HART transparent repeater

5106B

– 3- / 5-port 3.75 kVAC galvanic isolation
– Low response time
– 2-wire supply > 17 V in Ex / I.S. area
– 1- or 2-channel version
– Universal supply by AC or DC

Application

• Power supply and Ex / I.S. safety barrier with 2-way HART communication for 2-wire transmitters installed in the hazardous area.
• Ex / I.S. safety barrier with 2-way HART communication for supplied current transmitters installed in the hazardous area.
• Signal isolator with low response time on analog current signals from the hazardous area.

Technical characteristics

• PR5106B primarily processes current signals of 4...20 mA.
• PR5106B is based on microprocessor technology for gain and offset. The analog signal is transmitted at a response time of less than 25 ms.
• Inputs, outputs, and supply are floating and galvanically separated.
• The output can be connected either as an active current transmitter or as a 2-wire transmitter.

Mounting / installation

• Mounted vertically or horizontally on a DIN rail. As the devices can be mounted without distance between neighboring units, up to 84 channels can be mounted per meter.
• PR5106B is recommended as Ex / I.S. safety barrier for 5335D and 6335D.
Environmental Conditions
Operating temperature ........................................ -20°C to +60°C
Calibration temperature ........................................ 20...28°C
Relative humidity ................................................. < 95% RH (non-cond.)
Protection degree .................................................. IP20

Mechanical specifications
Dimensions (HxWxD) ............................................ 109 x 23.5 x 130 mm
Weight approx ..................................................... 245 g
DIN rail type ......................................................... DIN 46277
Wire size ............................................................ 1 x 2.5 mm² stranded wire
Screw terminal torque .......................................... 0.5 Nm

Common specifications
Supply
Supply voltage, universal .................................... 21.6...253 VAC, 50...60 Hz or
19.2...300 VDC
Fuse .......................................................................... 400 mA SB / 250 VAC
Max. required power ........................................... ≤ 3 W (2 channels)
Internal power dissipation .................................... ≤ 2 W (2 channels)
Isolation voltage
Isolation voltage, test / working ................................ 3.75 kVAC / 250 VAC
PELV/SELV ........................................................... IEC 61140
Response time
Response time (0...90%, 100...10%) ............... < 25 ms
Auxiliary supplies
2-wire supply (pin 44...42 and 54...52) ............ 25...17 VDC / 0...20 mA
Signal / noise ratio ................................................. Min. 60 dB (0...100 kHz)
Accuracy .............................................................. Better than 0.1% of sel. range
Effect of supply voltage change ......................... < ±10 μA
EMC immunity influence ...................................... < ±0.5% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst ...................... < ±1% of span

Input specifications
Current input
Measurement range ............................................. 4...20 mA
Min. measurement range (span) .................... 16 mA
Input resistance: Supplied unit ......................... Nom. 10 Ω
Input resistance: Non-supplied unit ................ Rs(ahunt) = |, Vdrop < 4 V

Output specifications
Current output
Signal range ....................................................... 4...20 mA
Min. signal range .............................................. 16 mA
Load (@ current output) ...................................... ≤ 600 Ω
Load stability ..................................................... ≤ 0.01% of span / 100 Ω
Current limit ...................................................... ≤ 28 mA
Passive 2-wire mA output
Signal range ....................................................... 4...20 mA
Max. external 2-wire supply ......................... 29 VDC
Effect of external 2-wire supply voltage variation .......... < 0.005% of span / V
Output ripple ...................................................... ≤ 3 mVRMS on HART communication
of span ............................................................. = of the presently selected range

Observed authority requirements
EMC ................................................................. 2014/30/EU
LVD ................................................................. 2014/35/EU
EAC ................................................................ TR-CU 020/2011
Approvals
ATEX ............................................................... DEMKO 00ATEX127483, II (1)
UL ........................................................................ G [EEX ia] IIC
EAC Ex ............................................................. RU C-DK.HA65.B.00355/19