Non-Supervised	0	Disabled
			01.01.11	01.01.11	Non-Supervised	0	Disabled
			01.01.12	01.01.12	Non-Supervised	0	Disabled
			01.01.13	01.01.13	Non-Supervised	0	Disabled

## 5.2.2 TERMINATION BOARD CONNECTIONS

The termination Board TBE-D5016-TRI-012 can be used with Single and Dual Channel Barriers/Isolators. It provides two ELCO connectors (CON1, CON2) for direct connection to 3506X DI Cards. When used with single channel barriers, only CON1 shall be used.



When used with dual channel barriers, CON1 connects all channel "A" of the barriers (points 1 to 16 of DI card), while CON2 connects all channel "B" of the barriers (points 17 to 32 of DI Card)



## 6. REFERENCE DOCUMENTS

### 6.1 Triconex

Document No.	Title
9791042-002	Tricon™ CX Products Addendum to Tricon User Guides

### 6.2 G.M. International

Document No.	Title
DTS0859	TBE-D5016-TRI-012 Datasheet
DTS0283	D5031 Datasheet
ISM0107	D5031 Instruction Manual
ISM0364	D5031 Safety Manual
DTS0284	D5032 Datasheet
ISM0108	D5032 Instruction Manual
ISM0365	D5032 Safety Manual
DTS0616	D5037 Datasheet
ISM0270	D5037 Instruction & Safety Manual
DTS0420	D5093 Datasheet
ISM0175	D5093 Instruction Manual
DTS0827	D5038 Datasheet
ISM0427	D5038 Instruction Manual
ISM0429	D5038 Safety Manual
DTS0818	D5039 Datasheet
ISM0428	D5039 Instruction Manual
ISM0430	D5039 Safety Manual
DTS0810	D6001 Datasheet
ISM0384	D6001 Safety Manual