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PROFIBUS® PA / FOUNDATION™ Fieldbus Transmitter

No. 5350V111-IN (1003)
From ser. no.090659001

FM APPROVED · C SP US · Ex NEPSI · PG · ATEX Ex · INMETRO · UL BR

SIGNALS THE BEST

PROFIBUS® PA / FOUNDATION™ FIELDBUS TRANSMITTER

PRetrans 5350

Contents

EC DECLARATION OF CONFORMITY

As manufacturer

PR electronics A/S
Lerbakken 10
DK-8410 Rønde

hereby declares that the following product:

Type: 5350
Name: PROFIBUS® PA/FOUNDATION™ Fieldbus transmitter

is in conformity with the following directives and standards:

The EMC Directive 2004/108/EC and later amendments

EN 61326-1 : 2006

For specification of the acceptable EMC performance level, refer to the electrical specifications for the module.

The ATEX Directive 94/9/EC and later amendments

EN 60079-0 : 2006, EN 60079-11 : 2007,
EN 60079-15 : 2005, EN 60079-26: 2007,
EN 60079-27 : 2006, EN 60079-27 : 2008
EN 61241-0 : 2006 and EN 61241-11 : 2006
ATEX certificate: KEMA 03ATEX1011 X (5350A)
ATEX certificate: KEMA 02ATEX1318 (5350B)

Notified body

KEMA Quality B.V. (0344)
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands

Rønde, 21 December 2009

Kim Rasmussen
Manufacturer's signature

PROFIBUS® PA / FOUNDATION™ FIELDBUS TRANSMITTER - PRetop 5350

- *PROFIBUS® PA ver. 3.0*
- *FOUNDATION™ Fieldbus ver. ITK 4.6*
- *Automatic switch between protocols*
- *FISCO-certified*
- *Basic capability with F.F.*

Application:

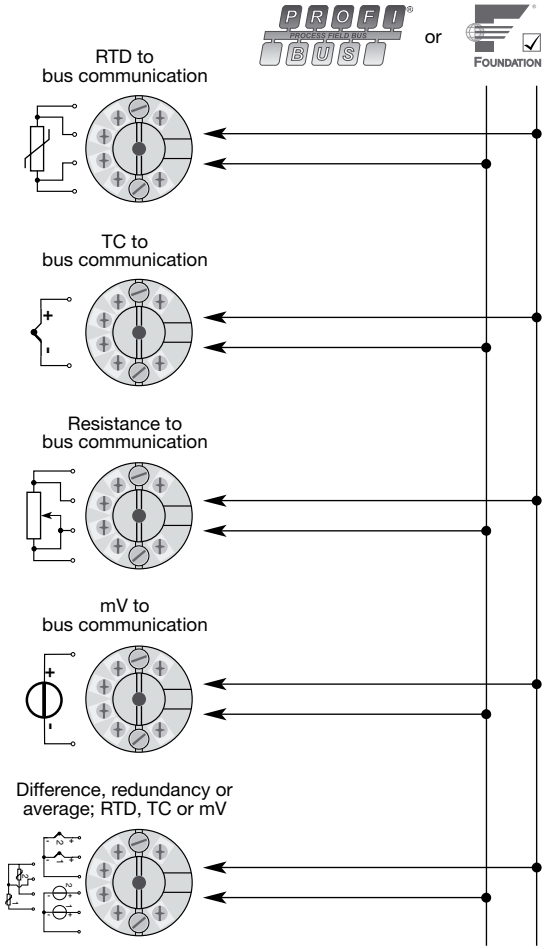
- Linearised temperature measurement with RTD or TC sensor.
- Difference, average or redundancy temperature measurement with RTD or TC sensor.
- Linear resistance, potentiometer and bipolar mV measurement.

Technical characteristics:

- Bus transmitter with both PROFIBUS® PA and FOUNDATION™ Fieldbus communication. A unique switch function ensures automatic shift between the two protocols.
- Set-up for PROFIBUS® PA can be done via Siemens Simatic® PDM®, ABB Melody / Harmony and Metso DNA software and for FOUNDATION™ Fieldbus via Emerson DeltaV, Yokogawa CS 1000 / CS 3000, ABB Melody / Harmony and Honeywell Experion software.
- The simulation mode function can be activated by way of a magnet.
- Polarity-independent bus connection.
- 24 bit A/D converter ensures high resolution.
- PROFIBUS® PA function blocks: 2 analogue.
- FOUNDATION™ Fieldbus function blocks: 2 analogue and 1 PID.
- FOUNDATION™ Fieldbus capability: Basic or LAS.

Mounting / installation:

- For DIN form B sensor head mounting. In non-hazardous areas the 5350 can be mounted on a DIN rail with the PR fitting type 8421.



Order: 5350

Type	Version	
5350	Standard ATEX, FM and CSA	: A : B

***NB!** Please remember to order PR sim pin type 8422 if the simulation mode function is to be used.

Electrical specifications:

Specifications range:
-40°C to +85°C

Common specifications:

Supply voltage, DC
- Standard ..... 9.0...32 V
- ATEX, FM and CSA ..... 9.0...30 V
- In FISCO installations ..... 9.0...17.5 V

Consumption ..... < 11 mA
Max. current increase in the event of an error ..... < 7 mA
Isolation voltage, test ..... 1.5 kVAC for 60 s
Isolation voltage, operation ..... 50 VRMS / 75 VDC
Warm-up time ..... 30 s
Signal / noise ratio ..... Min. 60 dB
Response time (programmable) ..... 1...60 s
Updating time ..... < 400 ms
Execution time, analogue input ..... < 50 ms
Signal dynamics, input ..... 24 bit
Calibration temperature ..... 20...28°C
Accuracy, the greater of general and basic values:

General values		
Input type	Absolute accuracy	Temperature coefficient
All	≤ ±0.05% of reading	≤ ±0.002% of reading / °C

Basic values		
Input type	Basic accuracy	Temperature coefficient
Pt100 and Pt1000	≤ ±0.1°C	≤ ±0.002°C / °C
Ni100	≤ ±0.15°C	≤ ±0.002°C / °C
Cu10	≤ ±1.3°C	≤ ±0.02°C / °C
Lin. R	≤ ±0.05 Ω	≤ ±0.002 Ω / °C
Volt	≤ ±10 µV	≤ ±0.2 µV / °C
TC type: E, J, K, L, N, T, U	≤ ±0.5°C	≤ ±0.010°C / °C
TC type: B, R, S, W3, W5	≤ ±1°C	≤ ±0.025°C / °C

EMC immunity influence ..... < ±0.1% of reading
Extended EMC immunity:
NAMUR NE 21, A criterion, burst ..... < ±1% of reading

Vibration (DIN class B) ..... IEC 60068-2-6 and IEC 60068-2-64
4 g / 2...100 Hz
Humidity ..... < 95% RH (non cond.)
Dimensions ..... Ø 44 x 20.2 mm
Protection degree (enclosure / terminal) ..... IP68 / IP00
Weight ..... 55 g

Electrical specifications, input:

RTD and linear resistance input:

RTD type	Min. value	Max. value	Standard
Pt25...Pt1000	-200°C	+850°C	IEC60751/JIS C 1604
Ni25...Ni1000	-60°C	+250°C	DIN 43760
Cu10...Cu1000	-50°C	+200°C	α = 0.00427
Lin. resistance	0 Ω	10 kΩ	-
Potentiometer	0 Ω	100 kΩ	-

Cable resistance per wire ..... 50 Ω
Sensor current ..... Nom. 0.2 mA
Effect of sensor cable resistance (3- / 4-wire) < 0.002 Ω / Ω
Sensor error detection ..... Yes
Short circuit detection ..... < 15 Ω

TC input:

Type	Min. value	Max. value	Standard
B	+400°C	+1820°C	IEC584
E	-100°C	+1000°C	IEC584
J	-100°C	+1200°C	IEC584
K	-180°C	+1372°C	IEC584
L	-200°C	+900°C	DIN 43710
N	-180°C	+1300°C	IEC584
R	-50°C	+1760°C	IEC584
S	-50°C	+1760°C	IEC584
T	-200°C	+400°C	IEC584
U	-200°C	+600°C	DIN 43710
W3	0°C	+2300°C	ASTM E988-90
W5	0°C	+2300°C	ASTM E988-90
Ext. CJC	-40°C	+135°C	IEC6075

Cold junction compensation (CJC) ..... < ±0.5 °C
Sensor error detection ..... Yes
Sensor error current:
when detecting ..... Nom. 4 µA
else ..... 0 µA
Short circuit detection ..... < 3 mV

Voltage input:

Measurement range ..... -800...+800 mV
Input resistance ..... 10 MΩ

Output:

PROFIBUS® PA connection:

PROFIBUS® PA protocol ..... Profile A&B, ver. 3.0
PROFIBUS® PA protocol standard ..... EN 50170 vol. 2
PROFIBUS® PA address (at delivery) 126
PROFIBUS® PA function blocks ..... 2 analogue

FOUNDATION™ Fieldbus connection:

FOUNDATION™ Fieldbus protocol ..... FF protocol
FOUNDATION™ Fieldbus protocol standard .. FF design specifications
FOUNDATION™ Fieldbus capability ..... Basic or LAS
FOUNDATION™ Fieldbus version ..... ITK 4.6
FOUNDATION™ Fieldbus function blocks ..... 2 analogue and 1 PID

Ex approval - 5350A:

KEMA 03ATEX1011 X	II 3 GD Ex nA [nL] IIC T4...T6 or II 3 GD Ex nL IIC T4...T6 or II 3 GD Ex nA [ic] IIC T4...T6 or II 3 GD Ex ic IIC T4...T6
ATEX Installation Drawing No.	5350QE01
FM and CSA	IS, Class I, Div. 2, Group A, B, C, D IS, Class I, Zone 2, Group IIC
NEPSI	GYJ0091289U Ex nA [L] IIC T4~T6

Ex / I.S. approval - 5350B:

KEMA 02ATEX1318	II 1 G Ex ia IIC T4...T6 or II 2 (1) G Ex ib [ia] IIC T4...T6 II1 D Ex iaD
Applicable in zone	0, 1, 2, 20, 21 or 22
ATEX Installation Drawing No.	5350QE01
FM and CSA	IS, Class I, Div. 1, Group A, B, C, D IS, Class I, Zone 0/1, Group IIC IS, Class I, Div. 2, Group A, B, C, D
FM and CSA Installation Drawing No.	5350QE01
INMETRO 08/UL-BRCO-0019	BR-Ex ia IIC T4, T5, T6 or BR-Ex ib [ia] IIC T4, T5, T6
INMETRO Installation Drawing No	5350QE01
NEPSI	GYJ091290X Ex ia IIC T4~T6 Ex ib [ia] IIC T4~T6
NEPSI Installation Drawing No.	5350QE01

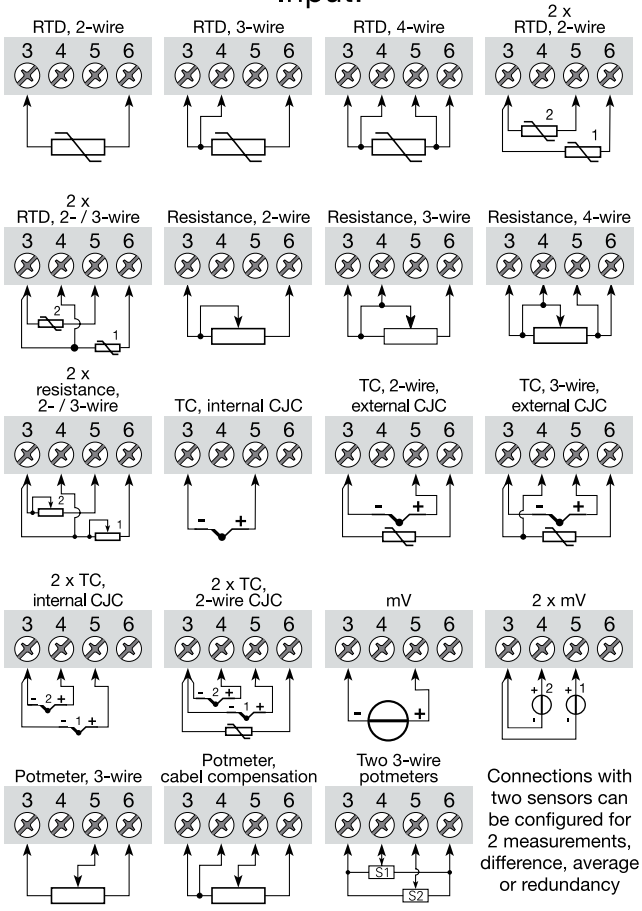
GOST R approval:

VNIIM & VNIIFTRI, Cert. no.	See www.prelectronics.com

Observed authority requirements:	**Standard:**
EMC 2004/108/EC	EN 61326-1
ATEX 94/9/EC	EN 60079-0, EN 60079-11, EN 60079-15, EN 60079-26, EN 60079-27, EN 61241-0 and EN 61241-11
FM	3600, 3610, 3611
CSA, CAN / CSA	C22.2 No. 142, No. 157, No. 213,
CAN / CSA	E79-0, -11, -15
ANSI / UL	UL 60079-0, -11, -15
INMETRO	IEC 60079-0 and IEC 60079-11
NEPSI	GB3836.1-2000, GB3836.4-2000, GB3836.8-2003

Connections:

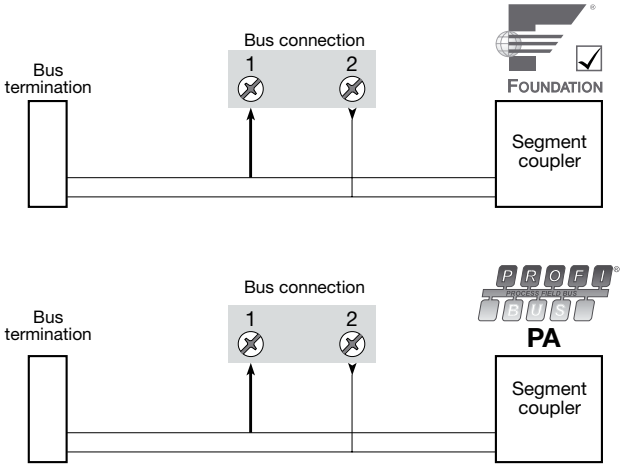
Input:



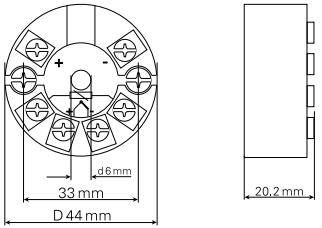
Connections with two sensors can be configured for 2 measurements, difference, average or redundancy

Connections:

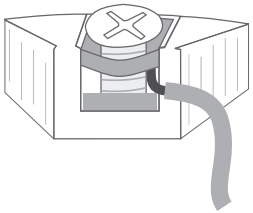
Output:



Mechanical specifications:

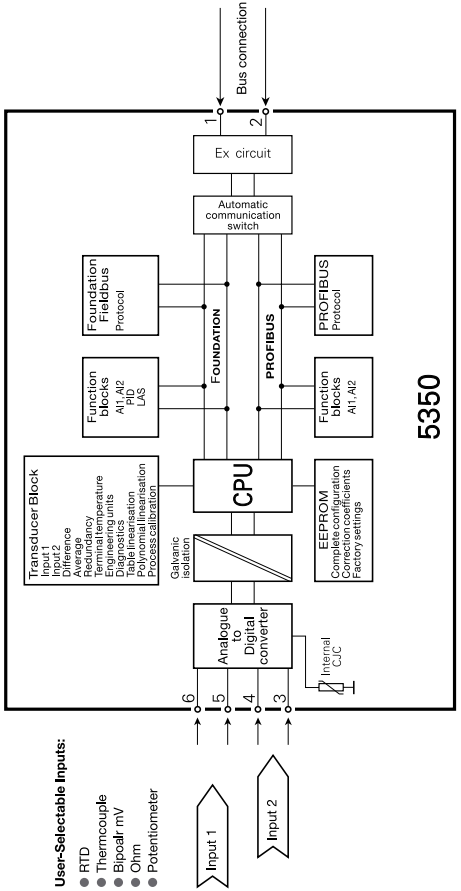


Mounting of sensor wires



Wires must be mounted between the metal plates.

Block diagram:



Bus installation: