



## 10201/2/1

## Fail-safe digital output module (24 Vdc, 0.55 A, 8 channels)

### Description

The fail-safe digital output module 10201/2/1 has eight 24 Vdc, 550 mA output channels to drive loads up to 13 W.

These loads may be resistive (e.g. lamps) or inductive (e.g. solenoids). For inductive loads, a suppression diode is included on each output. The outputs, including the suppression diodes, are fully tested and may therefore be used for fail-safe applications.

Within the configured process safety time, the outputs are tested for:

- ability to de-energize,
- ability to de-energize the group (via secondary means),
- crosstalk between outputs, and
- functioning of the suppression diodes.

The outputs are split into two groups of four outputs each. Each group has its own secondary means of de-energization. This increases the shutdown selectivity in case of a channel failure.

The secondary means of de-energization enables the watchdog and/or the processor to de-energize the outputs, irrespective of the result of the application function.

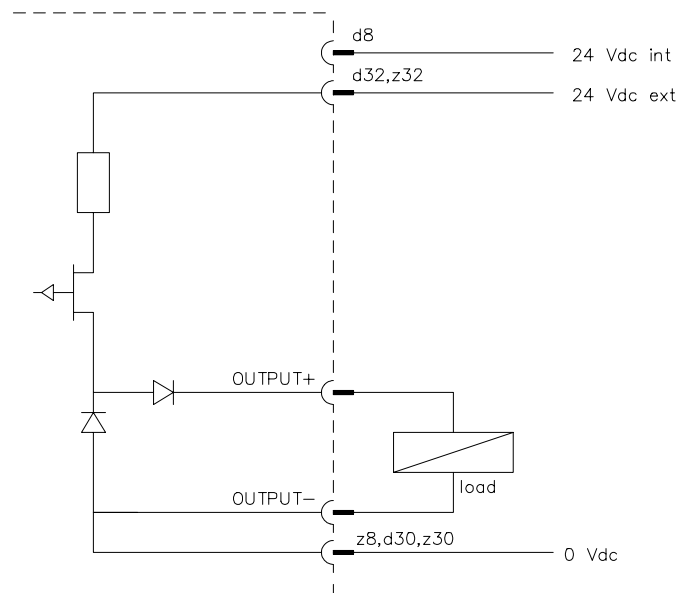
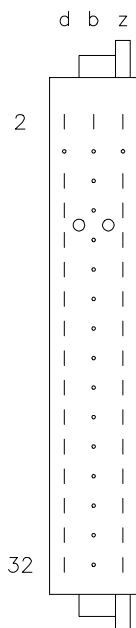


Figure 1 Schematic diagram for connection of one output to the 10201/2/1 module

## Pin allocation

The back view and pin allocation of the 10201/2/1 module connector are as follows:



|     |                    |    |     |     |                    |
|-----|--------------------|----|-----|-----|--------------------|
| d2  | WDG                | b2 | GND | z2  | VCC                |
| d4  | —                  |    |     | z4  | —                  |
| d6  |                    |    |     | z6  |                    |
| d8  | Supply 24 Vdc int. |    |     | z8  | Supply 0 Vdc       |
| d10 | (0 Vdc)            |    |     | z10 | (0 Vdc)            |
| d12 | OUT 1+             |    |     | z12 | OUT 1—             |
| d14 | OUT 2+             |    |     | z14 | OUT 2—             |
| d16 | OUT 3+             |    |     | z16 | OUT 3—             |
| d18 | OUT 4+             |    |     | z18 | OUT 4—             |
| d20 | OUT 5+             |    |     | z20 | OUT 5—             |
| d22 | OUT 6+             |    |     | z22 | OUT 6—             |
| d24 | OUT 7+             |    |     | z24 | OUT 7—             |
| d26 | OUT 8+             |    |     | z26 | OUT 8—             |
| d28 | (0 Vdc)            |    |     | z28 | (0 Vdc)            |
| d30 | Supply 0 Vdc       |    |     | z30 | Supply 0 Vdc       |
| d32 | Supply 24 Vdc ext. |    |     | z32 | Supply 24 Vdc ext. |

## Connection examples

The figures below show a number of connection examples for the fail-safe digital output module 10201/2/1.

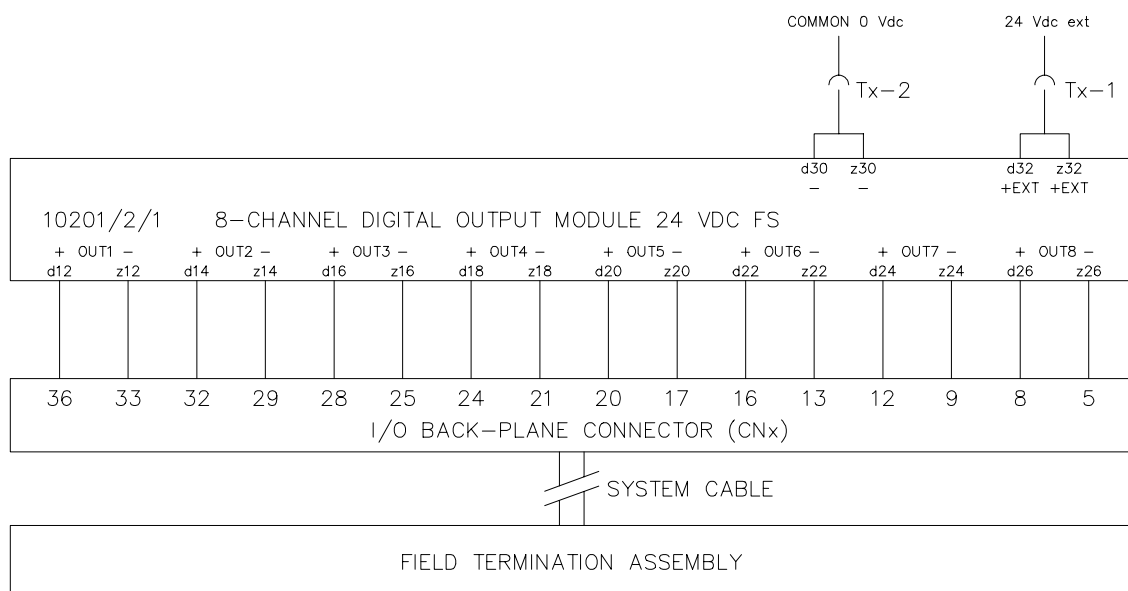


Figure 2 Connection example of 10201/2/1 module to FTA for both non-redundant and redundant I/O configurations

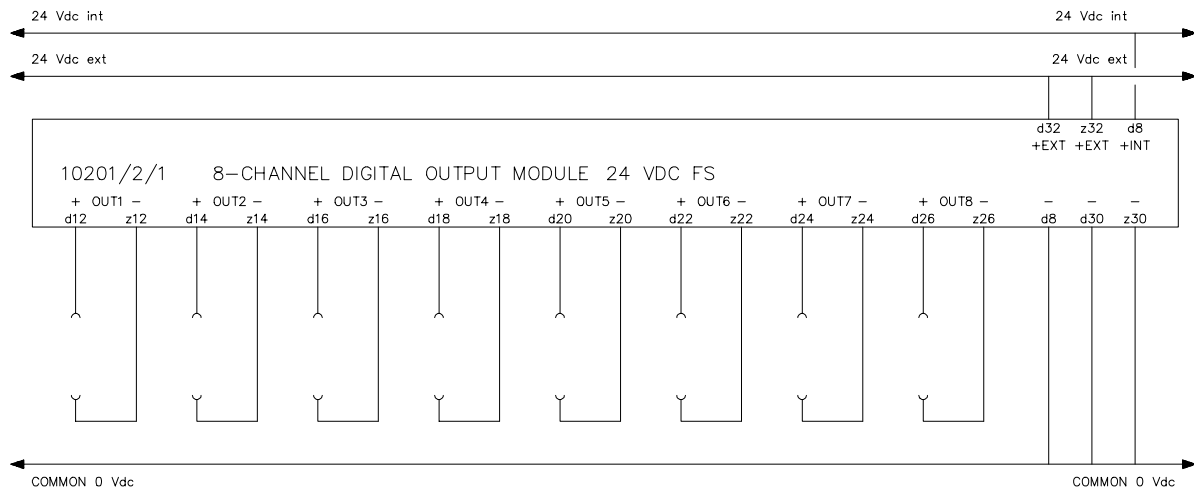


Figure 3 I/O connection example of 10201/2/1 module for non-redundant I/O configurations

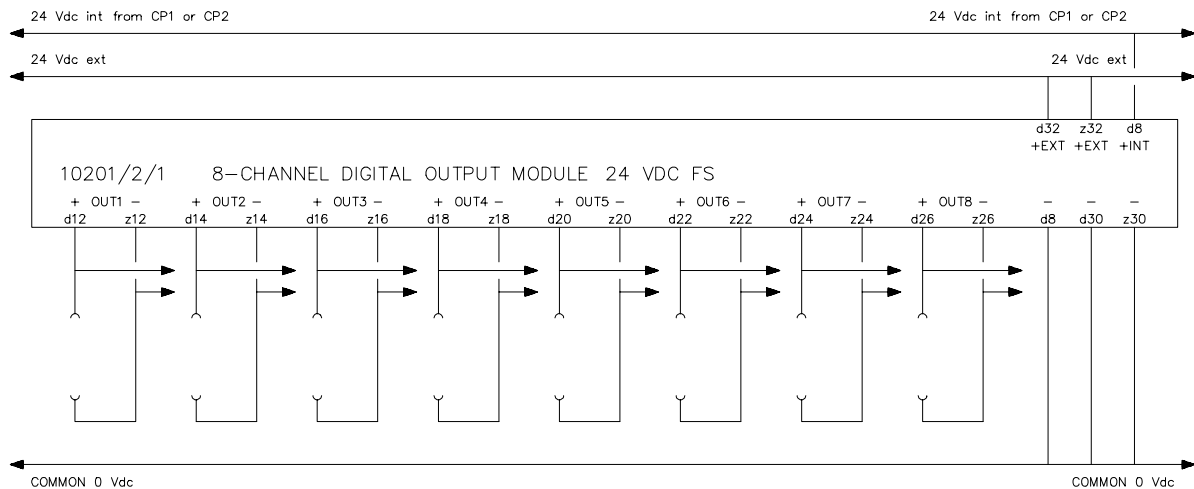


Figure 4 I/O connection example of 10201/2/1 module for redundant I/O configurations

**Note:**

The 24 Vdc internal and external power supplies must be connected to prevent fault detection during the self-test of the output module (pins d8, z8, d30/z30 and d32/z32).

## Technical data

The 10201/2/1 module has the following specifications:

|                   |                               |                                                                                     |
|-------------------|-------------------------------|-------------------------------------------------------------------------------------|
| <b>General</b>    | Type number:                  | 10201/2/1 11501*                                                                    |
|                   | Approvals:                    | CE, TÜV, UL                                                                         |
|                   | Software versions:            | ≥ 3.00                                                                              |
|                   | Space requirements:           | 4 TE, 3 HE (= 4 HP, 3U)                                                             |
| <b>Power</b>      | Power requirements:           | 5 Vdc 25 mA<br>24 Vdc internal 25 mA<br>24 Vdc external 70 mA (without output load) |
|                   |                               |                                                                                     |
|                   |                               |                                                                                     |
|                   |                               |                                                                                     |
| <b>Output</b>     | Number of output channels:    | 8                                                                                   |
|                   | Output specification:         | 24 Vdc solid-state source, short-circuit proof                                      |
|                   | Maximum current:              | 550 mA*<br>(see 'FSC output modules' data sheet)                                    |
|                   | Maximum lamp load:            | 120 mA (2.9 W)*                                                                     |
|                   | Maximum load capacitance:     | 1 µF                                                                                |
|                   | Voltage drop:                 | < 2.0 Vdc at 500 mA*                                                                |
|                   | Off current:                  | < 0.1 mA                                                                            |
|                   | WDG input current:            | 8 mA                                                                                |
| <b>Key coding</b> | (See 'Key coding' data sheet) |                                                                                     |
|                   | Module code:                  |                                                                                     |
|                   | – holes                       | A9, C9                                                                              |
|                   | Rack code:                    |                                                                                     |
|                   | – large pins                  | A9, C9                                                                              |

### \* Note:

10201/2/1 modules with suffix code 11500 have a maximum current of at least 450 mA, a maximum lamp load of 100 mA (2.4 W) and a voltage drop of < 2.0 Vdc at 400 mA..

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