



3000 series

6 mm Series of
Temperature Converters

Models no.:

3101 / 3102 / 3111 / 3112

3113 / 3331 / 3333 / 3337

No. 3000V100-UK

From ser. no 131667001



ATEX



- DK** ▶ PR electronics A/S tilbyder et bredt program af analoge og digitale signalbehandlingsmoduler til industriel automation. Programmet består af Isolatorer, Displays, Ex-barrierer, Temperaturtransmittere, Universaltransmittere mfl. Vi har modulerne, du kan stole på i selv barske miljøer med elektrisk støj, vibrationer og temperaturudsving, og alle produkter opfylder de strengeste internationale standarder. Vores motto »Signals the Best« er indbegrebet af denne filosofi - og din garanti for kvalitet.
- UK** ▶ PR electronics A/S offers a wide range of analogue and digital signal conditioning devices for industrial automation. The product range includes Isolators, Displays, Ex Interfaces, Temperature Transmitters, and Universal Devices. You can trust our products in the most extreme environments with electrical noise, vibrations and temperature fluctuations, and all products comply with the most exacting international standards. »Signals the Best« is the epitome of our philosophy - and your guarantee for quality.
- FR** ▶ PR electronics A/S offre une large gamme de produits pour le traitement des signaux analogiques et numériques dans tous les domaines industriels. La gamme de produits s'étend des transmetteurs de température aux afficheurs, des isolateurs aux interfaces SI, jusqu'aux modules universels. Vous pouvez compter sur nos produits même dans les conditions d'utilisation sévères, p.ex. bruit électrique, vibrations et fluctuations de température. Tous nos produits sont conformes aux normes internationales les plus strictes. Notre devise »SIGNALS the BEST« c'est notre ligne de conduite - et pour vous l'assurance de la meilleure qualité.
- DE** PR electronics A/S verfügt über ein breites Produktprogramm an analogen und digitalen Signalverarbeitungsmodulen für die industrielle Automatisierung. Dieses Programm umfasst Displays, Temperaturtransmitter, Ex- und galvanische Signaltrenner, und Universalgeräte. Sie können unsere Geräte auch unter extremen Einsatzbedingungen wie elektrisches Rauschen, Erschütterungen und Temperaturschwingungen vertrauen, und alle Produkte von PR electronics werden in Übereinstimmung mit den strengsten internationalen Normen produziert. »Signals the Best« ist Ihre Garantie für Qualität!

6 MM SERIES OF TEMPERATURE CONVERTERS

3101 - 3102 - 3111 - 3112 - 3113 -
3331 - 3333 - 3337

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GENERAL



**HAZARD-
OUS
VOLTAGE**



CAUTION

WARNING

To avoid the risk of electric shock and fire, the safety instructions of this guide must be observed and the guidelines followed. The specifications must not be exceeded, and the device must only be applied as described in the following. Prior to the commissioning of the device, this installation guide must be examined carefully. Only qualified personnel (technicians) should install this device. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. Until the device is fixed, do not connect hazardous voltages to the device.

Repair of the device must be done by PR electronics A/S only.

In applications where hazardous voltage is connected to in-/outputs of the device, sufficient spacing or isolation from wires, terminals and enclosure - to surroundings (incl. neighbouring devices), must be ensured to maintain protection against electric shock.

Potential electrostatic charging hazard. To avoid the risk of explosion due to electrostatic charging of the enclosure, do not handle the units unless the area is known to be safe, or appropriate safety measures are taken to avoid electrostatic discharge.

SYMBOL IDENTIFICATION



Triangle with an exclamation mark: Read the manual before installation and commissioning of the device in order to avoid incidents that could lead to personal injury or mechanical damage.



The CE mark proves the compliance of the device with the essential requirements of the directives.



Ex devices have been approved according to the ATEX directive for use in connection with installations in explosive areas.

SAFETY INSTRUCTIONS

RECEIPT AND UNPACKING

Unpack the device without damaging it. The packing should always follow the device until this has been permanently mounted. Check at the receipt of the device whether the type corresponds to the one ordered.

ENVIRONMENT

Avoid direct sunlight, dust, high temperatures, mechanical vibrations and shock, as well as rain and heavy moisture. If necessary, heating in excess of the stated limits for ambient temperatures should be avoided by way of ventilation.

Can be used in overvoltage Category II and Pollution Degree 2. The devices are designed to be safe at least under an altitude up to 2 000 m.

MOUNTING

Mounting and connection of the device should comply with national legislation for mounting of electric materials, i.e. wire cross section, protective fuse, and location. Descriptions of input / output and supply connections are shown in this installation guide and on the side label.

The device is provided with field wiring terminals and shall be supplied from a Power Supply having double / reinforced insulation. A power switch should be easily accessible and close to the device. The power switch shall be marked as the disconnecting unit for the device.

SYSTEM 3000 must be mounted on a DIN rail according to EN 60715.

UL installation

Use 60/75°C copper conductors only.

Wire size AWG 26-12

UL file number..... E314307

The device is an Open Type Listed Process Control Equipment. To prevent injury resulting from accessibility to live parts the equipment must be installed in an enclosure.

The power Supply unit must comply with NEC Class 2, as described by the National Electrical Code® (ANSI / NFPA 70).

cFMus installation in Division 2 or Zone 2

Class I, Div. 2, Group A, B, C, D T4 or I, Zone 2, AEx nA IIC T4 or Ex nA IIC T4.

In class I, Division 2 or Zone 2 installations, the subject equipment shall be mounted within a tool-secured enclosure which is capable of accepting one or more of Class I, Division 2 wiring methods specified in the National Electrical Code (ANSI/NFPA 70) or in Canada in the Canadian Electrical Code (C22.1).

The 3000 System Isolators and Converters must be connected to limited output NEC Class 2 circuits, as outlined in the National Electrical Code® (ANSI / NFPA 70), only. If the devices are connected to a redundant power supply (two separate power supplies), both must meet this requirement.

Where installed in outdoor or potentially wet locations the enclosure shall at a minimum meet the requirements of IP54.

Warning: Substitution of components may impair suitability for zone 2 / division 2.

Warning: To prevent ignition of the explosive atmospheres, disconnect power before servicing and do not separate connectors when energised and an explosive gas mixture is present.

Warning: Do not mount or remove devices from the power rail when an explosive gas mixture is present.

IECEX, ATEX installation in Zone 2

IECEX KEM 10.0068X..... Ex nA IIC T4 Gc

KEMA 10ATEX0147X..... II 3G Ex nA IIC T4 Gc

For safe installation the following must be observed. The device shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.

Year of manufacture can be taken from the first two digits in the serial number.

The devices shall be installed in a suitable enclosure providing a degree of protection of at least IP54 according to EN60529, taking into account the environmental conditions under which the equipment will be used.

When the temperature under rated conditions exceeds 70°C at the cable or conduit entry point, or 80°C at the branching point of the conductors, the temperature specification of the selected cable shall be in compliance with the actual measured temperature.

Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40%.

For installation on power rail in Zone 2, only Power Rail type 9400 supplied by Power Control Unit type 9410 is allowed.

To prevent ignition of the explosive atmospheres, disconnect power before servicing and do not separate connectors when energised and an explosive gas mixture is present.

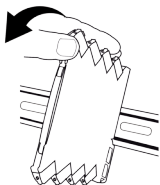
Do not mount or remove devices from the power rail when an explosive gas mixture is present.

Cleaning

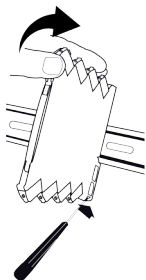
When disconnected, the device may be cleaned with a cloth moistened with distilled water.

MOUNTING ON DIN RAIL

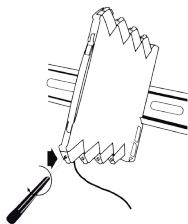
The system 3000 devices can easily be mounted on a standard 35 mm DIN rail.



Remove the system 3000 units from the rail by lifting the DIN rail mounting clip.

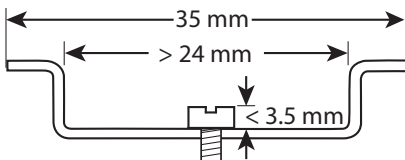


Wire size AWG 26-12 / 0.13 x 2.5 mm² stranded wire.
Screw terminal torque 0.5 Nm.



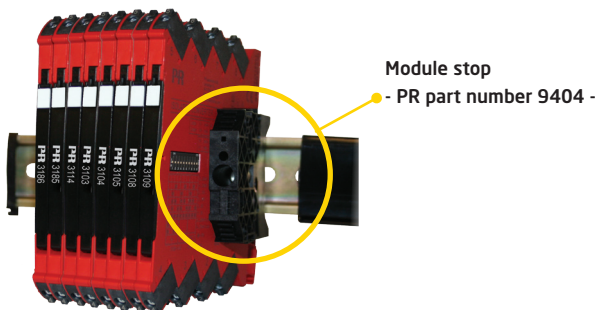
INSTALLATION ON DIN RAIL

To avoid short circuit between the power rail connectors on the 3111, 3112 and 3113 devices and the screws holding the 7.5 mm DIN rail, the head of the screws shall be no more than 3.5 mm high.



MODULE STOP

3000 units must be supported by module stops for marine applications.



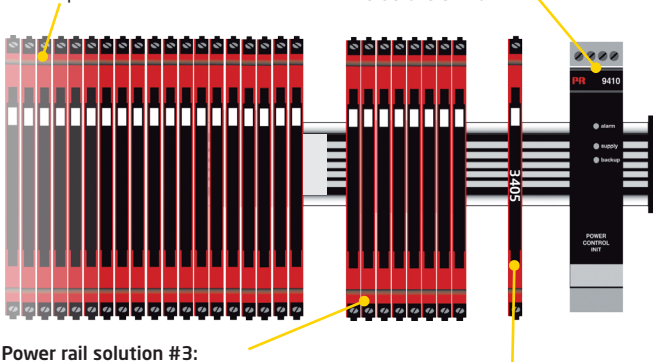
FLEXIBLE SUPPLY

Device daisy chain:

The 3101, 3102, 3111, 3112 and 3113 devices are powered by 24 VDC +/- 30%. **External protective fuse requirement: 2.5 A (*).** 2.5 A equals 60 W - this means that up to 60 units can be energized by connecting the source in parallel with the power terminals of each unit.

Power rail solution #1:

The 9410 power control unit can energize and power 96 W to the rail meaning that up to 100 pcs of 3111, 3112, 3113 units can be powered this way. Redundant power supplies are possible. **Protective fuse: Located inside the 9410.**



Power rail solution #3:

Alternately, you can connect 24 VDC to one 3111, 3112, 3113 device which will energize units on the rail. **External protective fuse requirement for powering this way: 0.4 A,** meaning that up to 10 pcs of 3111, 3112, 3113 units can be energized and powered this way. **Power rail**

solution #2:

The 3405 power connector unit allows easy connection of a 24 VDC / 2.5 A source to the power rail. Up to 60 of the 3111, 3112, 3113 units can be powered this way. **External protective fuse: 2.5 A (*).**

(*) External fuse characteristics:

The 2.5 A fuse must break after not more than 120 seconds at 6.4 A.

TEMPERATURE CONVERTERS

- Converts process measurements from Pt100, TC J and K temperature sensors to voltage or current outputs
- Multiple pre-calibrated temperature ranges are selectable via DIP-switches
- High accuracy < 0.05/0.1% and excellent 50/60 Hz noise suppression
- Fast signal response time < 30 ms / < 60 ms (3113 & 3337)
- 3113 and 3337 includes HART[®] 7 protocol, this enables extended device programming
- Slimline 6 mm housing

Applications

- The temperature converters measure standard 2-, 3- or 4-wire Pt100 and/or TC J & K temperature sensors, and provides an analog voltage or current output.
- High 3 port isolation in the types 3111, 3112 and 3113 provide surge suppression and protects the control system from transients and noise.
- The loop powered devices type 3331 and 3337 also have high 2-port galvanic separation to eliminate ground loops.
- The devices can be mounted in the Safe area or in Zone 2 / Division 2 areas.
- Approved for marine applications.

Technical characteristics

- The device types 3101, 3102, 3111, 3112 and 3113, are flexibly powered by 24 VDC \pm 30% using the connectors, 3111, 3112 and 3113 via power rail also.
- High conversion accuracy, better than 0.05/0.1% of selected range.
- A visible green LED indicates operational status of the 3101, 3102, 3111, 3112 and 3113 units and status of the input sensor.
- All terminals are protected against overvoltage and polarity error.
- Meeting the NAMUR NE21 recommendations, the System 3000 devices ensure top measurement performance in harsh EMC environments.
- The devices meet the NAMUR NE43 standard defining out of range and sensor error output values.
- High galvanic isolation of 2.5 kVAC (3111, 3112, 3113, 3331 and 3337).
- Excellent signal/noise ratio of > 60 dB.

Mounting / installation

- Easy configuration of more than 1000 factory calibrated measurement ranges using DIP-switches or HART programming interface (3113 & 3337).
- The narrow 6 mm housing and very low power consumption allows up to 165 units to be mounted per meter of DIN rail, without any air gap between units.
- Wide temperature operation range of -25...+70°C.

Order codes:

Type	Specifications	Supply
3101	TC J & K converter - non isolated	24 Vdc supplied
3102	Pt100 converter - non isolated	24 Vdc supplied
3111	TC J & K converter - isolated	24 Vdc supplied
3112	Pt100 converter - isolated	24 Vdc supplied
3113	Pt100, TC J & K converter - isolated - HART	24 Vdc supplied
3331	Pt100, TC J & K converter - isolated	Loop powered
3333	Pt100 converter - non isolated	Loop powered
3337	Pt100, TC J & K converter - isolated - HART	Loop powered

Accessories

Type	Function
3405	Power rail connector unit - 3111, 3112, 3113
9400	Power rail - 7.5 or 15 mm - 3111, 3112, 3113
9404	Module stop

Specifications

Environmental conditions:

Specifications range	-25°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity.....	< 95% RH (non-cond.)
Protection degree.....	IP20 / EN60529
Installation.....	Pollution degree 2 and overvoltage category II

Mechanical specifications:

Dimensions (HxWxD).....	113 x 6.1 x 115 mm
Weight approx.	70 g
DIN rail type.....	DIN EN 60715 - 35 mm
Wire size	0.13...2.5 mm ² / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common electrical specifications:

Supply voltage, 24 VDC nom.

3101, 3102, 3111, 3112, 3113.....	16.8...31.2 VDC
3331.....	6...35 VDC (output loop powered)
3333.....	4...35 VDC (output loop powered)
3337.....	7...35 VDC (output loop powered)

Power consumption, max. 1 W

Internal consumption, max. 0.65 W

Isolation voltage (reinforced):

3111, 3112, 3113, 3331 and 3337..... 2.5 kVAC (test)

3111, 3112, 3113, 3331 and 3337..... 300 VAC / 250 VAC (Ex) (working)

Signal / noise ratio > 60 dB

Response time, fixed or selectable:

3101, 3102, 3111, 3112, 3331, 3333..... < 30 ms / 300 ms

3113 & 3337..... < 60 ms or

60 ms...60 s by using HART prog.

Accuracy - the greater of the basic and general value is valid				
Device	Input	Basic accuracy	General accuracy	Temperature coefficient
3112, 3113, 3331, 3337	Pt100	$\leq 0.1^{\circ}\text{C}$	$\leq \pm 0.05\%$ of span	$0.02^{\circ}\text{C}/^{\circ}\text{C}$ (basic) or $\leq \pm 0.01\%$ of span/ $^{\circ}\text{C}$
3111, 3113, 3331, 3337	TC	$\leq 0.5^{\circ}\text{C}$		$0.1^{\circ}\text{C}/^{\circ}\text{C}$ (basic) or $\leq \pm 0.01\%$ of span/ $^{\circ}\text{C}$
3102, 3333	Pt100	$\leq 0.2^{\circ}\text{C}$	$\leq \pm 0.1\%$ of span	$0.02^{\circ}\text{C}/^{\circ}\text{C}$ (basic) or $\leq \pm 0.01\%$ of span/ $^{\circ}\text{C}$
3101	TC	$\leq 1^{\circ}\text{C}$		$0.1^{\circ}\text{C}/^{\circ}\text{C}$ (basic) or $\leq \pm 0.01\%$ of span/ $^{\circ}\text{C}$

EMC immunity influence	< $\pm 0.5\%$ of span
Extended EMC immunity: NAMUR NE 21	< $\pm 1\%$ of span

"of span" = of the selected range

Input specifications:

Specifications for Pt100 input: (3102, 3112, 3113, 3331, 3333, 3337)

Temperature range, DIP sw prog.....	Pt100 -200...+850°C - IEC 60751
Sensor current.....	< 0.2 mA
Sensor cable specifications, max.....	50 Ω per wire or 50 nF
Effect of sensor cable resistance, 3- / 4-wire....	< 0.002 Ω / Ω
Sensor error detection.....	Yes - selectable by DIP switch
Shorted sensor detection	< 18 Ω
Broken sensor detection	> 800 Ω

Specifications for TC K & J input: (3101, 3111, 3113, 3331, 3337)

Temperature range, DIP sw prog.....	TC J -100...+1200°C - IEC 60584-1 TC K -180...+1372°C - IEC 60584-1
Sensor and cable specifications, max	5 kΩ per wire or 50 nF
Cold junction compensation (CJC) accuracy	
via external CJC (*) (Pt100).....	< 0.3°C + Pt100 accuracy (**)
via internal CJC sensor.....	< ±(2.0°C + 0.2°C * Δt)
Δt = internal temperature - ambient temperature	
Open Thermocouple detection.....	Yes - selectable via DIP-switch

Output specifications:

Active current output (source): (3101, 3102, 3111, 3112, 3113)

Programmable ranges	0...20 and 4...20 mA
Programmable ranges, 3113	4...20 and 20...4 mA
Range limits, NAMUR NE43 out of range.....	0 / 3.8 and 20.5 mA
Sensor error indication, DIP sw selectable	
according to NAMUR NE43.....	0 / 3.5, 23 mA or none
Incorrect DIP-sw setting identification.....	0 / 3.5 mA(***) + LED 500ms/1Hz
Load, max.....	21 mA / 600 Ω / 12.6 V
Load stability.....	≤ 0.01% of span / 100 Ω
HART® protocol revision, 3113.....	HART® 7

Voltage output: (3101, 3102, 3111, 3112)

Programmable ranges	0...5, 1...5, 0...10, 2...10 V
Range limits, out of range	0 / ± 2.5% of selected range
Incorrect DIP-sw setting identification.....	0 V + LED 500ms/1Hz
Load.....	> 10 kΩ

(*) 3101 - only internal CJC

(**) Accuracy of the used external Pt100 sensor

(***) 3113 - 3.5 mA output at incorrect DIP sw setting

"of span" = of the selected range

Loop current output (sinking): (3331, 3333, 3337)

Programmable signal ranges.....	4...20 and 20...4 mA
Range limits, NAMUR NE43 out of range.....	3.8 and 20.5 mA
Sensor error indication	Yes - Upscale or Downscale
according to NAMUR NE43.....	3.5, 23 mA or none
Incorrect DIP-sw setting identification.....	3.5 mA
Load (max.) 3331	$\leq (V_{\text{supply}} - 6) / 0.023 [\Omega]$
Load (max.) 3333	$\leq (V_{\text{supply}} - 4) / 0.023 [\Omega]$
Load (max.) 3337	$\leq (V_{\text{supply}} - 7) / 0.023 [\Omega]$
Load stability.....	$\leq 0.01\%$ of span / 100 Ω
HART® protocol revision, 3337.....	HART® 7

"of span" = of the selected range

Approvals:

EMC 2004/108/EC	EN 61326-1
EMC Emission.....	CISPR 22, Class B
LVD 2006/95/EC.....	EN 61010-1
UL, Standard for Safety.....	UL 61010-1
Safe Isolation.....	EN 61140
GOST R	

Marine:

Det Norske Veritas, Ships & Offshore.....	Stand. f. Certific. No. 2.4
Germanischer Lloyd	VI-7-2

Ex:

ATEX 94/9/EC.....	KEMA 10ATEX0147X
IECEX.....	KEM 10.0068X
c FM us.....	3041043-C

DIP-SWITCH CONFIGURATION

3101 and 3111 - TC J & K

Sensor	S1	1	2	3
TC J (int. cjc)				●
TC K (int. cjc)	●			
TC J (ext. cjc)		●	●	
TC K (ext. cjc)	●	●	●	

Sensor Error Detection	S17
None	
Enable	●

Output Error Level	S18
Downscale	
Upscale	●

Output	S1	4	5	6
0...20 mA				
4...20 mA				●
0...10 V				●
2...10 V				●
0...5 V				●
1...5 V				●

Noise Supp. S19	Resp.T. S1 10
50 Hz	< 30 ms
60 Hz	300 ms

*3101 - only int CJC

● = ON

3102 and 3112 - Pt100

Sensor	S1	1	2	3
Pt100, 2w	●			
Pt100, 3w		●		
Pt100, 4w			●	

Sensor Error Detection	S17
None	
Enable	●

Output Error Level	S18
Downscale	
Upscale	●

Output	S1	4	5	6
0...20 mA				
4...20 mA				●
0...10 V				●
2...10 V				●
0...5 V				●
1...5 V				●

Noise Supp. S19	Resp.T. S1 10
50 Hz	< 30 ms
60 Hz	300 ms

● = ON

3331 - Pt100 & TC J/K

Sensor	S1	1	2	3
Pt100, 2w	●			
Pt100, 3w		●		
Pt100, 4w			●	
TC J (int. CJC)				●
TC K (int. CJC)	●			
TC J (Ext. CJC)		●	●	
TC K (Ext. CJC)	●	●	●	

Sensor Error Detection	S17
None	
Enable	●

Output Error Level	S18
Downscale	
Upscale	●

Output	S1	4	5	6
4...20 mA				●
20...4 mA				●

Noise Supp. S19	Resp.T. S1 10
50 Hz	< 30 ms
60 Hz	300 ms

● = ON

3333 - Pt100

Sensor	S1	1	2	3
Pt100, 2w	●			
Pt100, 3w		●		
Pt100, 4w			●	

Sensor Error Detection	S17
None	
Enable	●

Output Error Level	S18
Downscale	
Upscale	●

Output	S1	4	5	6
4...20 mA				●
20...4 mA				●

Noise Supp. S19	Resp.T. S1 10
50 Hz	< 30 ms
60 Hz	300 ms

● = ON

3113 and 3337 - Pt100 & TC J/K + HART

Sensor	S1	1	2	3
Pt100, 2w	●			
Pt100, 3w		●		
Pt100, 4w			●	
TC J (int. CJC)				●
TC K (int. CJC)	●			
TC J (Ext. CJC)		●	●	
TC K (Ext. CJC)	●	●	●	

Sensor Error Detection	S17
None	
Enable	●

Output Error Level	S18
Downscale	
Upscale	●

Output	S1	4	5	6
4...20 mA				●
20...4 mA				●

Noise Supp. S19	Config. S1 10
50 Hz	DIP
60 Hz	HART

● = ON

(Power must be cycled after DIP-switch positions are changed).

TEMPERATURE RANGE PROGRAMMING

DIP S2				● = ON	Temperature Range °C																				
Start Temp.	1	2	3	4	End Temp.	5	6	7	8	9	10	End Temp.	5	6	7	8	9	10	End Temp.	5	6	7	8	9	10
-200					0							105		●	●	●			375		●	●	●		
-180				●	5						●	110		●	●	●			400		●	●	●	●	
-150			●		10					●		115		●	●	●			450		●	●	●		
-100			●	●	15					●	●	120		●	●				500		●	●	●	●	
-50		●			20				●			125		●	●		●		550		●	●	●	●	
-25		●		●	25				●	●		130		●	●		●		600		●	●	●	●	●
-10		●	●		30				●	●		135		●	●	●	●		650		●	●			
-5		●	●	●	35				●	●	●	140		●	●	●			700		●	●			●
0	●				40				●			145		●	●	●	●		750		●	●			●
5	●			●	45				●		●	150		●	●	●	●		800		●	●		●	●
10	●		●		50				●	●		160		●	●	●	●	●	850		●	●	●		●
20	●		●	●	55				●	●	●	170		●					900		●	●			●
25	●	●			60				●	●		180		●				●	950		●	●	●	●	
50	●	●		●	65				●	●	●	190		●			●		1000		●	●	●	●	●
100	●	●	●		70				●	●	●	200		●			●	●	1050		●	●			
200	●	●	●	●	75				●	●	●	225		●		●			1100		●	●	●		●
					80				●			250		●	●	●	●		1150		●	●	●	●	
					85				●		●	275		●		●	●		1200		●	●	●	●	●
					90				●		●	300		●		●	●	●	1250		●	●	●	●	
					95				●		●	325		●		●			1300		●	●	●	●	●
					100				●	●	●	350		●	●		●		1350		●	●	●	●	●
																			1372		●	●	●	●	●

Sens. type :	Temp. range °C :
Pt100	-200 - +850°C
TC J	-100 - +1200°C
TC K	-180 - +1372°C

Please note:

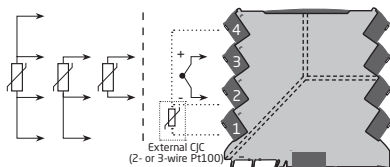
- a. 3101 and 3111 - only TC input available
Valid TC J range: -100...+1200°C = **correct DIP-switch setting**
Valid TC K range: -180...+1372°C = **correct DIP-switch setting**
- b. 3102, 3112 and 3333 - only Pt100 input available
Valid Pt100 range: -200...+850 °C = **correct DIP-switch setting**
- c. "Start temp" **must** be lower than "End temp" = **correct DIP-switch setting**
- d. Power must be cycled after DIP-switch positions are changed

FRONT LED INDICATIONS FOR 3101, 3102, 3111, 3112 AND 3113

LED (green)	Condition	Output	Action required
OFF	No supply/device error	De-energized	Connect supply/replace device
1 flash 0.5 s ON and OFF	Power-up or Restart	De-energized	-
Flashing 13 Hz / 15 ms ON	Device OK	Energized	-
Flashing 1 Hz / 500 ms ON	Incorrect DIP-sw setting	De-energized	Correct setting and repower
Flashing 1 Hz / 15 ms ON	Sensor error indication	Up- or Downscale acc. to NAMUR NE43	Check sensor and repower

BLOCK DIAGRAM AND WIRING

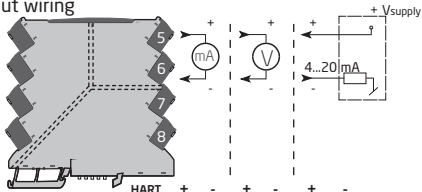
Input wiring



			+	-	CJC	Type
-	-	-	3	2	Y*	3101
1,2 & 3,4; 1,2 & 3	2 & 3		-	-	N	3102
-	-	-	3	2	Y	3111
1,2 & 3,4; 1,2 & 3	2 & 3		-	-	N	3112
1,2 & 3,4; 1,2 & 3	2 & 3		3	2	Y	3113
1,2 & 3,4; 1,2 & 3	2 & 3		3	2	Y	3331
1,2 & 3,4; 1,2 & 3	2 & 3		-	-	N	3333
1,2 & 3,4; 1,2 & 3	2 & 3		3	2	Y	3337

*3101 - only internal CJC

Output wiring



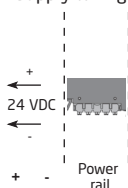
3101	N	5 : 6	5 : 6	-	-
3102	N	5 : 6	5 : 6	-	-
3111	N	5 : 6	5 : 6	-	-
3112	N	5 : 6	5 : 6	-	-
3113	Y	5 : 6	-	-	-
3331	N	-	-	5	6
3333	N	-	-	5	6
3337	Y	-	-	5	6
3405	N	-	-	-	-

3101, 3102 and 3333 - no galvanic isolation

3331 and 3337 - 2 port isolation (reinforced)

3111, 3112 and 3113 - 3 port isolation (reinforced)

Supply wiring



7 : 8	N
7 : 8	N
7 : 8	Y
7 : 8	Y
7 : 8	Y
-	N
-	N
-	N
7 : 8	Y



Displays Programmable displays with a wide selection of inputs and outputs for display of temperature, volume and weight, etc. Feature linearisation, scaling, and difference measurement functions for programming via PReset software.



Ex interfaces Interfaces for analogue and digital signals as well as HART® signals between sensors / I/P converters / frequency signals and control systems in Ex zone 0, 1 & 2 and for some modules in zone 20, 21 & 22.



Isolation Galvanic isolators for analogue and digital signals as well as HART® signals. A wide product range with both loop-powered and universal isolators featuring linearisation, inversion, and scaling of output signals.



Temperature A wide selection of transmitters for DIN form B mounting and DIN rail devices with analogue and digital bus communication ranging from application-specific to universal transmitters.



Multifunctional PC or front programmable devices with universal options for input, output and supply. This range offers a number of advanced features such as process calibration, linearisation and auto-diagnosis.





www.preelectronics.fr
sales@preelectronics.fr



www.preelectronics.de
sales@preelectronics.de



www.preelectronics.es
sales@preelectronics.es



www.preelectronics.it
sales@preelectronics.it



www.preelectronics.se
sales@preelectronics.se



www.preelectronics.co.uk
sales@preelectronics.co.uk



www.preelectronics.com
sales@preelectronics.com



www.preelectronics.cn
sales@preelectronics.cn

Head office

Denmark
PR electronics A/S
Lerbakken 10
DK-8410 Rønede

www.preelectronics.com
sales@preelectronics.dk
tel. +45 86 37 26 77
fax +45 86 37 30 85



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