Honeywell

EXPERION PKS

Series C I/O User's Guide

EPDOC-X126-en-A

November 2019

The Series C Digital Output 24V IOTA board is represented by the following information and graphics.

To access the parts information for the:

- module
- IOTA
- terminal plug-in assembly, and
- fuses

associated with this board and module, refer to Digital Output 24V in the Recommended Spare Parts section.

- Field wiring and module protection - Digital Output 24V module (CC-TDOB01, CC-TDOB11)
- IOTA board and connections - Digital Output 24V module (CC-TDOB01, CC-TDOB11)

5.12.1 Field wiring and module protection - Digital Output 24V module (CC-TDOB01, CC-TDOB11)

The Digital Output 24Volt Module provides a unique and highly functional output power protection method. When a short occurs in the field, the following occurs:

- the output circuits sense the over-current condition and shut down the output
- the shut down of the point places the mode of the point into Manual
- an Over-current Soft Failure is generated

This failure is maintained until the short circuit condition is repaired and the point is again supplying the proper current.

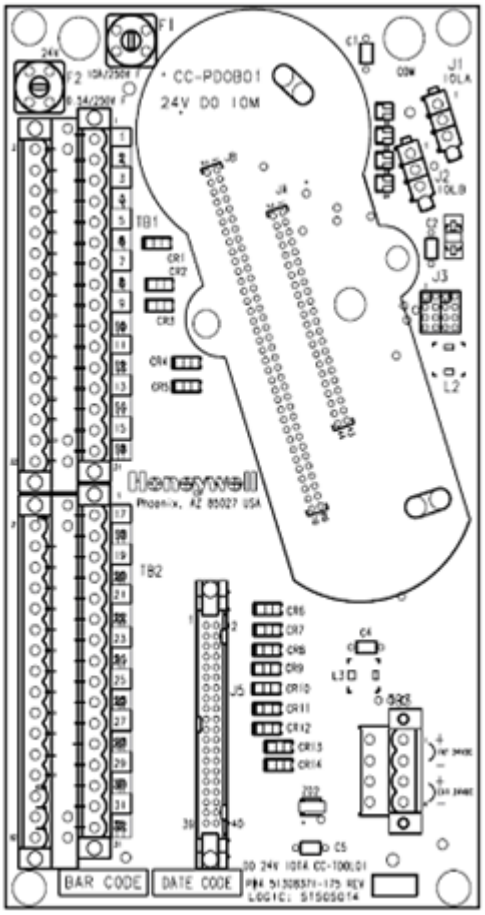
Only one channel is affected at a time. If multiple channels are affected, they are individually shut down. Any channels that do not have a short circuit condition are unaffected.

- Thermal protection alarm if short in field of > 0.5A.

5.12.2 IOTA board and connections - Digital Output 24V module (CC-TDOB01, CC-TDOB11)

Series C 24V Digital Output 9 inch, non-redundant IOTA is displayed.

Figure 5.43 Series C 24V Digital Output 9 inch, non-redundant IOTA



To properly wire your module to the Series C 24V Digital Output IOTA board with terminal blocks 1 (TB1) and 2 (TB2), use the following table.

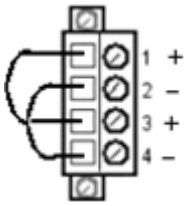
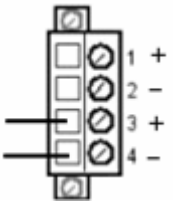
Table 5.32 24V DO 9 inch, non-redundant - terminal block 1

Terminal block 1 Channel	Return screw	Power screw
Channel 1	2	1
Channel 2	4	3
Channel 3	6	5
Channel 4	8	7
Channel 5	10	9
Channel 6	12	11
Channel 7	14	13
Channel 8	16	15
Channel 9	18	17
Channel 10	20	19
Channel 11	22	21
Channel 12	24	23
Channel 13	26	25
Channel 14	28	27
Channel 15	30	29
Channel 16	32	31

Table 5.33 24V DO 9 inch, non-redundant - terminal block 2

Terminal block 2		
Channel	Return screw	Power screw
Channel 17	2	1
Channel 18	4	3
Channel 19	6	5
Channel 20	8	7
Channel 21	10	9
Channel 22	12	11
Channel 23	14	13
Channel 24	16	15
Channel 25	18	17
Channel 26	20	19
Channel 27	22	21
Channel 28	24	23
Channel 29	26	25
Channel 30	28	27
Channel 31	29	28
Channel 32	32	31

Table 5.34 24V DO 9 inch, non-redundant - terminal block 3

Terminal block 3	
Internal	Used with Honeywell's provided 24v power supply
Screw 1 - internal 24V	
Screw 2 - internal return	
Screw 3 - external 24V	
Screw 4 - external return	
External	Used with customer's provided 24v power supply
Screw 1 - internal 24V	
Screw 2 - internal return	
Screw 3 - external 24V	
Screw 4 - external return	

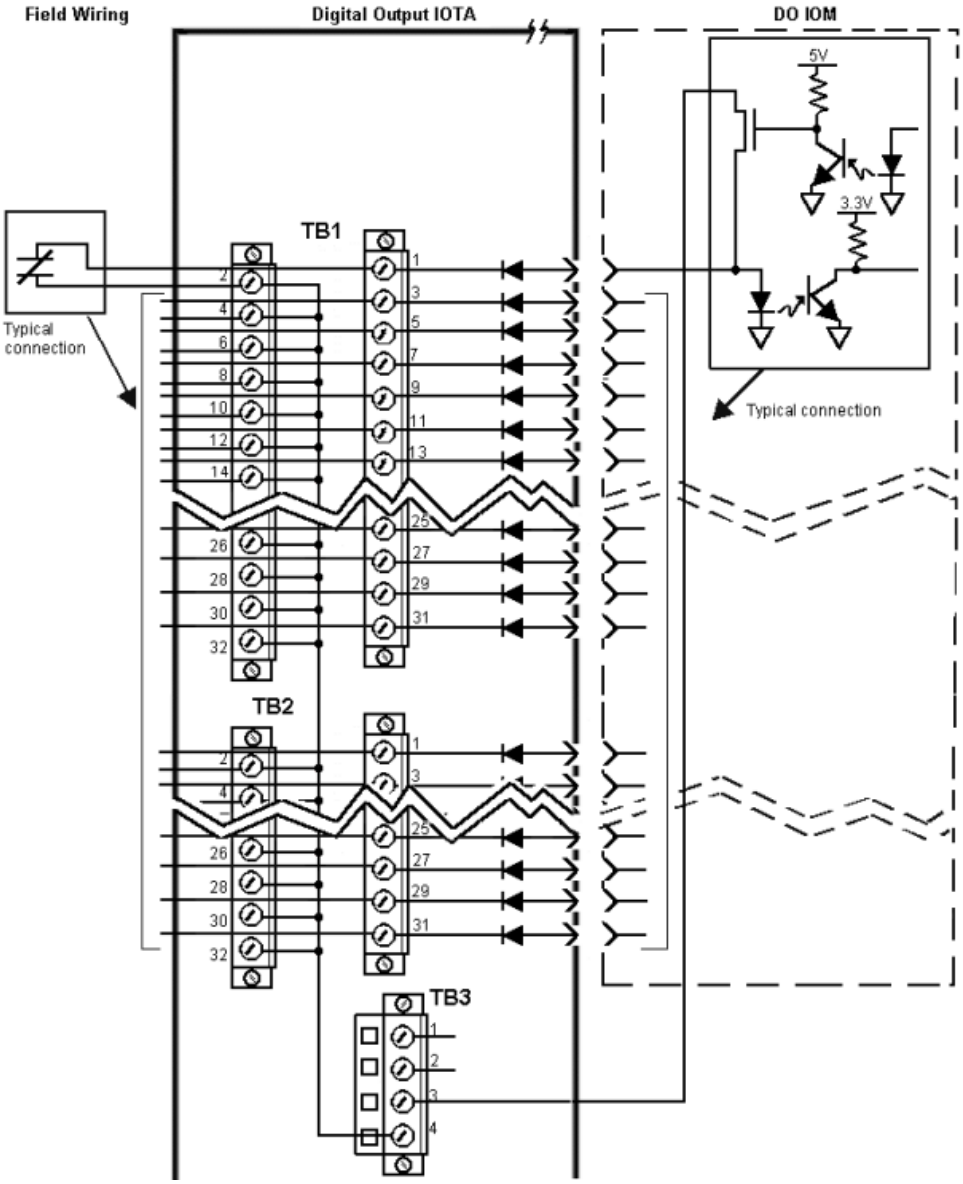
CAUTION

When wiring the Digital Output 24V ensure that the

external power is not reversed or the IOM will be damaged.

Series C 24V Digital Output 9 inch, non-redundant IOTA and field wiring connection is displayed

Figure 5.44 Series C 24V Digital Output 9 inch, non-redundant IOTA and field wiring connections



Series C 24V Digital Output 12 inch, redundant IOTA is displayed

presence of wiring faults) causes a DO channel that draws more current than is permitted, to activate the IOM hardware's electronic short-circuit protection mechanism causing that channel to go unpowered. The feature applies to these specific model numbers:

- CC-PDOB01 Digital Output IO Module (IOM) (32 channels at 24V)
- CC-TDOB01 DO IOTA (32 channels at 24V)
- CC-TDOB11 DO IOTA Redundant (32 channels at 24V)

> **ATTENTION**
> Output short circuit detection is not supported if channel is configured for pulse output type

- CC-PUIO01 32 channels UIO module
- CC-PUIO31 32 channels UIO-2 module

- Non-redundant Configuration
- Redundant Configuration
- Electronic Short-Circuit Fault Recovery
- To clear the short-circuit fault:

10.16.1 Non-redundant Configuration

When the electronic short-circuit protection mechanism activates and the channel goes unpowered the non-redundant IOM:

- detects the output inconsistency and generates Soft Failure 23 - Failure in OP circuit/field wiring detected by AO/DO
- detects the over current and generates: Soft Failure 180 - Output Short Circuit Detected
- sets:
    - the output to unpowered
    - Shed Mode to Manual control.
    - Shed ModeAttr to Operator.

You should expect to see:

- Two Soft Failures
    - Soft Failure 23 - Failure in OP circuit/field wiring detected by AO/DO
    - Soft Failure 180 - Output Short Circuit Detected
- The output unpowered
- The channel in Manual mode

10.16.2 Redundant Configuration

The firmware in a Primary IOM of a redundant pair notices the output miscompare and signals the Secondary IOM to assume the role of the Primary IOM (assuming the Secondary is synced).

Part name		Part number	Description
DI-24V Non-Redundant. IOTA		CC- TDIL0 51308371-175	24V Digital Input, non-redundant, coated
		Cx-TDIL51 51306969-175	24V Digital Input, non-redundant, coated
DI-24V Redundant. IOTA		CC- TDIL11 51308373-175	24V Digital Input, redundant, coated
		Cx-TDIL61 51306967-175	24V Digital Input, redundant, coated
Terminal plug-in assembly			
16-terminal plug-in assembly		51506273-216	2 per non-redundant IOTA 2 per redundant IOTA
4-terminal plug-in assembly		51506269-204	1 per non-redundant IOTA 1 per redundant IOTA
Fuses			
Description	*Part number*	*Quantity*	*Reference designator* / *Function*
Fuse 0.5A Fast acting 5x20mm	51190582-150	3 per non-red. IOTA	F1: Fuse for field power if system power is connected through TB3, in series with F3 F2: Top IOM kernel F3: Fuse for field power if external power is connected through TB3
		4 per red. IOTA	F1: Fuse for field power if system power is connected through TB3, in series with F4 F2: Top IOM kernel F3: Bottom IOM kernel F4: Fuse for field power if external power is connected through TB3
DIGITAL OUTPUT 24V			
Series C DO IOM		CC--PDOB01	Series C Digital Output Module
		CC-PDOD51	Series C Digital Output Module
IOTA			
24V DO Non-Redundant IOTA		CC--TDOB01 51308371-175	24V Digital Output, bussed, non-redundant
		Cx-TDOD51 51306975-175	24V Digital Output, bussed, non-redundant
24V DO Redundant IOTA		CC--TDOB11 51308373-175	24V Digital Output, bussed, redundant, coated
		Cx-TDOD61 51306973-175	24V Digital Output, bussed, redundant, coated
Terminal plug-in assemblies			
16-terminal plug-in assembly		51506273-216	2 per non-redundant IOTA 2 per redundant IOTA