

### Characteristics:

#### General description:

The Termination Board (TB) model PBCO-D8-009 is designed to connect the D1000 Series Intrinsically Safe isolation and protection modules, directly to the Foxboro FBM I/O cards type FBM211, FBM207b, FBM241c and FBM242 without the standard Field Termination Assembly normally needed to interface the backplane.

The TB consists of D1000 Series modules mounted on backplane which carry Safe Area signals and supply. The range of modules includes different types to handle the majority of applications.

The TB PBCO-D8-009 connector is pin to pin compatible with the standard system cable, thus avoiding the need of special cable or external wiring.

The TB connector link with the Provox I/O cards by standard Provox cable (see connection tables for details).

The FBM211 is a 16 channels, 4-20 mA analog input board.

The FBM207b is a 16 channels digital input board.

The FBM241c is a 8 channels digital input plus 8 channels digital output board.

The FBM242 is a 16 channels digital output board.

The Intrinsic Safety protection and signal isolation is made through the D1000 Series Associated Apparatus. The modules type accepted are:

Analog Input D1010D, D1014D, D1052D, D1072D to interface FBM211;

Digital Input D1030D, D1032D to interface FBM207b or FBM241c;

Digital Output D1049D to interface FBM241c or FBM242.

The TB can accept 16 input channels AI or 16 input channels DI or 8 channels DI + 8 channels DO or 16 output channels DO, and can only be used for 2 channels modules.

The connections to/from the Hazardous Areas are made at the module terminal blocks, thus avoiding the TB Intrinsic Safety certifications, resulting in a quick design and cost effective solution.

The 24 Vdc power supply for the TB is connected to a two dual plug-in terminal blocks, this resulting in a redundant power supply and daisy chain connection also when terminal block is not inserted in the corresponding mating connector.

The power supply is then bussed to the isolator modules by the TB.

### Features:

- I/O card type FBM211 16 channels analog input board interface.
- I/O card type FBM207b 16 channels digital input board interface.
- I/O card type FBM241c 8 channels digital input plus 8 channels digital output interface.
- I/O card type FBM242 16 channels digital output interface.
- 8 positions Termination Board for up to 16 channels.
- Lower cables, installation and maintenance costs.
- One terminal block per input, no external terminal blocks required.
- Rugged carbon steel painted board support for easy installation.
- Shield Rail included.
- Power Supply Fault monitoring.
- Spare Fuse provided.
- Tagging provided on top side.

### Ordering Information:

Model: PBCO-D8-009

### Technical Data:

#### Supply:

24 Vdc nom (20 to 30 Vdc) reverse polarity protected, redundant terminal blocks, OR diodes to select higher supply source.

**Connection:** by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm<sup>2</sup>.

**Protection fuse:** 2 A time lag (spare fuse provided on Termination Board).

#### Fault detection:

**Supply voltage fault detection:** ≤ 18 Vdc.

**Fault signalling:** voltage free NE SPDT relay contact (de-energized in fault condition).

**Contact material:** AgCdO.

**Contact rating:** 2 A 250 Vac 500 VA, 2 A 250 Vdc 80 W (resistive load).

**Mechanical / Electrical life:** 30 \* 10<sup>6</sup> / 1 \* 10<sup>5</sup> operation, typical.

**Connection:** by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm<sup>2</sup>.

#### FBM I/O card interface:

**Connection:** SUB D 37 poles male connector (requires female mating connector).

#### Environmental conditions:

**Operating:** temperature limits -20 to + 60 °C, relative humidity max 90 % non condensing, up to 35 °C.

**Storage:** temperature limits - 45 to + 80 °C.

#### Mounting:

surface mounting by four assembly slot for M6 screw.

**Shield rail connection:** five holes M5x10 to connect cable screen.

**Earth connection:** M4x10 screw to connect TB to earth rail.

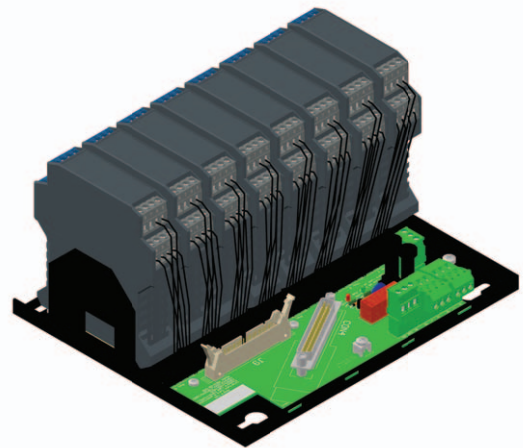
**LED indication:** green for power on, red for fault detection.

**Weight:** about 940 g (excluding modules).

**Location:** Safe Area/Non Hazardous Locations.

**Dimensions:** Width 224 mm, Depth 190 mm, Height 122 mm.

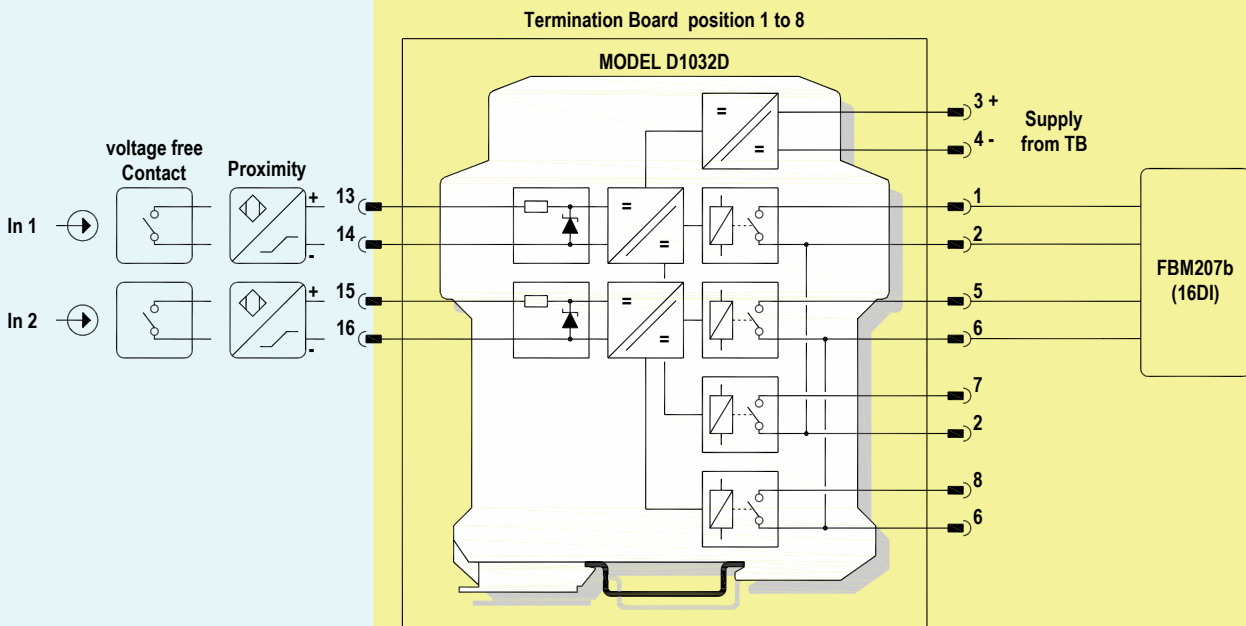
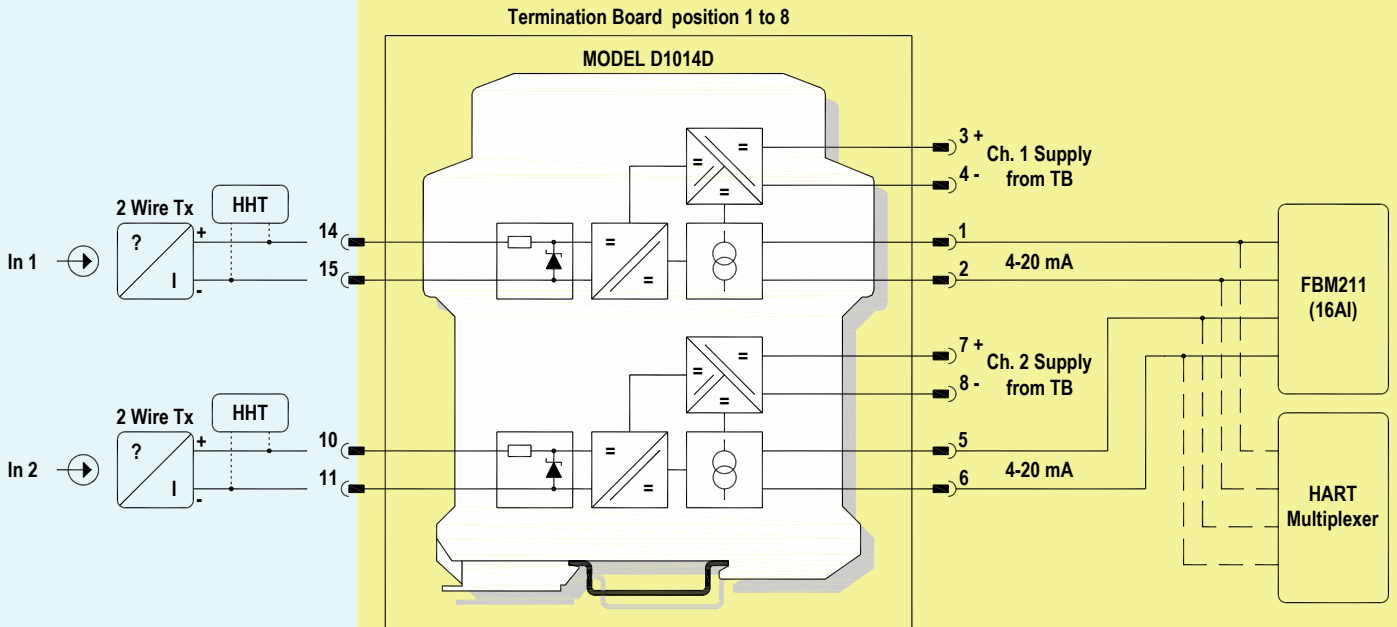
### Image:



# Loop Diagrams for FBM211 (16AI) and FBM207b (16DI) Interface Card:

HAZARDOUS AREA

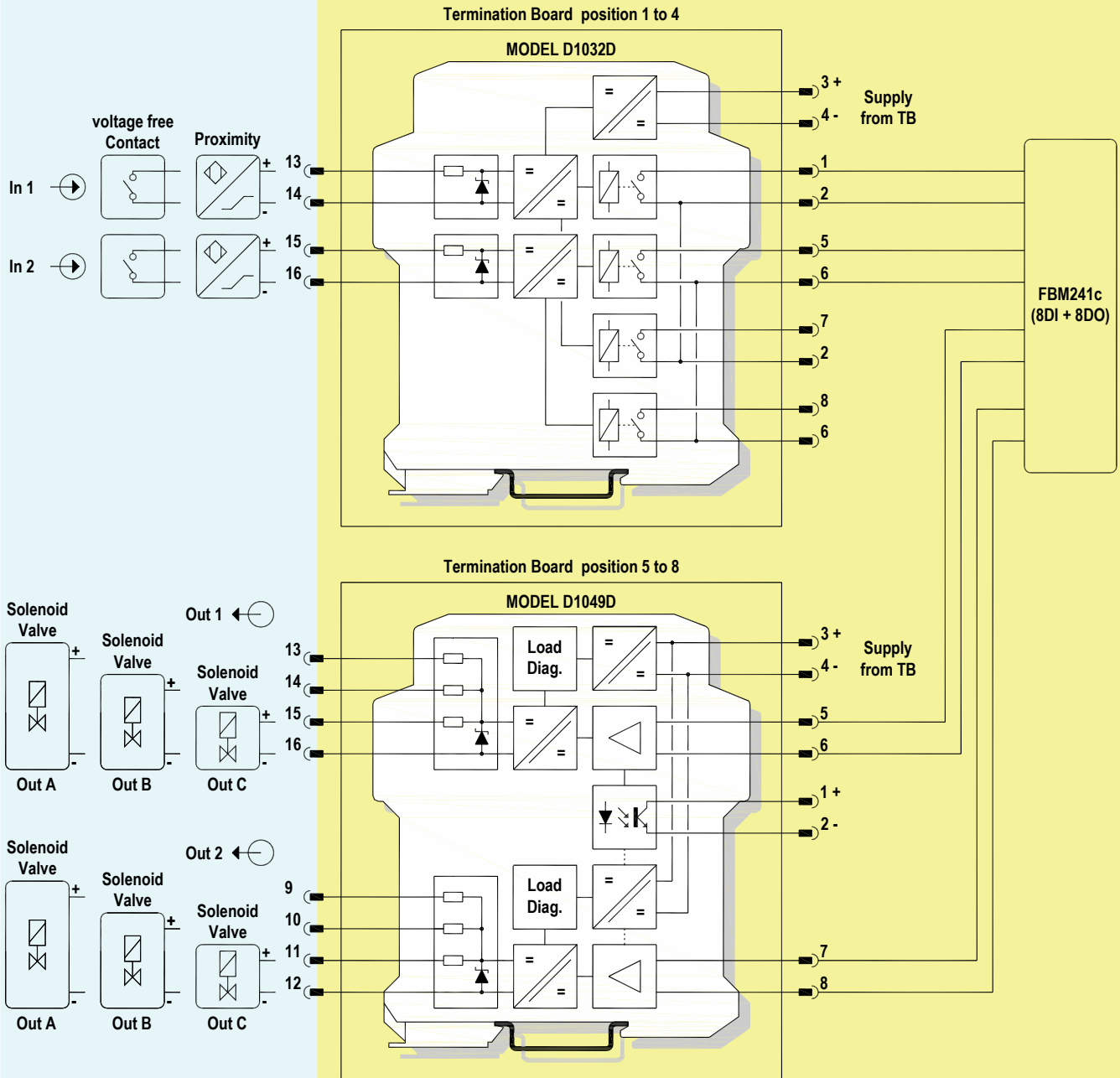
SAFE AREA



# Loop Diagram for FBM241c (8DI+8DO) Interface Card:

HAZARDOUS AREA

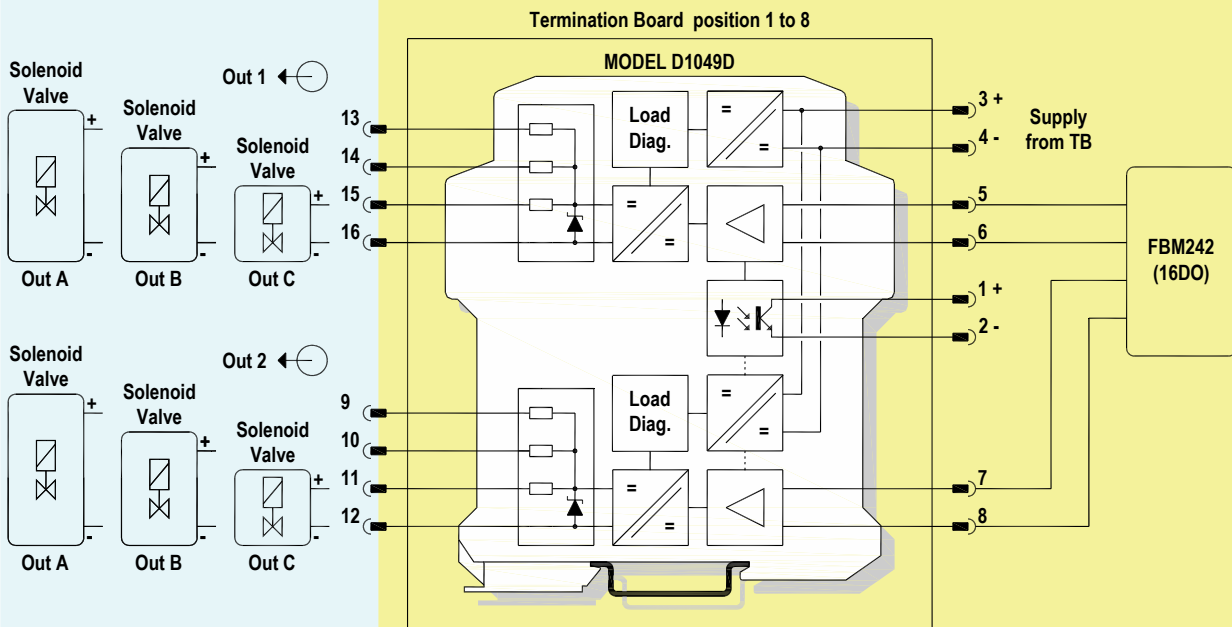
SAFE AREA



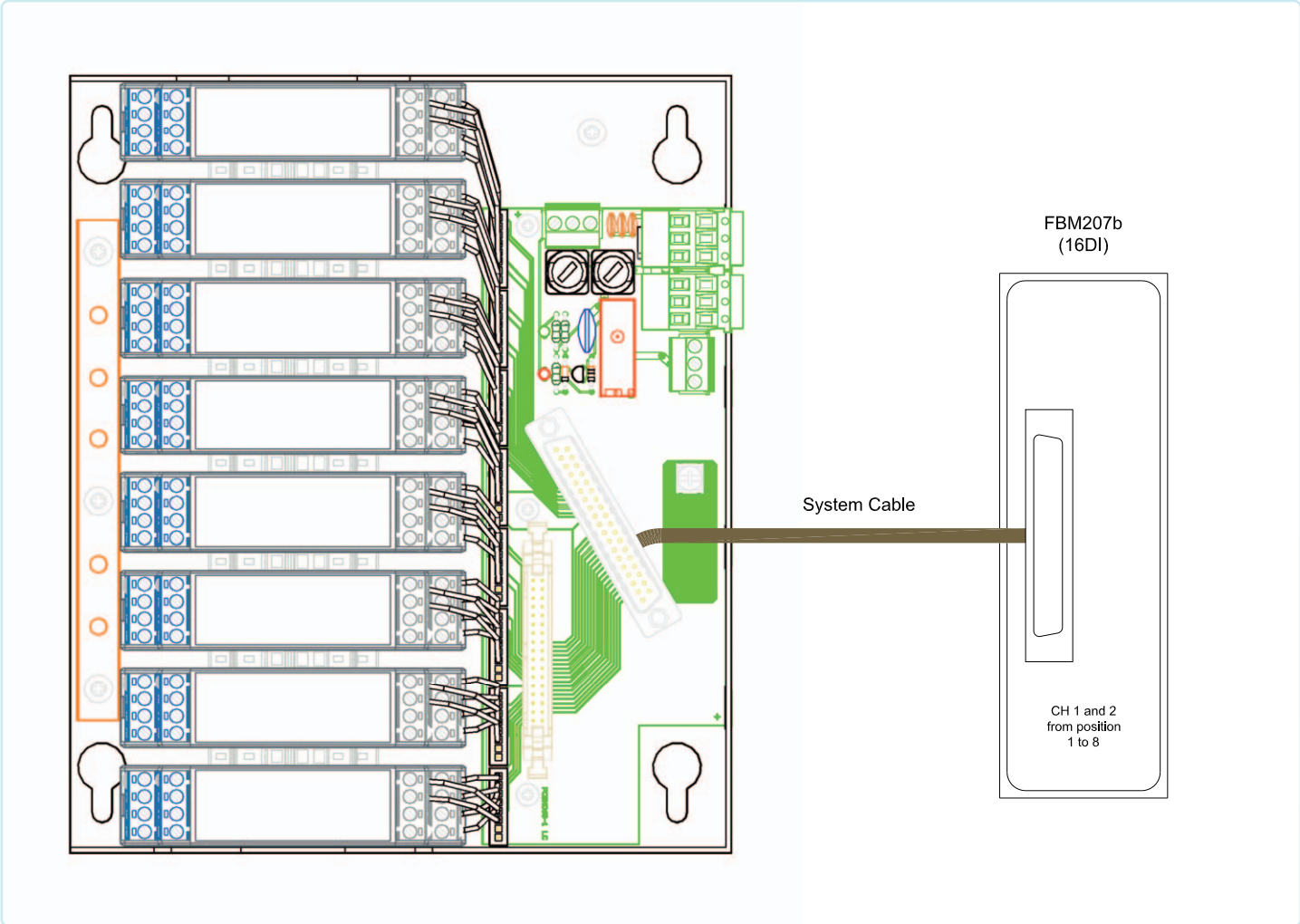
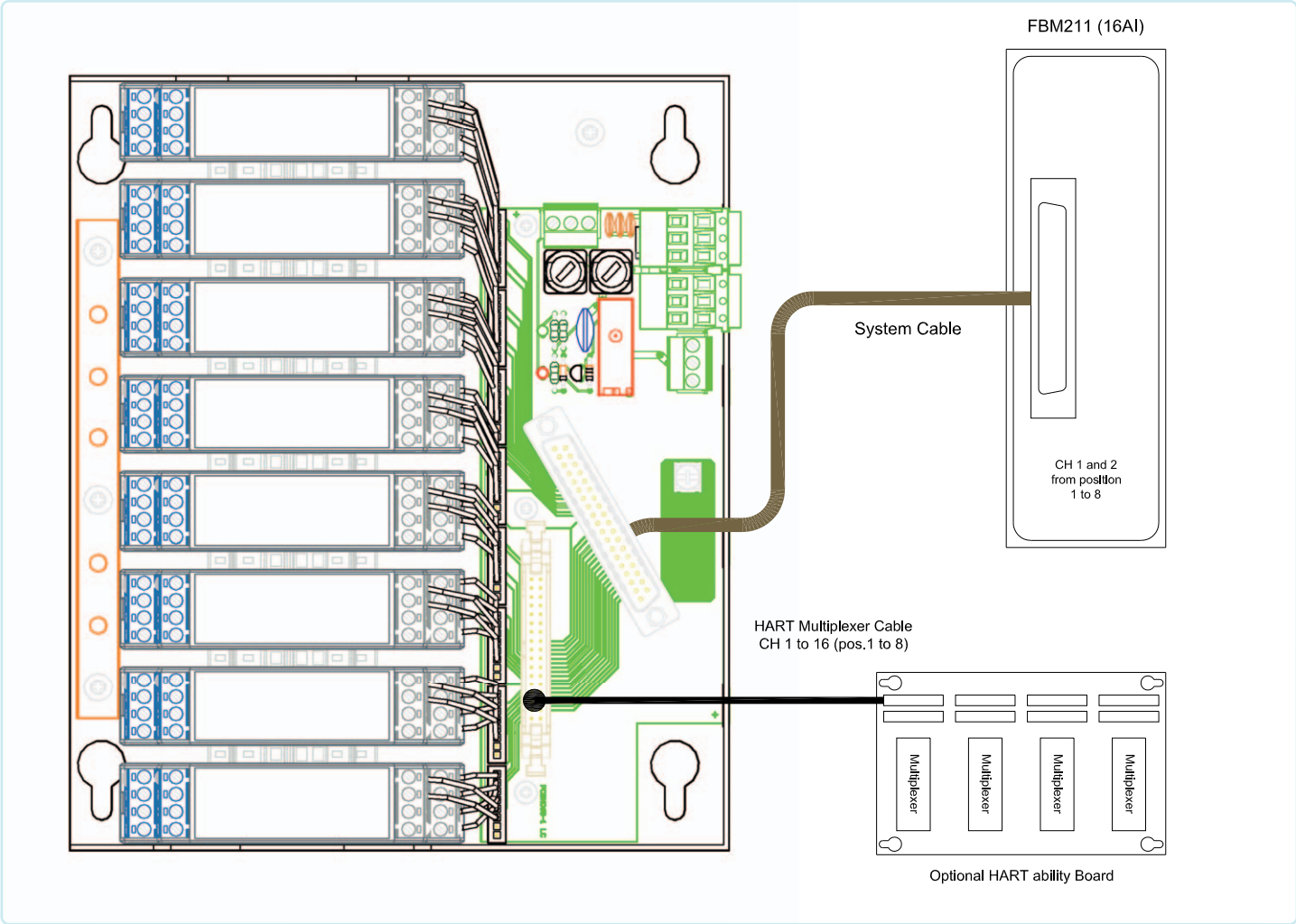
# Loop Diagram for FBM242 (16DO) Interface Card:

HAZARDOUS AREA

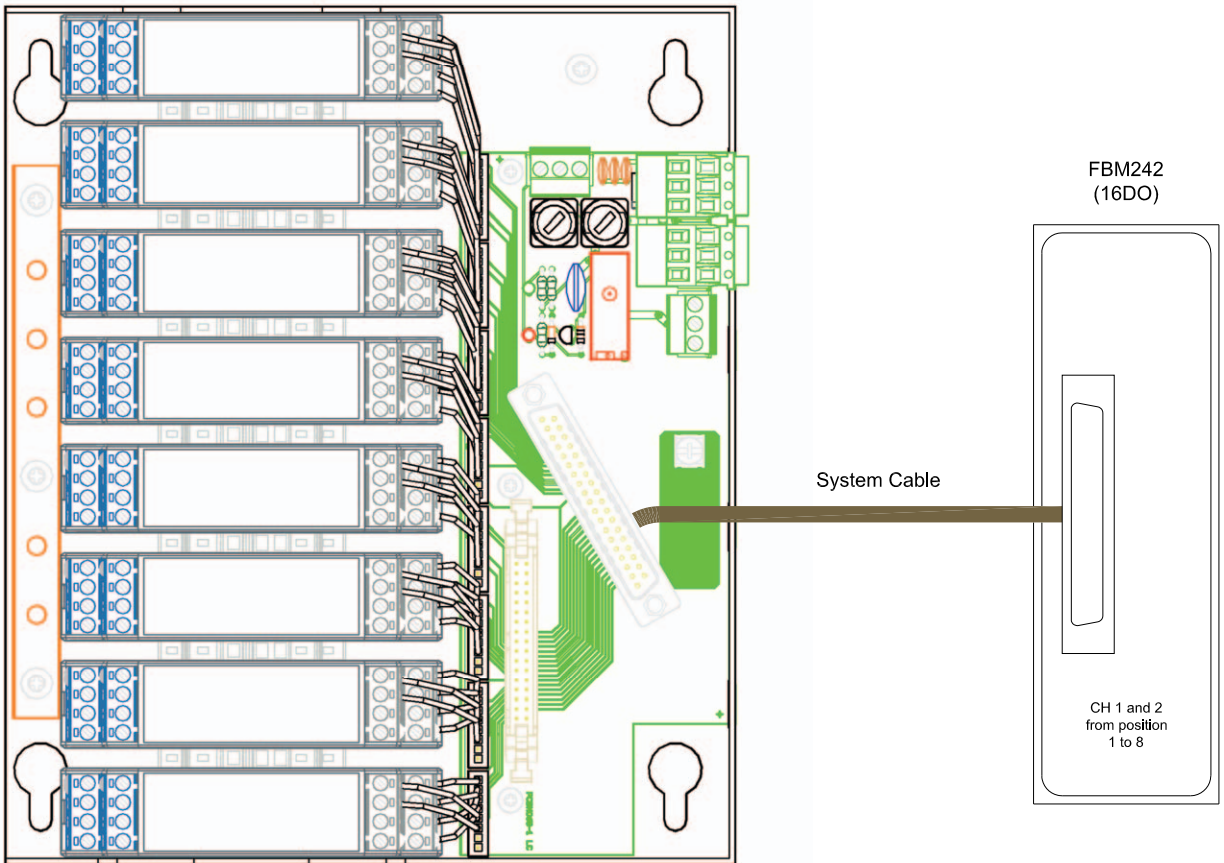
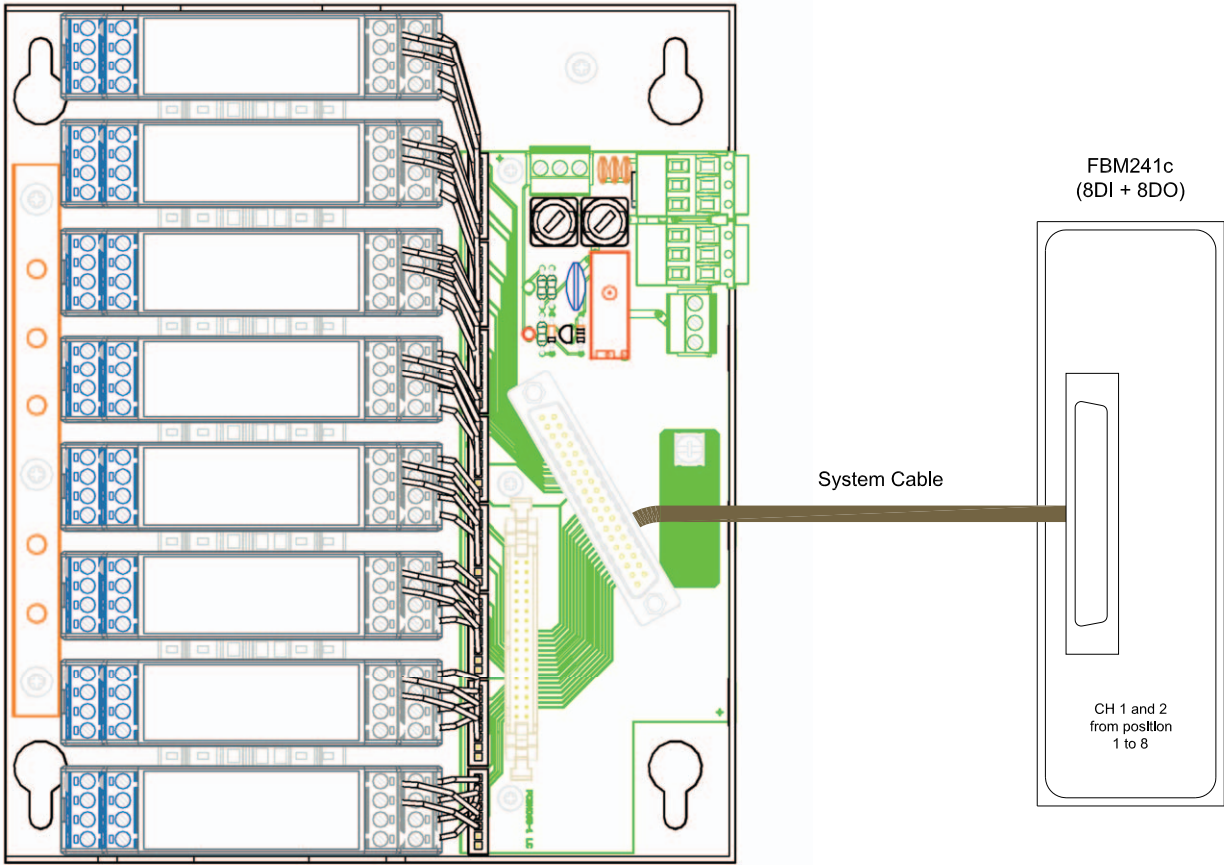
SAFE AREA



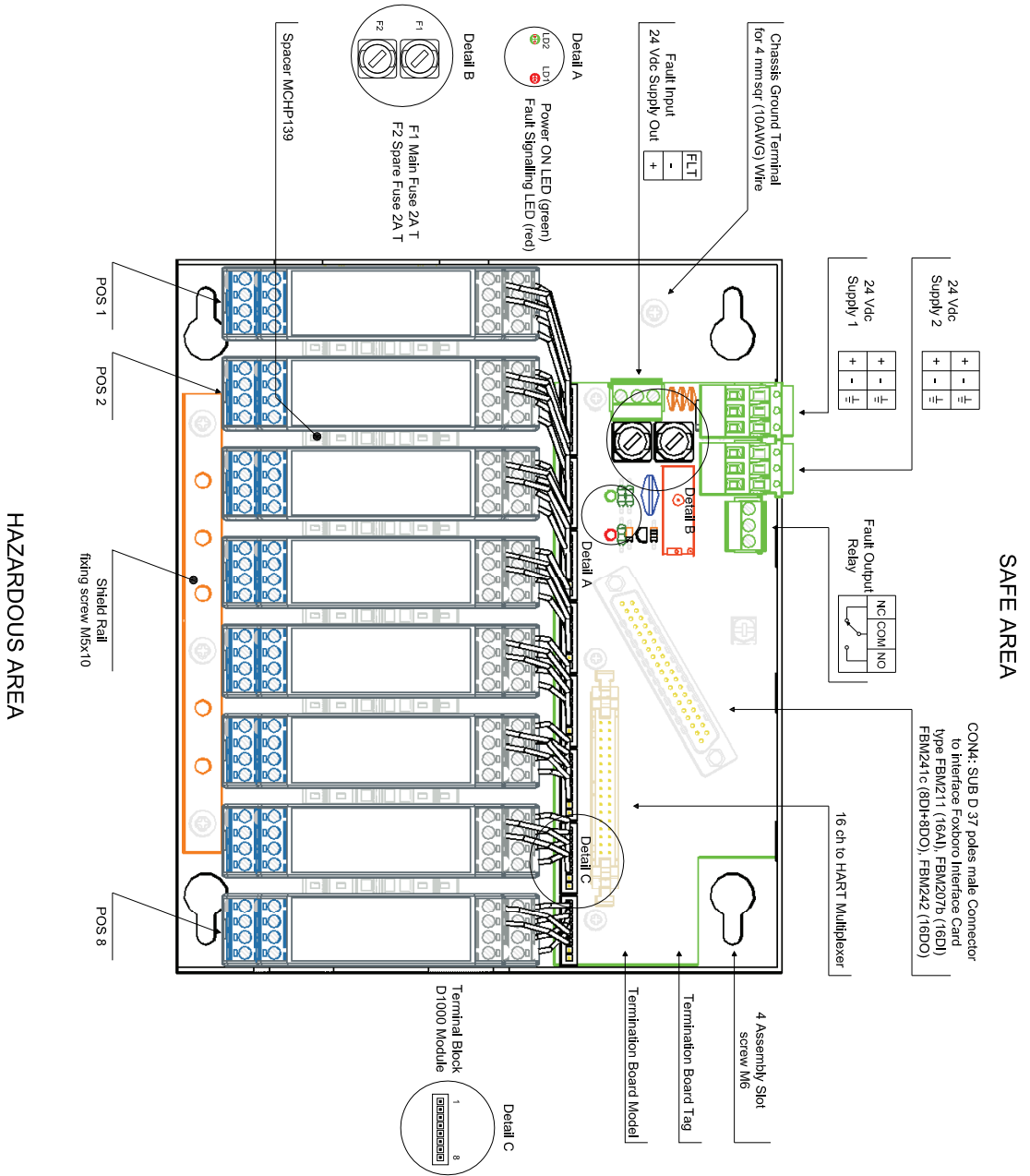
Termination Board Connection Diagrams for FBM211 (16AI) and FBM207b (16DI) Interface Card:



Termination Board Connection Diagrams for FBM241c (8DI+8DO) and FBM242 (16DO) Interface Card:

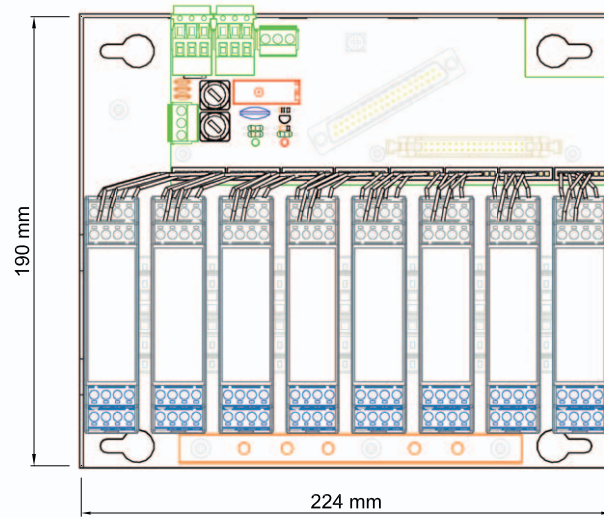


# Termination Board Description:

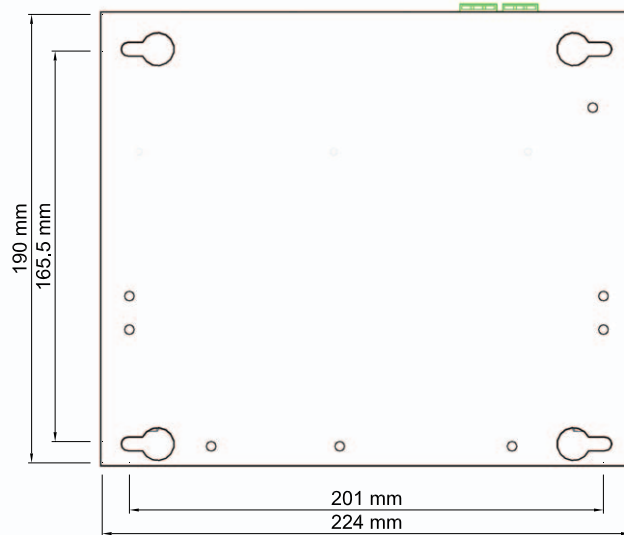


## Dimensions:

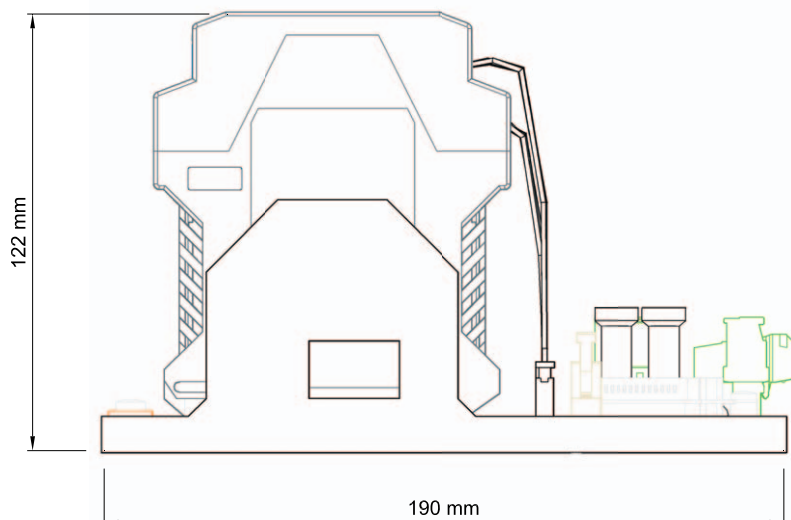
### Top-view






### Bottom-view



### Side-view




**Connections table to FBM211 (16AI) Interface Card:**

FIELD DEVICE	MODULE TYPE	MODULE TERMINAL BLOCK	TERMINATION BOARD CONNECTOR PIN NUMBER	MODULE FUNCTION	MODULE POSITION	INTERFACE CARD CHANNEL NUMBER	INTERFACE CARD CONNECTOR PIN NUMBER	INTERFACE CARD REDUNDANT CONNECTOR PIN NAME	NOTE
  	D1010D	1	1	4-20 mA OUT	1	1	18		
		2	2				36		
		5	5				17		
		6	6				35		
		1	1				16		
		2	2				34		
	D1014D	5	5	4-20 mA OUT	2	3	15		
		6	6				33		
		1	1				14		
		2	2				32		
		5	5				13		
		6	6				31		
	D1052D	1	1	4-20 mA OUT	3	5	12		
		2	2				30		
		5	5				11		
		6	6				29		
		1	1				10		
		2	2				28		
	D1072D	5	5	4-20 mA OUT	5	9	9		
		6	6				27		
		1	1				8		
		2	2				26		
		5	5				7		
		6	6				25		
D1072D	1	1	4-20 mA OUT	6	11	6			
	2	2				24			
	5	5				5			
	6	6				23			
	1	1				4			
	2	2				22			
D1072D	5	5	4-20 mA OUT	7	13	3			
	6	6				21			
	1	1				4			
	2	2				22			
	5	5				3			
	6	6				21			



- Interface Card Connector CON4: SUB D 37 poles male
- Shield terminal block provided on pin number 1
- Hart ability when used with D1010D or D1014D modules

**Connections table to FBM207b (16DI) Interface Card:**

FIELD DEVICE	MODULE TYPE	MODULE TERMINAL BLOCK	TERMINATION BOARD CONNECTOR PIN NUMBER	MODULE FUNCTION	MODULE POSITION	INTERFACE CARD CHANNEL NUMBER	INTERFACE CARD CONNECTOR PIN NUMBER	INTERFACE CARD REDUNDANT CONNECTOR PIN NAME	NOTE
	D1030D D1032D	1	1	Digital Input	1	1	18		
		2	2				36		
		5	5				17		
		6	6				35		
		1	1	Digital Input	2	3	16		
		2	2				34		
		5	5				15		
		6	6				33		
		1	1	Digital Input	3	5	14		
		2	2				32		
		5	5				13		
		6	6				31		
		1	1	Digital Input	4	7	12		
		2	2				30		
		5	5				11		
		6	6				29		
		1	1	Digital Input	5	9	10		
		2	2				28		
		5	5				9		
		6	6				27		
		1	1	Digital Input	6	11	8		
		2	2				26		
		5	5				7		
		6	6				25		
1	1	Digital Input	7	13	6				
2	2				24				
5	5				5				
6	6				23				
1	1	Digital Input	8	15	4				
2	2				22				
5	5				3				
6	6				21				


- Interface Card Connector CON4: SUB D 37 poles male
- Shield terminal block provided on pin number 1

**Connections table to FBM241c (8DI + 8DO) Interface Card:**

FIELD DEVICE	MODULE TYPE	MODULE TERMINAL BLOCK	TERMINATION BOARD CONNECTOR PIN NUMBER	MODULE FUNCTION	MODULE POSITION	INTERFACE CARD CHANNEL NUMBER	INTERFACE CARD CONNECTOR PIN NUMBER	INTERFACE CARD REDUNDANT CONNECTOR PIN NAME	NOTE
  	D1030D	1	1	Digital Input	1	1	18		
		2	2				36		
		5	5				17		
		6	6				35		
		1	1	Digital Input	2	3	16		
		2	2				34		
		5	5				15		
		6	6				33		
		1	1	Digital Input	3	5	14		
		2	2				32		
		5	5				13		
		6	6				31		
	1	1	Digital Input	4	7	12			
	2	2				30			
	5	5				11			
	6	6				29			
	1	1	Digital Output	5	9	10			
	2	2				28			
	5	5				9			
	6	6				27			
	1	1	Digital Output	6	11	8			
	2	2				26			
	5	5				7			
	6	6				25			
1	1	Digital Output	7	13	6				
2	2				24				
5	5				5				
6	6				23				
1	1	Digital Output	8	15	4				
2	2				22				
5	5				3				
6	6				21				

- Interface Card Connector CON4: SUB D 37 poles male
- Shield terminal block provided on pin number 1

**Connections table to FBM242 (16DO) Interface Card:**

FIELD DEVICE	MODULE TYPE	MODULE TERMINAL BLOCK	TERMINATION BOARD CONNECTOR PIN NUMBER	MODULE FUNCTION	MODULE POSITION	INTERFACE CARD CHANNEL NUMBER	INTERFACE CARD CONNECTOR PIN NUMBER	INTERFACE CARD REDUNDANT CONNECTOR PIN NAME	NOTE
	D1049D	1	1	Digital Output	1	1	18		
		2	2				36		
		5	5	Digital Output	1	2	17		
		6	6				35		
		1	1	Digital Output	2	3	16		
		2	2				34		
		5	5	Digital Output	2	4	15		
		6	6				33		
		1	1	Digital Output	3	5	14		
		2	2				32		
		5	5	Digital Output	3	6	13		
		6	6				31		
		1	1	Digital Output	4	7	12		
		2	2				30		
		5	5	Digital Output	4	8	11		
		6	6				29		
		1	1	Digital Output	5	9	10		
		2	2				28		
		5	5	Digital Output	5	10	9		
		6	6				27		
		1	1	Digital Output	6	11	8		
		2	2				26		
		5	5	Digital Output	6	12	7		
		6	6				25		
1	1	Digital Output	7	13	6				
2	2				24				
5	5	Digital Output	7	14	5				
6	6				23				
1	1	Digital Output	8	15	4				
2	2				22				
5	5	Digital Output	8	16	3				
6	6				21				

- Interface Card Connector CON4: SUB D 37 poles male
- Shield terminal block provided on pin number 1