ABB ABB Series Service Manual

DO880

1. Description

The DO880 is a 16 channel 24 V digital output module for single or redundant application. The maximum continuous output current per channel is 0.5 A. The outputs are current limited and protected against over temperature. Each output channel consists of a current limited and over temperature protected high side driver, EMC protection components, inductive load suppression, output state indication LED and an isolation barrier to the Modulebus.

3. Product Information

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Features and benefits

16 channels for 24 V d.c. current sourcing outputs in one isolated group

Redundant or single configuration

Loop monitoring, supervision of short and open load with configurable limits (see table Table 97).

Diagnostic of output switches without pulsing on outputs

Advanced on-board diagnostics

Output status indicators (activated/error)

Degraded mode for normally energized channels (supported from DO880 PR:G)

Current limitation at short circuit and over-temperature protection of switches

Fault tolerance of 1 (as defined in IEC 61508) for output drivers. For ND (Normally De-energized) systems, outputs can still be controlled with error on output drivers

Certified for SIL3 according to IEC 61508

Certified for Category 4 according to EN 954-1.

MTUs that match this product

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TU810V1

General info

Article number 3BSE028602R1

Type Digital Output

Signal specification 24 V d.c. (19.2 - 32 V d.c.), 0.5 A

Number of channels 16

Signal type Current sourcing, current limiting

HART No

SOE No

Redundancy Yes

High integrity Yes

Intrinsic safety No

Mechanics S800

Detailed data

Isolation Groupwise isolated from ground

Current limiting Short circuit proof current limited output

Maximum field cable length 600 meters (656 yards)

Rated insulation voltage 50 V

Dielectric test voltage 500 V a.c.

Power dissipation 5.6 W (0,5 A x 16 channels)

Current consumption +5 V Modulebus 45 mA

Current consumption +24 V Modulebus Max. 50 mA

Current consumption +24 V external 10 mA

Diagnostics

Front LED’s F(ault), R(un), W(arning), Channel 1-16 Status/Error

Supervision Process power per channel

Loop supervision configurable for loop resistance from 50 Ω to 2 kΩ dependent of configuration and mode of operation

Internal circuitry

Status indication of supervision Module Error, Module Warning, Internal channel error

Environment and certification

CE mark Yes

Electrical safety EN 61010-1, UL 61010-1, EN 61010-2-201, UL 61010-2-201

Hazardous Location C1 Div 2 cULus, C1 Zone 2 cULus, ATEX Zone 2

Marine certification ABS, BV, DNV, LR

Temperature, Operating 0 to +55 °C (+32 to +131 °F), approvals are issued for +5 to +55 °C

Temperature, Storage -40 to +70 °C (-40 to +158 °F)

Pollution degree Degree 2, IEC 60664-1

Corrosion protection ISA-S71.04: G3

Relative humidity 5 to 95 %, non-condensing

Max ambient temperature 55 °C (131 °F), for vertical mounting in compact MTU 40 °C (104 °F)

Protection class IP20 according to IEC 60529

Mechanical operating conditions IEC/EN 61131-2

EMC EN 61000-6-4 and EN 61000-6-2

Overvoltage categories IEC/EN 60664-1, EN 50178

Equipment class Class I according to IEC 61140; (earth protected)

RoHS compliance DIRECTIVE/2011/65/EN (EN 50581:2012)

WEEE compliance DIRECTIVE/2012/19/EU

Compatibility

Use with MTU TU810, TU812, TU814, TU830, TU833, TU842, TU843, TU852

Keying code FE

Dimensions

Width 45 mm (1.77”)

Depth 102 mm (4.01”), 111 mm (4.37”) including connector

Height 119 mm (4.7”)

Weight 0.20 kg (0.44 lbs.)