

General Specifications

Model EJA Series PROFIBUS PA Communication



GS 01C22T03-00E

PROFIBUS is a vendor-independent and open fieldbus based on the international standard IEC61158 and IEC61784. It covers a wide range of applications in manufacturing and process automation fields.

Vendor-independence and openness allow communication between devices of different manufacturers with no special interface adjustment. EJA PROFIBUS PA model offers more flexible instrumentation through a higher level communication capability and proposes the cost reduction by multi-drop wirings with less cables.



■ FEATURES

- Interoperability
PROFIBUS specifications grant the interoperability of the field instruments without preparing designated software for the instrument.
- Reduction of instrumentation cost
The multi-drop wiring on the PROFIBUS communication line contributes to the reduction of wiring cost.
- Two AI function block
EJA110A PROFIBUS PA model, for example, has two independent AI function blocks for pressure calculations: one for differential pressure and the other for static pressure.
- Self-diagnostic function
The reliable self-diagnostic function detects the measuring range failure, the temperature failure, the static pressure failure, and the hardware failure, such as pressure sensor, temperature sensor or amplifier assembly, etc.
- Supported tools
DTM for Field Mate
EDDL for SIEMENS SIMATIC PDM V6.0

■ STANDARD SPECIFICATIONS

For items other than those described below, refer to each General Specification sheet.

Applicable Model:

EJA110A, 120A, 130A, 210A, 220A,
EJA310A, 430A, 440A, 510A, 530A,
EJA115, 118W, 118N, 118Y, 438W, 438N

Output Signal:

Digital communication signal based on PROFIBUS-PA protocol.

Supply Voltage:

9 to 32 V DC for general use, flameproof type, and nonincendive.
9 to 24 V DC for intrinsically safe type Entity model
9 to 17.5 V DC for intrinsically safe type FISCO model

Conditions of Communication Line:

Supply Voltage: 9 to 32 V DC
Current Draw: 16.5 mA (max)

Power Supply Effect:

No effect (within the supply voltage of 9 to 32 V DC)

External Zero Adjustment:

External zero is continuously adjustable with 0.01% incremental resolution of maximum span.

Functional Specifications:

Functional specifications for PROFIBUS communication conform to the PROFIBUS-PA ver 3.0.
Function Block: Two AI blocks

EMC Conformity Standards ,

EN61326, AS/NZS CISPR11

MODEL AND SUFFIX CODE

EJA□□□(□)-G□□□□-□□□□/□

└─ Output signal ... Digital communication (PROFIBUS PA protocol)

OPTIONAL SPECIFICATIONS

Item	Description	Code
Factory Mutual (FM)	FM Explosionproof Approval *1 *3 Applicable standard: FM3600, FM3615, FM3810, ANSI/NEMA 250 Explosionproof for Class I, Division 1, Groups B, C and D Dust-ignitionproof for Class II/III, Division 1, Groups E, F and G Hazardous (classified) locations, indoors and outdoors (NEMA 4X) Temperature class: T6 Amb. Temp.: -40 to 60°C (-40 to 140°F)	FF15
	FM Intrinsically Safe Approval *1 *3 Applicable standard: FM3600, FM3610, FM3611, FM3810, ANSI/NEMA 250, ISA-S12.0.01 [Entity Model] Cl. I, II&III, Division 1, Groups A, B, C, D, E, F&G, Temp. Cl. T4 and Cl. I, Zone 0, AEx ia IIC, Temp. Cl. T4 Groups A, B, C, D, E, F&G and Group IIC: Vmax.= 24 V, Imax.= 250 mA, Pi= 1.2 W, Ci= 3.52 nF, Li= 0 μH [FISCO Model] Cl. I, II&III, Division 1, Groups A, B, C, D, E, F&G, Temp. Cl. T4 and Cl. I, Zone 0, AEx ia IIC, Temp. Cl. T4 Groups A, B, C, D, E, F&G and Group IIC: Vmax.= 17.5 V, Imax.= 360 mA, Pi= 2.52 W, Ci= 3.52 nF, Li= 0μH Groups C, D, E, F&G and Group IIB: Vmax.= 17.5V, Imax. = 380 mA, Pi = 5.32W, Ci = 3.52 nF, Li = 0μH Nonincendive for Cl. I, Division 2, Groups A, B, C&D, Temp. Cl. T4 and Cl. I, Zone 2, Group IIC, Temp. Cl. T4 and Cl. II, Division 2, Groups F&G Temp. Cl. T4 and Cl. III, Division 2, Temp. Cl. T4 Vmax.= 32 V, Ci = 3.52 nF, Li = 0μH Enclosure: "NEMA4X", Amb. Temp.: -40 to 60°C (-40 to 140°F)	FS15
ATEX	ATEX Flameproof Approval *2 *3 Applicable standard: EN 60079-0, EN 60079-1 Certificate: KEMA 02ATEX2148 II 2G Ex d IIC T4, T5 and T6, Amb. Temp.: -40 to 80°C (-40 to 176°F) for T5, -40 to 75°C (-40 to 167°F) for T4 and T6, Enclosure: IP67 Max. process Temp.: T4; 120°C (248°F), T5; 100°C (212°F), T6; 85°C (185°F)	KF21
	ATEX Intrinsically Safe Approval *2 *3 Applicable standard: EN50014, EN50020, EN50284 Certificate: KEMA 02ATEX1344X [Entity model] II 1G EEx ia IIC T4, Amb. Temp.: -40 to 60°C (-40 to 140°F) Ui=24.0 V, Ii=250 mA, Pi=1.2 W, Ci=1.76 nF, Li=0 μH [FISCO model] II 1G EEx ia IIC T4, Amb. Temp.: -40 to 60°C (-40 to 140°F) Ui=17.5 V, Ii=360 mA, Pi=2.52 W, Ci=1.76 nF, Li=0 μH II 1G EEx ia IIB T4, Amb. Temp.: -40 to 60°C (-40 to 140°F) Ui=17.5 V, Ii=380 mA, Pi=5.32 W, Ci=1.76 nF, Li=0 μH Enclosure: IP67	KS25
Canadian Standards Association (CSA)	CSA Explosionproof Approval *1 *3 Applicable standard: C22.2 No.0, No.0.4, No.25, No.30, No.94, No.142, No 1010.1 Certificate: 1010820 Explosionproof for Class I, Division 1, Groups B, C and D Dustignitionproof for Class II/III, Division 1, Groups E, F and G Temp. Class: T4, T5, T6 Encl Type 4x Amb. Temp.: -40 to 80°C (-40 to 176°F) Max. Process Temp.: T4; 120°C (248°F), T5; 100°C (212°F), T6; 85°C (185°F) Process Sealing Certification Dual Seal Certified by CSA to the requirement of ANSI/ISA 12.27.01 No additional sealing required. Primary seal failure annunciation: at the zero adjustment screw	CF15

*1: Applicable for Electrical connection code 2, 7 and C.
 *2: Applicable for Electrical connection code 2, 4, 7, 9, C and D.
 *3: Lower limit of ambient temperature is -15°C (5°F) when /HE is specified.

T01E.EPS

< Settings When Shipped >

Tag Number(TAG)	'PT1001' unless otherwise specified in order. (Not engraved on tag plate in such case.)*1
Output Mode (Characterization Type)	'Linear' unless otherwise specified in order.
Calibration Range (Scale In Lower/Upper Value)	As specified in order
Unit (Pressure Unit) of Calibration Range	Selected from mmH ₂ O, inH ₂ O, ftH ₂ O, mmHg, inHg, Pa, hpa, kPa, MPa, g/cm ² , kg/cm ² , bar, mbar, psi, torr, atm (Only one unit can be specified.)
Output Scale (Out Scale Lower/Upper Value)	'0 to 100%' unless otherwise specified in order.
Unit of Output Scale (Out Scale : Unit)	As specified in order
Damping Time Constant (Filter Time Const)	'2 sec'
Bus Address	'0x7E(126)' unless otherwise specified in order.

T02E.EPS

- *1: Specified Tag Number is entered in the amplifier memory and also engraved on the stainless steel plate.
 - For entry in the amplifier memory: Up to 32 letters using any of alphanumeric characters and symbols, - and ·
 - For engraving on the stainless steel plate: Up to 16 letters using any of alphanumeric characters and symbols, -, ·, and /.

Explanation of PROFIBUS PA parameters:

- (1) Characterization Type: Type of Linearization, 'Linear' or 'Square root' can be selected.
- (2) Scale In Lower/Upper Value: The value set as calibration range should be entered to this parameter. This is the input conversion of the Pressure using the high and low scale.
- (3) Pressure Unit: The unit of calibration by sensor, this is used as the unit of Scale In.
- (4) Out Scale Lower/Upper value: Output scaling parameter. Set the output value which corresponds to 0% value and 100% value of the calculation in the AI function block. The value set as output scale should be entered to this parameter. When integral indicator is required, this output is shown on LCD.

< Ordering Information >

1. Model, Suffix codes, and Optional codes
2. Calibration Range (Scale In Lower/Upper Value)
3. Unit (Pressure Unit) of Calibration Range
4. Output Mode (Characterization Type)
 Select 'Linear' or 'Square root'.
 Otherwise the mode is factory set to 'Linear'.
5. Output scale and unit (Out Scale)
 When integral indicator is required, scale range should be specified with the range limit specifications up to 5 digits (excluding any decimal point) for low or high range limits within the range of -19999 to 19999.
6. Tag Number (TAG)
7. Bus Address

Example; When 50 to 1000 mmH₂O for calibration range and 0 to 100% output range is required, specify the values as follows:

Calibration range:
 Higher value 1000
 Lower value 50
 Unit: mmH₂O
 Output scale:
 Higher value 100
 Lower value 0
 Unit of output scale: %

< Related Instruments >

The customer should prepare instrument maintenance tool, terminator, Profibus power supply etc.

< DP/PA Coupler for CENELEC (KEMA) Intrinsically Safe Type >

Supplier	DP transmission Rate	Model
P+F	97.75kbps	KFD2-BR-Ex1.3 PA.93
SIEMENS	45.45kbps	6ES7 157-0AD82-0XA0

T03E.EPS

<Reference>

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