# ABB ABB Series Service Manual

DI821

## 1. Description

The DI821 is a 8 channel, 230 V a.c./d.c, digital input module for the S800 I/O. This module has 8 digital inputs. The ac input voltage range is 164 to 264 V and the input current is 11 mA at 230 V a.c. The d.c. input voltage range is 175 to 275 volt and the input current is 1.6 mA at 220 V d.c. The inputs are individually isolated.

## 3. Product Information

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Every input channel consists of current limiting components, EMC protection components, input state indication LED, optical isolation barrier and an analog filter (6 ms).

Channel 1 can be used as voltage supervision input for channels 2 - 4, and channel 8 can be used as voltage supervision input for channels 5 - 7. If the voltage connected to channel 1 or 8 disappears, the error inputs are activated and the Warning LED turns on. The error signal can be read from the ModuleBus.

Features and benefits

8 channels for 120 V a.c./d.c. inputs

Individually isolated channels

Voltage supervision of field input power

Input status indicators

Signal filtering

MTUs that match this product

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TU811V1

General info

Article number 3BSE008550R1

Type Digital Input

Signal specification 230 V a.c., 220 V d.c.

Number of channels 8

Signal type Current sinking

HART No

SOE No

Redundancy No

High integrity No

Intrinsic safety No

Mechanics S800

Detailed data

Input voltage range, "0" 0..50 V a.c., 0..40 V d.c.

Input voltage range, "1" 164..264 V a.c., 175..275 V d.c.

Input impedance 21 kΩ (a.c.) / 134 kΩ (d.c.)

Isolation Individually isolated channels

Filter times (digital, selectable) 2, 4, 8, 16 ms

Input frequencey range 47..63 Hz

Analog filter On/Off delay 5 / 28 ms

Current limiting Sensor power can be current limited by the MTU

Maximum field cable length 200 meters (219 yards) 100 pF/m for a.c., 600 meters (656 yards) for d.c.

Rated insulation voltage 250 V

Dielectric test voltage 2000 V a.c.

Power dissipation Typ. 2.8 W

Current consumption +5 V Modulebus 50 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 Status

Supervision Process voltage, Channel 1 and 8 can be used per group

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 -

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 TU811, TU813, TU831, TU839, TU851

Keying code AC

Dimensions

Width 45 mm (1.77”)

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

Height 119 mm (4.7”)

Weight 0.18 kg (0.4 lbs.)