ABB ABB Series Service Manual

DP840

1. Description

The DP840 module consists of 8 identical independent channels. Each channel can be used for pulse count or frequency (speed) measurement, maximum 20 kHz. The inputs can also be read as DI signals. Each channel has a configurable input filter. The module perform self-diagnostics cyclically. With advanced diagnostics, for single or redundant applications. Interface for NAMUR, 12 V and 24 V. The input can be read as digital input signals.

3. Product Information

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Use DP840 with Module Termination Units TU810V1, TU812V1, TU814V1, TU830V1, TU833.

Features and benefits

8 channels

The modules can be used in both single and redundant applications

Interface for NAMUR, 12 V and 24 V transducer signal levels

Each channel can be configured for pulse count or frequency measurement

The inputs can also be read as DI signals

Pulse count by accumulation in a 16 bit counter

Frequency (speed) measurement 0.5 Hz - 20 kHz

Advanced on-board diagnostics

MTUs that match this product

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TU810V1

General info

Article number 3BSE028926R1

Type Pulse counter

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

Number of channels 8

HART No

SOE No

Redundancy Yes

High integrity No

Intrinsic safety No

Mechanics S800

Detailed data

Isolation Groupwise isolated from ground

Error Max relative error (4): PRIT = 10 ms: 300 ppm PRIT = 20 ms: 150 ppm PRIT = 50 ms: 60 ppm PRIT = 100 ms: 30 ppm Max error in crystal oscillator: 120 ppm + 5 ppm/year Max absolute error = rel. error + oscillator error (PRIT = 10 ms, age < 16 year): 500 ppm (= 0.05%)

Current limiting Built in current limited sensor power

Maximum field cable length 200 meters (218 yards)

Rated insulation voltage 50 V

Dielectric test voltage 500 V a.c.

Power dissipation 4 W

Current consumption +5 V Modulebus 115 mA

Current consumption +24 V external NAMUR = 56 + 0.5 x external load [mA] 12 V = 89 + 0.7 x external load [mA] 24 V = 97 + external load [mA]

Diagnostics

Front LED's F(ault), R(un), W(arning), P(rimary), Channel 1-8 P(ulse) and F(ault)

Supervision Process voltage

Loop supervision

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 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, TU842, TU843, TU844, TU845, TU852, TU854

Keying code CF

Dimensions

Width 45 mm (1.77”)

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

Height 119 mm (4.7”)

Weight 0.15 kg (0.33 lbs)