

DO818 Digital Output Module 24 V, 0.5 A, Current Sinking

Features

- 32 channels for 24 V d.c.
- 2 isolated groups (RIV50V) with 16 channels and one process voltage supervision input in each group.
- The process voltage range is 12-32V dc (nominally 24V dc) and the maximum continuous output current is 0.5A per channel.

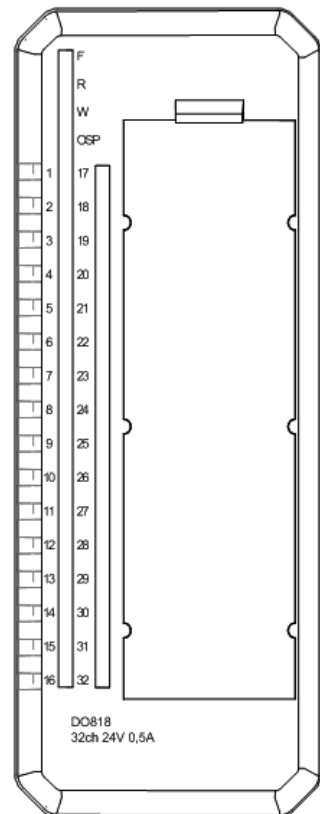
Description

The DO818 is a 32 channel 24 V digital output module for the S800 I/O. This module has 16 digital outputs. The output voltage range is 12 to 32 volt and the maximum continuous output current is 0.5 A.

The outputs are protected against short circuits, over voltage and over temperature. The outputs are divided into two individually isolated groups with 16 output channels and one voltage supervision input in each group.

Each output channel consists of a short circuit and over temperature protected high side driver, EMC protection components, inductive load suppression, output state indication LED and optical isolation barrier. The process voltage supervision input give channel error signals if the voltage disappears. The error signal can be read through the ModuleBus.

The channel-wise high side drivers are short circuit and over temperature protected. The outputs are provided with a current limitation that enters a repetitive switched mode after an initial peak current has been exceeded. The initial peak short circuit current limit is set to $I_{L(SCp)}$ (typ 1.4A). During the repetitive mode short circuit current, the limit is set to $I_{L(SCr)}$ (typ 1.1A). If this operation leads to an overtemperature condition, over 135°C, a second protection level ($T_j > 135^\circ\text{C}$) changes the output into a low duty cycle PWM (selective thermal shutdown with restart) to prevent critical chip temperatures. If base chip temperature reaches a



critical temperature, all 8 outputs are turned off. The output circuitry will shut off if the process power drops below 11V.

The I/O signals are connected to the MTU with the process connector. Three different types of MTUs can be used. The extended MTU (TU830) provides 32 outputs terminals and 16 return terminals. The compact MTU (TU818) provides 1-wire connection to the load. The compact MTU (TU819) has two D-sub 25 pin connectors for interfacing with the process.

Technical Data

Table 85. DO818 Digital Output Module Specifications

Feature	DO818 Digital Output Module
Number of channels	32 (2 x 16)
Type of output	Transistor current sourcing, current limited
Voltage range	12 - 32 V d.c.
Load current, maximum	0.5 A
Short circuit current, maximum	< 2 A
Leakage current, maximum	<30 μ a
Output impedance	<0.32 ohm
Maximum Field Cable Length	600 meters (656 yd.)
Current consumption 5 V (Modulebus)	Typ 70 mA
Power dissipation ⁽¹⁾	2.8 W
Current consumption 24 V (process power supply, UPx)	40mA
Output Set as Predetermined (OSP) timer	256, 512, 1024 ms

Table 85. DO818 Digital Output Module Specifications (Continued)

Feature	DO818 Digital Output Module
Process voltage supervision	2 channels (1 per group) Activated when process power drops below 12V.
Isolation	Groupwise isolated from ground
Mounting termination units	TU830, TU818, TU819
MTU keying code	EA
Rated insulation voltage	50 V
Dielectric test voltage	500 V a.c.

(1) Power dissipation is calculated with 70 percent of the channels activated.

Block Diagram DO818

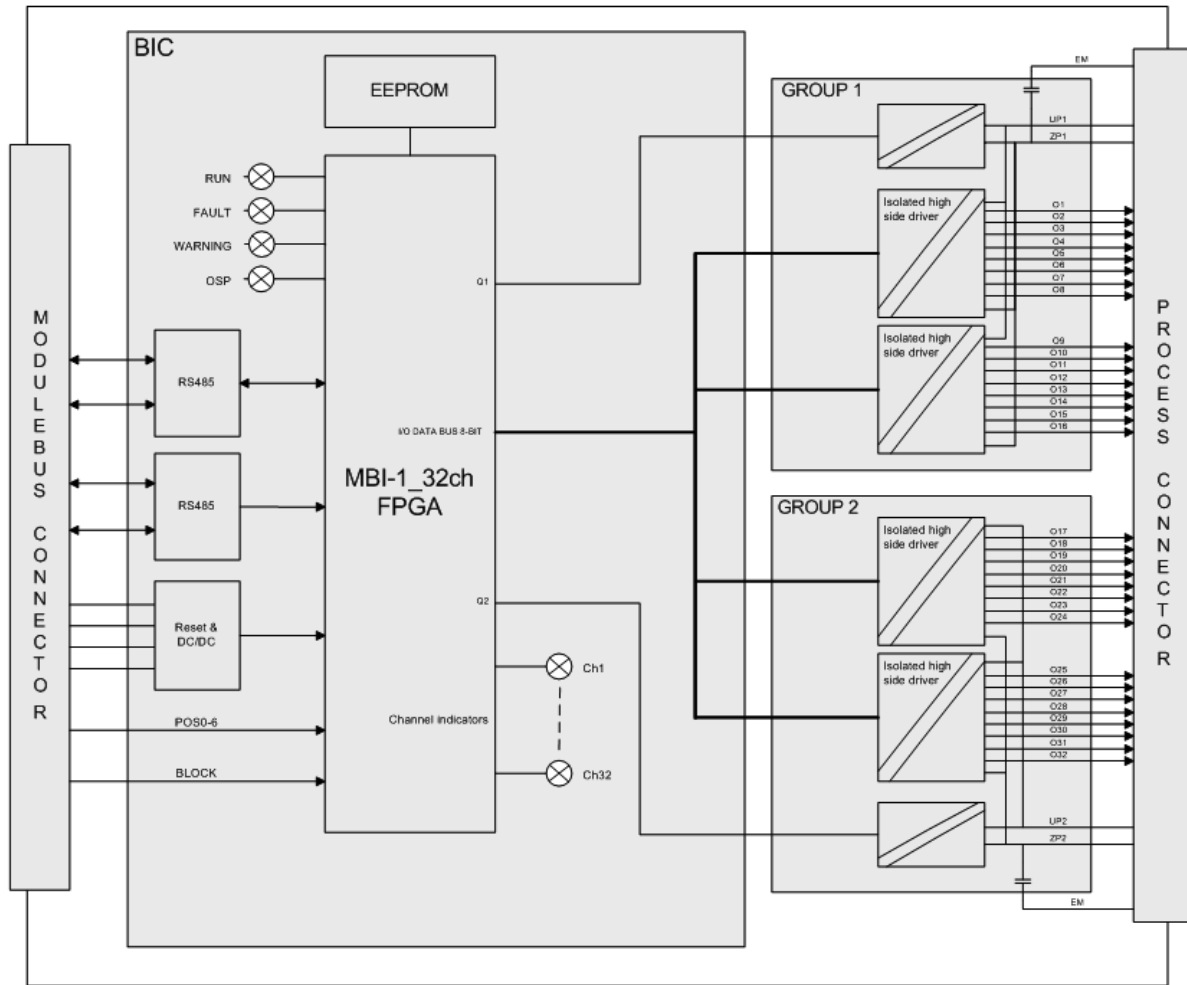


Figure 165. DO818 Block Diagram

Process Connections

Table 86. DO818 Process Connections

Process Connection	TU830	TU818	TU819
24 V dc	L1 + (2)	L2 + (2)	1, 14, 11, 24 (X1a)
0 V dc	L1 - (2)	L1- (2)	2, 15, 12, 25 (X1a)
Ch 1 Output	C1	D1	3 (X1a)
Ch 2 Output	B1	C1	16 (X1a)
Ch 1/Ch 2, L1 -	A1	-	-
Ch 3 Output	C2	B1	4 (X1a)
Ch 4 Output	B2	A1	17 (X1a)
Ch 3/Ch 4, L1 -	A2	-	-
Ch 5 Output	C3	D2	5 (X1a)
Ch 6 Output	B3	C2	18 (X1a)
Ch 5/Ch 6, L1 -	A3	-	-
Ch 7 Output	C4	B2	6 (X1a)
Ch 8 Output	B4	A2	19 (X1a)
Ch 7/Ch 8, L1 -	A4	-	-
Ch 9 Output	C5	D3	7 (X1a)
Ch 10 Output	B5	C3	20 (X1a)
Ch 9/Ch 10, L1 -	A5	-	-
Ch 11 Output	C6	B3	8 (X1a)
Ch 12 Output	B6	A3	21 (X1a)
Ch 11/Ch 12, L1 -	A6	-	-

Table 86. DO818 Process Connections (Continued)

Process Connection	TU830	TU818	TU819
Ch 13 Output	C7	D4	9 (X1a)
Ch 14 Output	B7	C4	22 (X1a)
Ch 13/Ch 14, L1 -	A7	-	-
Ch 15 Output	C8	B4	10 (X1a)
Ch 16 Output	B8	A4	23 (X1a)
Ch 15/Ch 16, L1 -	A8	-	-
Ch 17 Output	C9	D5	3 (X1b)
Ch 18 Output	B9	C5	16 (X1b)
Ch 17/Ch 18, L2 -	A9	-	-
Ch 19 Output	C10	B5	4 (X1b)
Ch 20 Output	B10	A5	17 (X1b)
Ch 19/Ch 20, L2 -	A10	-	-
Ch 21 Output	C11	D6	5 (X1b)
Ch 22 Output	B11	C6	18 (X1b)
Ch 21/Ch 22, L2 -	A11	-	-
Ch 23 Output	C12	B6	6 (X1b)
Ch 24 Output	B12	A6	19 (X1b)
Ch 23/Ch 24, L2 -	A12	-	-
Ch 25 Output	C13	D7	7 (X1b)
Ch 26 Output	B13	C7	20 (X1b)
Ch 25/Ch 26, L2 -	A13	-	-
Ch 27 Output	C14	B7	8 (X1b)

Table 86. DO818 Process Connections (Continued)

Process Connection	TU830	TU818	TU819
Ch 28 Output	B14	A7	21 (X1b)
Ch 27/Ch 28, L2 -	A14	-	-
Ch 29 Output	C15	D8	9 (X1b)
Ch 30 Output	B15	C8	22 (X1b)
Ch 29/Ch 30, L2 -	A15	-	-
Ch 31 Output	C16	B8	10 (X1b)
Ch 32 Output	B16	A8	23 (X1b)
Ch 31/Ch 32, L2 -	A16	-	-
+24 V d.c.	L2+ (2)	L2+ (2)	1, 14, 11, 24 (X1b)
0 V d.c.	L2- (2)	L2- (2)	2, 15, 12, 25 (X1b)

Figure 166 shows the Field connection example with TU830 Extended Module Termination Unit.

* FUSE max 6,3A due to limitation in UL standards.

Figure 167 shows Field connection example with TU818 Compact Module Termination Unit.

Figure 168 shows Field connection example with TU819 Compact Module Termination Unit.

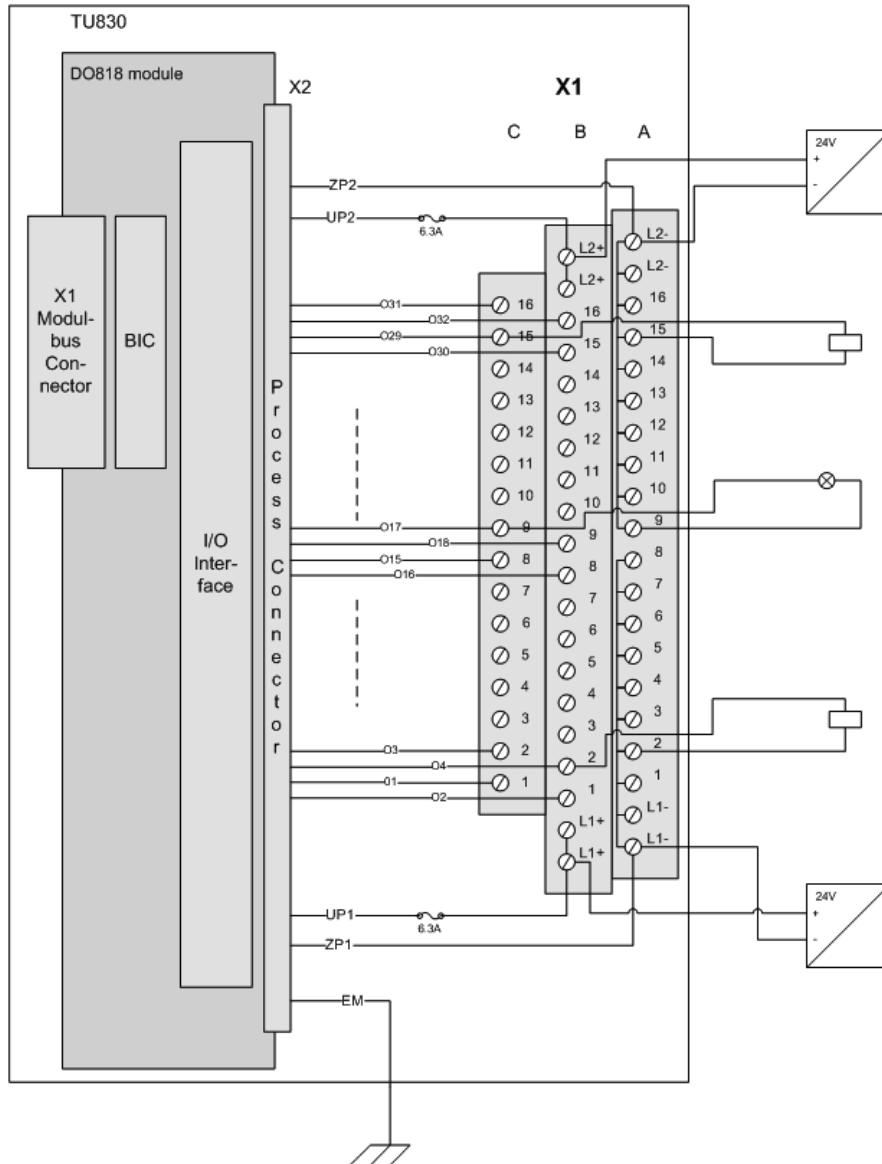


Figure 166. Field connection example with TU830 Extended Module Termination Unit

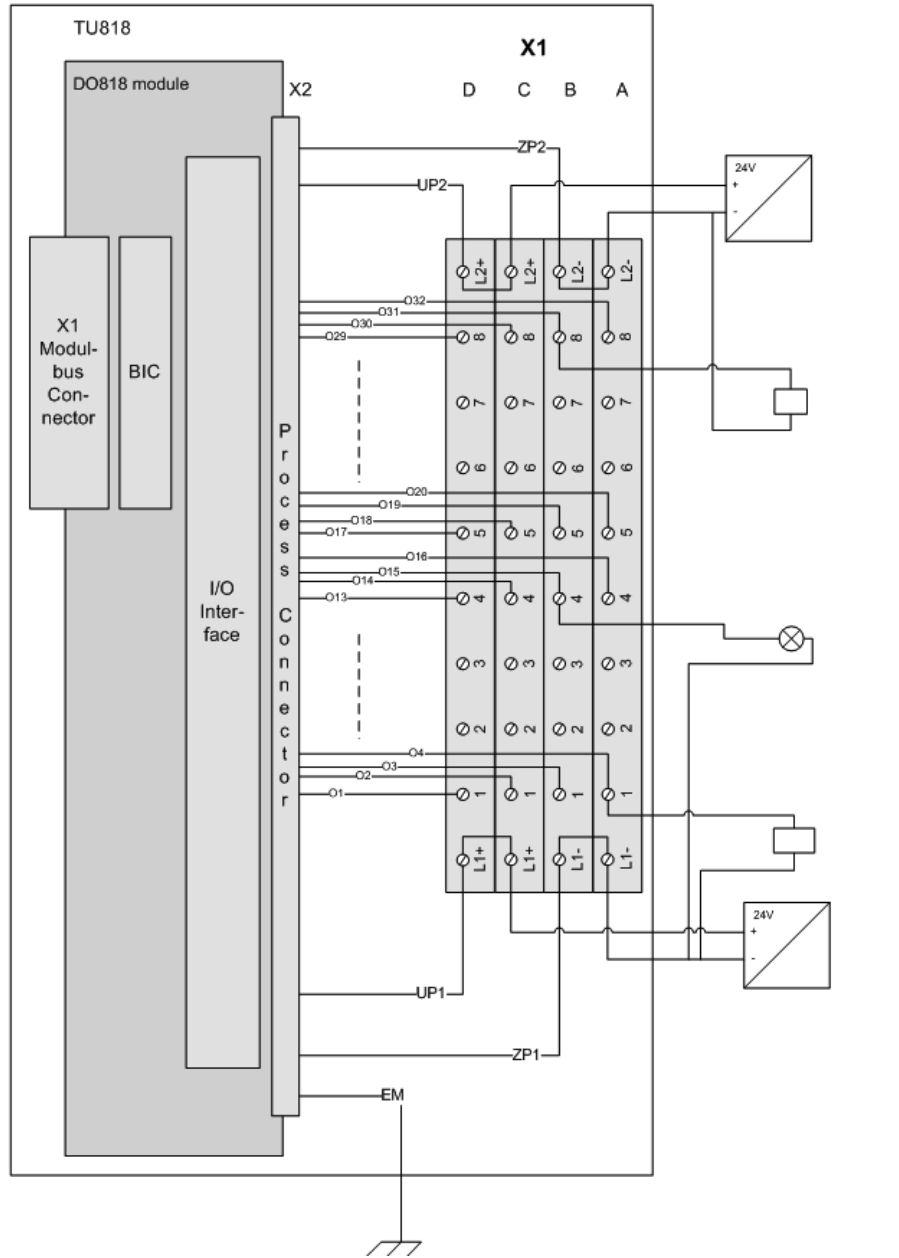


Figure 167. Field connection example with TU818 Compact Module Termination Unit