ABB ABB Series Service Manual

DI830

1. Description

The DI830 is a 16 channel 24 V d.c. digital input module for the S800 I/O. The input voltage range is 18 to 30 V d.c. and the input current is 6 mA at 24 V d.c. Each input channel consists of current limiting components, EMC protection components, input state indication LED and optical isolation barrier. The module cyclically performs self-diagnostics. Module diagnostics include:

3. Product Information

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Process power supply supervision (results in a module warning, if detected).

Event queue full.

Time synchronization missing.

The input signals can be digitally filtered. The filter time can be set in the range 0 to 100 ms. This means that pulses shorter than the filter time are filtered out and pulses longer than specified filter time get through the filter.

Features and benefits

16 channels for 24 V d.c. inputs with current sinking

2 isolated groups of 8 channels with voltage supervision

Input status indicators

Sequence of event (SOE) functionality

Shutter filter

MTUs that match this product

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TU810V1

General info

Article number 3BSE013210R1

Type Digital Input

Signal specification 24 V d.c.

Number of channels 16

Signal type Current sinking

HART No

SOE Yes

Redundancy No

High integrity No

Intrinsic safety No

Mechanics S800

Detailed data

Input voltage range, "0" -30..+5 V

Input voltage range, "1" 13..30 V

Input impedance 3.2 kΩ

Isolation Groupwise isolated from ground

Filter times (digital, selectable) 0...100 ms

Current limiting Sensor power can be current limited by the MTU

Maximum field cable length 600 meters (656 yards)

Event recording accuracy -0.3 ms...+0.7 ms

Event recording resolution 0.4 ms

Rated insulation voltage 50 V

Dielectric test voltage 500 V a.c.

Power dissipation Typ. 2.3 W

Current consumption +5 V Modulebus Typ. 100 mA, Max 120 mA

Current consumption +24 V Modulebus 0

Current consumption +24 V external 0

Diagnostics

Front LED’s F(ault), R(un), W(arning), Channel 1-16 ("0" or "1")

Supervision Process voltage, 1 per group ; Event queue full; Time synchronization missing

Status indication of supervision Module Error, Module Warning, 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/EU (EN 50581:2012)

WEEE compliance DIRECTIVE/2012/19/EU

Compatibility

Use with MTU TU810, TU812, TU814, TU818, TU830, TU833, TU838, TU850

Keying code AA

Dimensions

Width 45 mm (1.77”)

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

Height 119 mm (4.7”)

Weight 0.22 kg (0.48 lbs.)