



OPTITEMP Transmitters Catalogue

Family of Temperature Transmitters

- Complete range of temperature transmitters
- In head mount and rail mount versions
- Ex and Non-Ex
- HART and PROFIBUS
- Over 60 years of experience in temperature measurement

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Analog Adjustable 2-wire Transmitters



TT 10 C series is a family of multirange 2-wire temperature transmitters for Pt100 input. Designed for highest reliability and excellent industrial performance. The "low profile" housing is extremely durable and facilitates easy connections and adjustments.

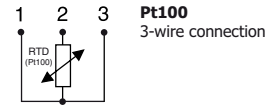
- Rangeable with solderpads and potentiometers
- Temperature linear output for Pt100
- Consistent sensor break function
- Easy wiring, large center hole
- Moulded electronics for high protection

Specifications:

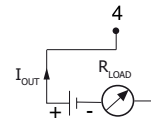
Input	Pt100 ¹⁾ , 3-wire connection	
Adjustments		
Span	50/100/150/200/300/400/500°C 100/200/300/400/600/800/1000°F	
Fine adjustment	±10%	
Zero	-50 to + 50°C -60 to + 120°F	
Output	4-20 mA	
Linearization	Temperature linear output	
Galvanic isolation	No	
Power supply		
	TT 10 C Non Ex	6.5 to 32 VDC
	TT 10 C Ex	8.5 to 30 VDC
Sensor failure	Upscale, Downscale	
Intrinsic safety	ATEX: II 1 G EEx ia IIB T4-T6	
Ambient temperature	-40 to 85°C/-40 to + 185°F	
Typical accuracy	±0.15% of temperature span	
Connection head	DIN B or larger	

¹⁾IEC 60751, α=0.00385

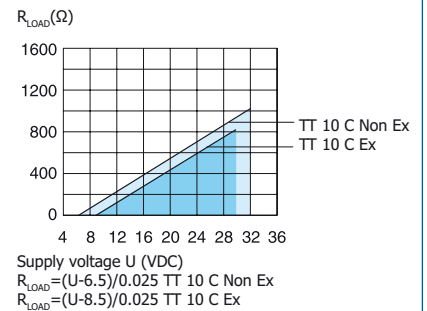
Input connections



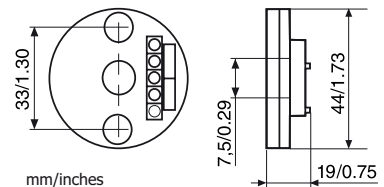
Output connections



Output load diagram



Dimensions



Ordering information

TT 10 C Non Ex	VIA04HRF0010000
TT 10 C Ex	VIA04HRFX010000
Factory configuration	VI70CAL00001



Analog Adjustable 2-wire Transmitters



TT 10 R is a multirange 2-wire temperature transmitter for Pt100 input. It is designed for highest reliability and excellent industrial performance.

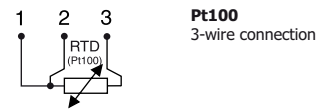
- Rangeable with solderpads and potentiometers
- Temperature linear output for Pt100
- Consistent sensor break function

Specifications:

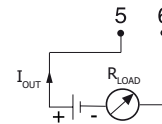
Input	Pt100 ¹⁾ , 3-wire connection
Sensor failure	Upscale, Downscale
Adjustments	
Span	50/100/150/200/300/400/500°C 100/200/300/400/600/800/1000°F
Fine adjustment	±10%
Zero	-50 to +50°C -60 to +120°F
Output	
Ambient temperature	4-20 mA
Linearization	-20 to +70 °C / -4 to +158 °F
Galvanic isolation	Temperature linear output
Power Supply	No
Typical accuracy	6.5 to 32 VDC
Mounting	±0.15% of temperature span
	Rail acc. to DIN EN50022, 35 mm

¹⁾IEC 60751, α=0.00385

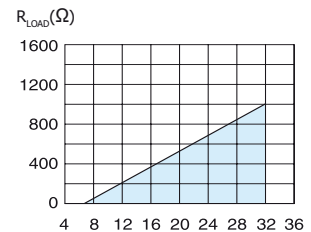
Input connections



Output connections

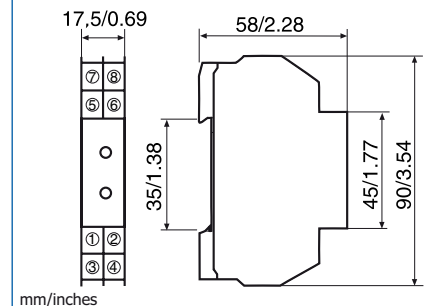


Output load diagram



Supply voltage U (VDC)
 $R_{LOAD} = (U - 6.5) / 0.025$

Dimensions



Ordering information

TT 10 R	VIA04LR00010000
Factory configuration	VI70CAL00001

Analog Adjustable 3-wire Transmitters



TT 11 C is a multirange 3-wire temperature transmitter with Pt100 or Pt1000 input and 0-10 V output.

Main applications are in the HVAC sector, where the control systems often require 0-10 V input signals.

TT 11 C is designed for high reliability and good industrial performance. The "low profile" housing is extremely durable and facilitates easy connections and adjustments.

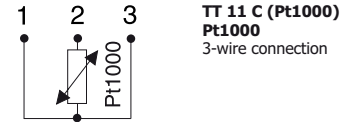
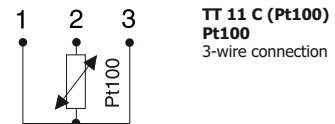
- 0-10 V output
- Rangeable with solder pads and potentiometers
- Temperature linear output
- Selectable sensor break function
- Short-circuit protected output
- Polarity protected power supply
- Easy wiring, large center hole
- Moulded electronics for high protection

Specifications:

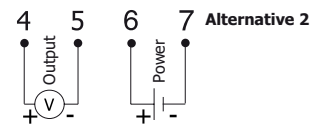
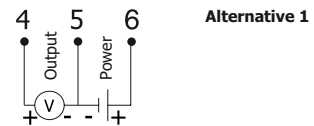
	TT 11 C (Pt100)	TT 11 C (Pt1000)
Input	Pt100 ¹⁾ , 3-wire connection	Pt1000 ¹⁾ , 3-wire connection
Maximum lead resistance	11 Ω/wire	11 Ω/wire
Sensor break	Upscale (>11 V), Downscale (0 V)	Upscale (>11 V), Downscale (0 V)
Adjustments		
Span	50/100/150/200 °C	50/100/150/200 °C
	100/200/300/400 °F	100/200/300/400 °F
Fine adjustment	±10 %	±10 %
Zero	-50 to +50 °C	-50 to +50 °C
	-60 to +120 °F	-60 to +120 °F
Output	0-10 V, 3-wire connection	0-10 V, 3-wire connection
Minimum load	10 kΩ	10 kΩ
Short-circuit protection	Yes	Yes
Ambient temperature	-40 to +85 °C / -40 to +185 °F	-40 to +85 °C / -40 to +185 °F
Linearization	Temperature linear output	Temperature linear output
Galvanic isolation	No	No
Power Supply	15 to 30 VDC (polarity protected)	15 to 30 VDC (polarity protected)
Current consumption	12 mA	12 mA
Typical accuracy	±0.15 % of temperature span	±0.15 % of temperature span
Connection head	DIN B or larger	DIN B or larger

¹⁾ IEC 60751, α=0.00385

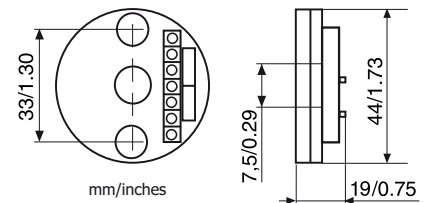
Input connections



Output & power supply connections



Dimensions



Ordering information

TT 11 C (Pt100)	VIA143H00010000
TT 11 C (Pt1000)	VIA143H00020000
Factory configuration	VI70CAL00001

Analog Adjustable 3-wire Transmitters



TT 11 R is a multirange 3-wire temperature transmitter with Pt100 or Pt1000 input and 0-10 V output. Main applications are in the HVAC sector, where the control systems often require 0-10 V input signals. TT 11 R is designed for high reliability and good industrial performance.

- 0-10 V output
- Rangeable with solder pads and potentiometers
- Temperature linear output
- Selectable sensor break function
- Short-circuit protected output
- Polarity protected power supply

Specifications:

	TT 11 R (Pt100)	TT 11 R (Pt1000)
Input	Pt100 ¹⁾ , 3-wire connection	Pt1000 ¹⁾ , 3-wire connection
Maximum lead resistance	11 Ω/wire	11 Ω/wire
Sensor break	Upscale (>11 V), Downscale (0 V)	Upscale (>11 V), Downscale (0 V)
Adjustments		
Span	50/100/150/200 °C 100/200/300/400 °F	50/100/150/200 °C 100/200/300/400 °F
Fine adjustment	±10 %	±10 %
Zero	-50 to +50 °C -60 to +120 °F	-50 to +50 °C -60 to +120 °F
Output	0-10 V, 3-wire connection	0-10 V, 3-wire connection
Minimum load	10 kΩ	10 kΩ
Short-circuit protection	Yes	Yes
Ambient temperature	-20 to +70 °C / -4 to +158 °F	-20 to +70 °C / -4 to +158 °F
Linearization	Temperature linear output	Temperature linear output
Galvanic isolation	No	No
Power Supply	15 to 30 VDC (polarity protected)	15 to 30 VDC (polarity protected)
Current consumption	12 mA	12 mA
Typical accuracy	±0.15 % of temperature span	±0.15 % of temperature span
Mounting	Rail acc. to DIN EN50022, 35 mm	Rail acc. to DIN EN50022, 35 mm

¹⁾ IEC 60751, α=0.00385

Input connections

TT 11 R (Pt100)
Pt100
3-wire connection

TT 11 R (Pt1000)
Pt1000
3-wire connection

Output & power supply connections

Alternative 1

Alternative 2

Dimensions

mm/inches

Ordering information

TT 11 R (Pt100)	VIA143L00010000
TT 11 R (Pt1000)	VIA143L00020000
Factory configuration	VI70CAL00001

Universal Programmable 2-wire Transmitters



TT 30 C are universal, isolated 2-wire transmitters for temperature and other measurement applications. They combine competitive pricing, functionality and simple configuration. Useful error correction functions improve the accuracy.

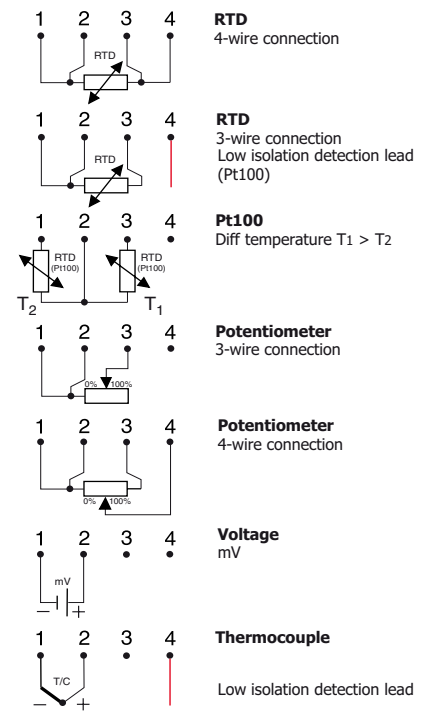
- Fully universal, linearized and high-isolation
- Accepts RTD, T/C, mV and Ω
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Full access to all features while in operation
- NAMUR compliant
- Consistent sensor break function
- Simplified loop check-up with calibration output
- Low sensor isolation detection
- TempSoft, easy-to-use Windows configuration software

Specifications:

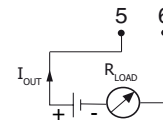
Input RTD	3-, 4-wire connection	
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C/-328 to +1832 °F	
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C/-328 to +392 °F	
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value	
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C/-328 to +1832 °F	
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C/ -328 to +1832 °F	
Ni100 ¹⁾	-60 to +250 °C/-76 to +482 °F	
Ni1000 ¹⁾	-10 to +150 °C/+14 to +302 °F	
Input Potentiometer / resistance	3-, 4-wire connection, 0 to 2000 Ω	
Input Thermocouples	Types AE, B, E, J, K, L, N, R, S, T, U	
Input mV	-10 to +500 mV	
Sensor failure / Low isolation	User definable output	
Adjustments - Zero	Any value within range limits	
Adjustments - Minimum spans		
Pt100, Pt1000, Ni100, Ni1000	10°C / 18°F	
Potentiometer	10 Ω	
T/C, mV	2 mV	
Output	4-20 / 20-4 mA, temperature linear	
Ambient temperature	-40 to +85°C / -40 to +185°F	
Galvanic isolation	1500 VAC, 1 min	
Power supply	TT 30 C Non Ex	6.5 to 36 VDC
	TT 30 C Ex	8 to 30 VDC
Intrinsic safety	ATEX: II 1 G EEx ia IIC T4-T6	
Typical accuracy	± 0.1 % of span	
Connection head	DIN B or larger	

¹⁾ IEC 60751

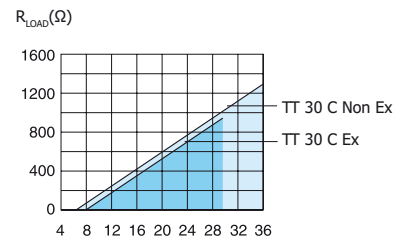
Input connections



Output connections

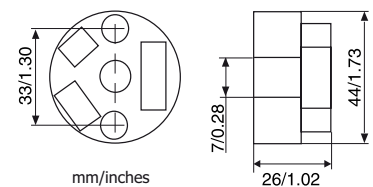


Output load diagram



Supply voltage U (VDC)
 $R_{LOAD} = (U - 6.5) / 0.022$ TT 30 C Non Ex
 $R_{LOAD} = (U - 8) / 0.025$ TT 30 C Ex

Dimensions



Ordering information

TT 30 C Non Ex	VII04H000010000
TT 30 C Ex	VII04HX00010000
PC Configuration Kit	VI70CFG00092
Factory configuration	VI70CAL00001



Universal Programmable 2-wire Transmitters



TT 30 R are universal, isolated 2-wire transmitters for temperature and other measurement applications. They combine competitive pricing, functionality and simple configuration. Useful error correction functions improve the accuracy.

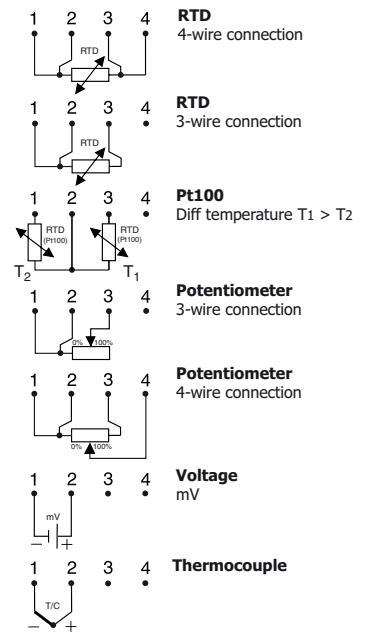
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Full access to all features while in operation
- NAMUR compliant
- Consistent sensor break function
- Simplified loop check-up with calibration output
- Test output without breaking the loop (TT 30 R Non Ex)
- TempSoft, easy-to-use Windows configuration software

Specifications:

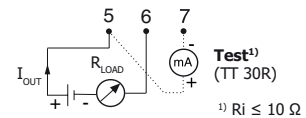
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C/-328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C/-328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C/-328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C/-328 to +1832 °F
Ni100 ¹⁾	-60 to +250 °C/-76 to +482 °F
Ni1000 ¹⁾	-10 to +150 °C/+14 to +302 °F
Input Potentiometer/resistance	3-, 4-wire connection. 0 to 2000 Ω
Input Thermocouples	Types AE, B, E, J, K, L, N, R, S, T, U
Input mV	-10 to +500 mV
Sensor failure	User definable output
Adjustments-Zero	Any value within range limits
Adjustments-Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C/18 °F
Potentiometer	10 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA, temperature linear
Ambient temperature	-20 to +70 °C/-4 to +158 °F
Galvanic isolation	1500 VAC, 1 min
Power supply	TT 30 R Non Ex 7.5 to 36 VDC TT 30 R Ex 8 to 30 VDC
Intrinsic safety	ATEX: II (1) G [EEx ia] IIC
Typical accuracy	± 0.1 % of span
Mounting	Rail acc. to DIN EN50022, 35 mm

¹⁾ IEC 60751

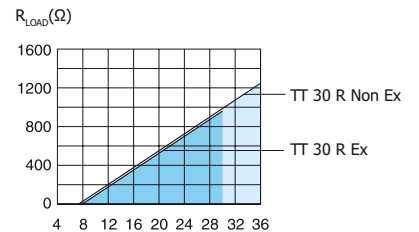
Input connections



Output connections

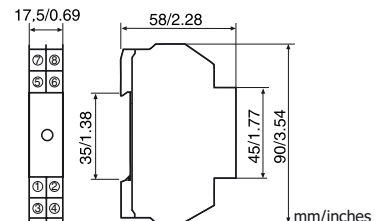


Output load diagram



Supply voltage U (VDC)
 $R_{LOAD} = (U - 7.5) / 0.022$ TT 30 R Non Ex
 $R_{LOAD} = (U - 8) / 0.022$ TT 30 R Ex

Dimensions



Ordering information

TT 30 R Non Ex	VII04L000010000
TT 30 R Ex	VII04LX00010000
PC Configuration Kit	VI70CFG00092
Factory configuration	VI70CAL00001

Universal 1- & 2-channel Programmable 2-wire Transmitters



TT 31 R (Ex) are 1- and 2-channel, universal, isolated 2-wire transmitters for Ex-applications. No zener barriers or Ex power supplies are needed, which reduces costs for purchase, design and maintenance.

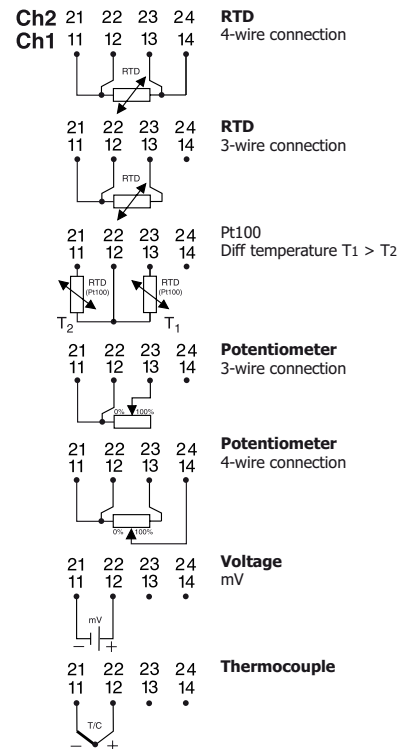
- 1- and 2-channel intrinsic safe TT 31 R Ex
- 1- and 2-channel non intrinsic safe TT 31 R Non Ex
- Very cost effective Ex-solution
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Full access to all features while in operation
- NAMUR compliant
- Consistent sensor break function
- Simplified loop check-up with calibration output
- TempSoft, easy-to-use Windows configuration software
- Only 11 mm/channel (2-channel versions)
- Fixed terminals or plug-in terminals with coding (see Ordering information)

Specifications:

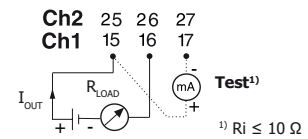
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C/-328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C/-328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C/-328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C/-328 to +1832 °F
Ni100 ¹⁾	-60 to +250 °C/-76 to +482 °F
Ni1000 ¹⁾	-10 to +150 °C/+14 to +302 °F
Input Potentiometer/resistance	3-, 4-wire connection, 0 to 2000 Ω
Input Thermocouples	Types AE, B, E, J, K, L, N, R, S, T, U
Input mV	-10 to +500 mV
Sensor failure	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C/18 °F
Potentiometer	10 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA, temperature linear
Ambient temperature	TT 31 R Non Ex -20 to +70 °C/-4 to +158 °F TT 31 R Ex -20 to +60 °C/-4 to +140 °F
Galvanic isolation	1500 VAC, 1 min
Power supply	8 to 36 VDC
Intrinsic safety	TT 31 R Ex ATEX: II (1) G/D [EEx ia] IIC Mounting in safe area, $U_{max}=250$ VAC
Typical accuracy	$\pm 0.1\%$ of span
Mounting	Rail acc. to DIN EN50022, 35 mm

¹⁾IEC 60751

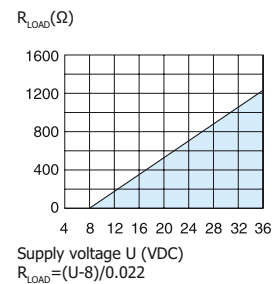
Input connections



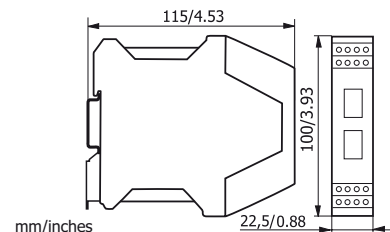
Output connections



Output load diagram



Dimensions



Ordering information

TT 31 R, Non Ex, 1-Ch., Plug-in terminals	VII2421L0010000
TT 31 R, Non Ex, 2-Ch., Plug-in terminals	VII2422L0010000
TT 31 R, Ex, 1-Ch., Fixed terminals	VII2421LX010000
TT 31 R, Ex, 2-Ch., Fixed terminals	VII2422LX010000
TT 31 R, Ex, 1-Ch., Plug-in terminals	VII2421LX020000
TT 31 R, Ex, 2-Ch., Plug-in terminals	VII2422LX020000
PC Configuration Kit	VI70CFG00092
Factory configuration	VI70CAL00001



Universal High-Isolation 4-wire Transmitter



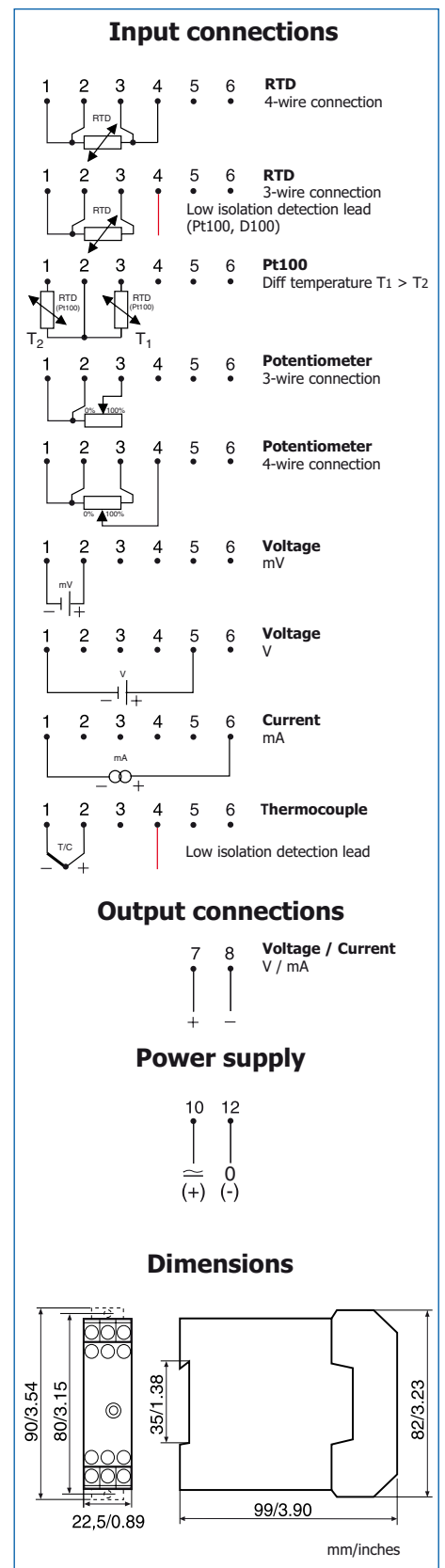
TT 32 R is a fully universal and programmable 4-wire (separately powered) transmitter. The high isolation provides safe and problem free measurements. Offering both current and voltage output, TT 32 R meets any process requirements. Designed for wall and DIN-rail mounting.

- High level isolation - 4000 VAC
- Fully universal and linearized
- Accepts RTD, T/C, mV, V, mA and Ω
- Current and voltage output
- Sensor and system error correction
- Full access to all features while in operation
- Consistent sensor break function
- Simplified loop check-up with calibration output
- Low sensor isolation detection
- TempSoft, easy-to-use Windows configuration software

Specifications:

Input RTD and Resistance	3-,4-wire connection
Pt100 ¹⁾	-200 to +1000 °C/-328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C/-328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X value
Ni100 ²⁾	-60 to +250 °C/-76 to +482 °F
Ni1000 ²⁾	-60 to +150 °C/-76 to +302 °F
Potentiometer / resistance	0 to 8000 Ω
Input Thermocouple	AE, B, E, J, K, L, N, R, S, T, U
Input Voltage	-10 to +500 mV / -10 to +50 V
Input Current	-1 to +50 mA
Sensor failure / Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C/18 °F
Potentiometer	10 Ω for $R \leq 2000 \Omega$, 100 Ω for $R > 2000 \Omega$
T/C, mV	2 mV
Volt	0,25 V
Current	0.4 mA
Output	0/4-20 or 20-4/0 mA, 0/2-10 or 10-2/0 V
Ambient temperature	-20 to +70 °C/-4 to +158 °F
Galvanic isolation	4000 VAC, 1 min
Power supply	90 to 250 VAC / 110 to 220 VDC
	20-30 VDC
Typical accuracy	$\pm 0.1\%$ of span
Mounting	Rail acc. to DIN EN50022, 35 mm and wall (brackets)

¹⁾ $\alpha=0.00385$, $\alpha=0.003916$ or $\alpha=0.003902$ ²⁾ IEC 60751



Ordering information

TT 32 R	VII144L00010000
(Power supply 90-250 VAC/110-220 VDC)	
TT 32 R	VII144L00020000
(Power supply 20-30 VDC)	
PC Configuration Kit	VI70CFG00092
Factory configuration	VI70CAL00001

High-precision Universal Programmable 2-wire Transmitter



TT 40 C offers outstanding accuracy, stability and high isolation combined with short response time and extended functionality. It is a universal 2-wire transmitter for high-demand temperature and process measurement applications. Error corrections and sensor diagnostics improve the measurement accuracy and safety.

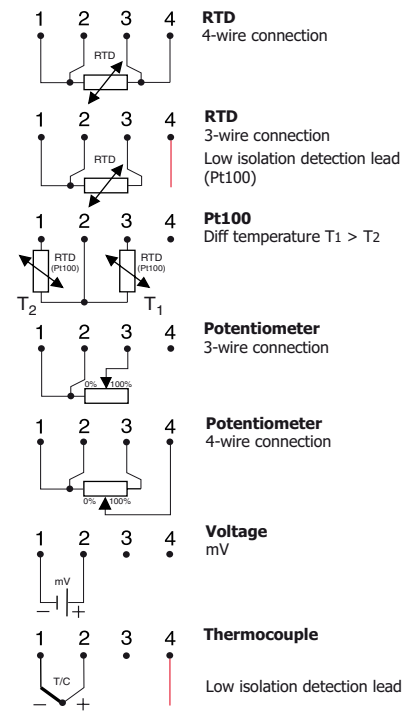
- Fully universal, linearized and highly isolated
- Accepts RTD, T/C, mV and Ω
- Extra high accuracy and stability
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- 40 point linearization - any sensor can be matched
- Configuration without external power
- High speed update (300 ms)
- Selectable output limits
- Low sensor isolation detection
- Full access to all features while in operation
- NAMUR compliant
- Consistent sensor break function
- Simplified loop check-up with calibration output
- TempSoft, easy-to-use Windows configuration software

Specifications:

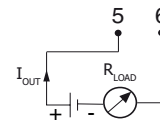
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C/-328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C/-328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C/-328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C/-328 to +1832 °F
Ni100 ¹⁾	-60 to +250 °C/-76 to +482 °F
Ni1000 ¹⁾	-10 to +150 °C/+14 to +302 °F
Input Potentiometer/resistance	3-, 4-wire connection, 0 to 2000 Ω
Input Thermocouples	Types AE, B, E, J, K, L, N, R, S, T, U
Input mV	-10 to +500 mV
Sensor failure/Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
Potentiometer	5 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA, temperature linear
Ambient temperature	-40 to +85°C/-40 to +185°F
Galvanic isolation	3750 VAC, 1 min
Power supply	6.5 to 36 VDC
Typical accuracy	± 0.05 % of span
Connection head	DIN B or larger

¹⁾ IEC 60751

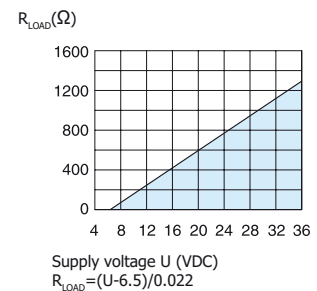
Input connections



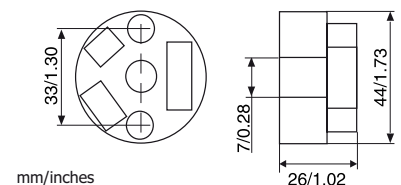
Output connections



Output load diagram



Dimensions



Ordering information

TT 40 C	VII04HP00010000
PC Configuration Kit	VI70CFG00092
Factory configuration	VI70CAL00001



High-precision Universal Programmable 2-wire Transmitter



TT 40 R offers outstanding accuracy, stability and high isolation combined with short response time and extended functionality. It is a universal 2-wire transmitter for high-demand temperature and process measurement applications. Error corrections and sensor diagnostics improve the measurement accuracy and safety.

- Fully universal, linearized and highly isolated
- Accepts RTD, T/C, mV and Ω
- Extra high accuracy and stability
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- 40 point linearization - any sensor can be matched
- Configuration without external power
- High speed update (300 ms)
- Selectable output limits
- Low sensor isolation detection
- Full access to all features while in operation
- NAMUR compliant
- Simplified loop check-up with calibration output
- Test output without breaking the loop
- TempSoft, easy-to-use Windows configuration software

Specifications:

Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C/-328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C/-328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C/-328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C/-328 to +1832 °F
Ni100 ¹⁾	-60 to +250 °C/-76 to +482 °F
Ni1000 ¹⁾	-10 to +150 °C/+14 to +302 °F
Input Potentiometer / resistance	3-, 4-wire connection 0 to 2000 Ω
Input Thermocouples	Types AE, B, E, J, K, L, N, R, S, T, U
Input mV	-10 to +500 mV
Sensor failure / Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10°C /18°F
Potentiometer	5 Ω
T/C, mV	2 mV
Output	4-20/20-4 mA, temperature linear
Ambient temperature	-20 to +70 °C/-4 to +158 °F
Galvanic isolation	3750 VAC, 1 min
Power supply	7.5 to 36 VDC
Typical accuracy	± 0.05 % of span
Mounting	Rail acc. to DIN EN50022, 35 mm

¹⁾ IEC 60751

Input connections

RTD
4-wire connection

RTD
3-wire connection
Low isolation detection lead (Pt100)

Pt100
Diff temperature $T_1 > T_2$

Potentiometer
3-wire connection

Potentiometer
4-wire connection

Voltage
mV

Thermocouple
Low isolation detection lead

Output connections

Test¹⁾

¹⁾ $R_i \leq 10 \Omega$

Output load diagram

Supply voltage U (VDC)
 $R_{LOAD} = (U - 7.5) / 0.022$

Dimensions

mm/inches

Ordering information

TT 40 R	VII04LP00010000
PC Configuration Kit	VI70CFG00092
Factory configuration	VI70CAL00001



Universal HART-compatible 2-wire Transmitters



TT 50 C are smart and universal 2-wire in-head transmitters for temperature and other measurement applications. TT 50 C are fully HART-compatible, with communication through the HART protocol.

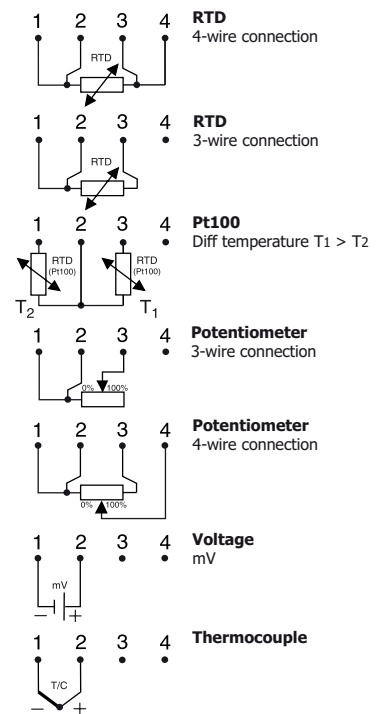
- Utilizes HART Protocol for remote configuration and monitoring
- Communicates with HART Communicator or PC via modem
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Sensor error correction
- Easy wiring, large center hole
- 50 point linearization – any sensor can be matched
- Consistent sensor break function
- Full access to all features while in operation
- Low sensor isolation detection
- HartSoft, easy-to-use Windows configuration software
- Integrated in Emerson AMS and Siemens PDM systems

Specifications:

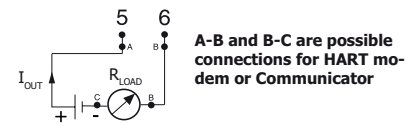
Input RTD and Resistance	3-,4-wire connection
Pt100 ¹⁾ and D100 ²⁾	-200 to +1000 °C/-328 to +1832 °F
Pt1000 ¹⁾	-200 to +200 °C/-328 to +392 °F
PtX 10 ≤ X ≤ 1000 ¹⁾	Upper range depending on X value
Ni100 ³⁾	-60 to +250 °C/-76 to +482 °F
Ni1000 ³⁾	-60 to +150 °C/-76 to +302 °F
Potentiometer / resistance	0 to 2000 Ω
Input Thermocouples	AE, B, E, J, K, L, N, R, S, T, U
Input Voltage	-10 to +500 mV
Sensor failure / Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10°C /18°F
Potentiometer	10 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA
Ambient temperature	-40 to +85°C / -40 to +185°F
Galvanic isolation	1500 VAC, 1 min
Power supply	TT 50 C Non Ex 10 to 42 VDC TT 50 C Ex 12 to 30 VDC
Intrinsic safety	ATEX: II 1 G EEx ia IIC T4-T6
Typical accuracy	±0.1% of temperature span
Connection head	DIN B or larger

¹⁾IEC 60751, $\alpha=0.00385$ ²⁾Pt100 acc. to JIS 1604, $\alpha=0.003916$ ³⁾IEC 60751

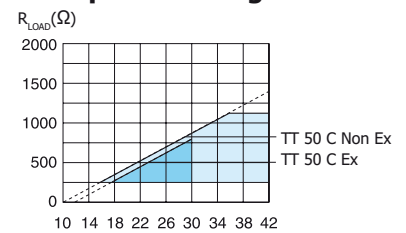
Input connections



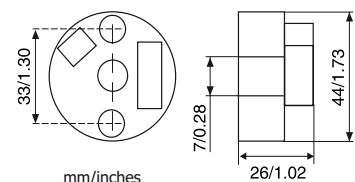
Output connections



Output load diagram



Dimensions



Ordering information

TT 50 C Non Ex	VIM24H000010000
TT 50 C Ex	VIM24HX00010000
HART PC modem RS232	VI70MEM00001
HART PC modem USB	VI70MEM00003
Software CD	VI70CDSOFT01
Factory configuration	VI70CAL00001



Universal HART-compatible 2-wire Transmitter



TT 50 R is a smart and universal 2-wire transmitter for temperature and other measurement applications. TT 50 R is fully HART-compatible, with communication through the HART protocol.

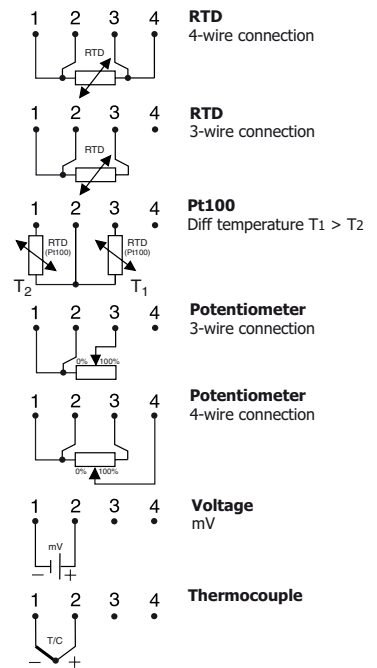
- Utilizes HART protocol for remote configuration and monitoring
- Communicates with HART Communicator or PC via modem
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and ohm
- Sensor error correction
- 50 point linearization – any sensor can be matched
- Consistent sensor break function
- Simplified loop check-up with calibration output
- Full access to all features while in operation
- Low sensor isolation detection
- HartSoft, easy-to-use Windows configuration software
- Integrated in Emerson AMS and Siemens PDM systems

Specifications:

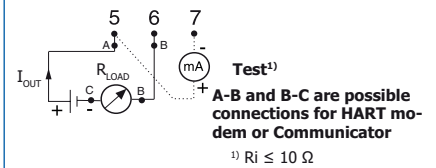
Input RTD and Resistance	3-,4-wire connection
Pt100 ¹⁾ and D100 ²⁾	-200 to +1000 °C/-328 to +1832 °F
Pt1000 ¹⁾	-200 to +200 °C/-328 to +392 °F
PtX 10 ≤ X ≤ 1000 ¹⁾	Upper range depending on X value
Ni100 ³⁾	-60 to +250 °C/-76 to +482 °F
Ni1000 ³⁾	-60 to +150 °C/-76 to +302 °F
Potentiometer / resistance	0 to 2000 Ω
Input Thermocouples	AE, B, E, J, K, L, N, R, S, T, U
Input Voltage	-10 to +500 mV
Sensor failure / Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C/18 °F
Potentiometer	10 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA
Ambient temperature	-20 to +70 °C/-4 to +158 °F
Galvanic isolation	1500 VAC, 1 min
Power supply	11 to 42 VDC
Typical accuracy	±0.1% of temperature span
Mounting	Rail acc. to DIN EN50022, 35 mm

¹⁾ IEC 60751, α=0,00385 ²⁾ Pt100 acc. JIS 1604, α=0,003916 ³⁾ IEC 60751

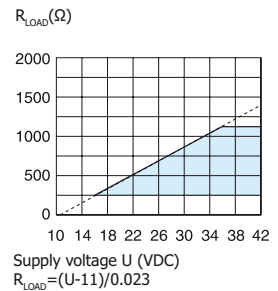
Input connections



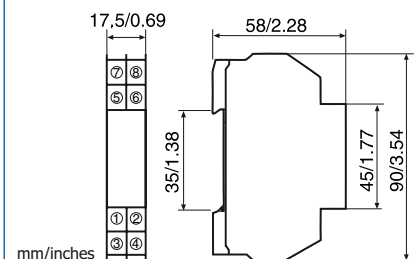
Output connections



Output load diagram



Dimensions



Ordering information

TT 50 R	VIM24L000010000
HART PC modem RS232	VI70MEM00001
HART PC-modem USB	VI70MEM00003
Software CD	VI70CDSOFT01
Factory configuration	VI70CAL00001



Universal High-performance Profibus-PA Transmitters



Thanks to the digital output TT 60 C offers very accurate measurements as well as sensor and process information. With five input terminals new features such as two redundant Pt100 in 3-wire connection, are included. Configuration from a PC with Krohne software, ProfiSoft, or over the Profibus network.

- Up to 125 transmitters in one Profibus network
- Profile version 3.0, Class A & B
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Double Pt100, 3-wire, and T/C input
- Multiple outputs: Input value of Ch1 and Ch2, a scaled process value, redundancy with double sensor elements, arithmetic functions (difference, average, minimum and maximum)
- Easy wiring, large center hole
- Sensor matching corrects for sensor errors
- 50 point linearization – any sensor can be matched
- Excellent sensor monitoring functions such as: sensor break, sensor short circuit, low sensor isolation and sensor aging
- Rugged design tested for 5 g vibrations
- Integrated in Siemens PDM system

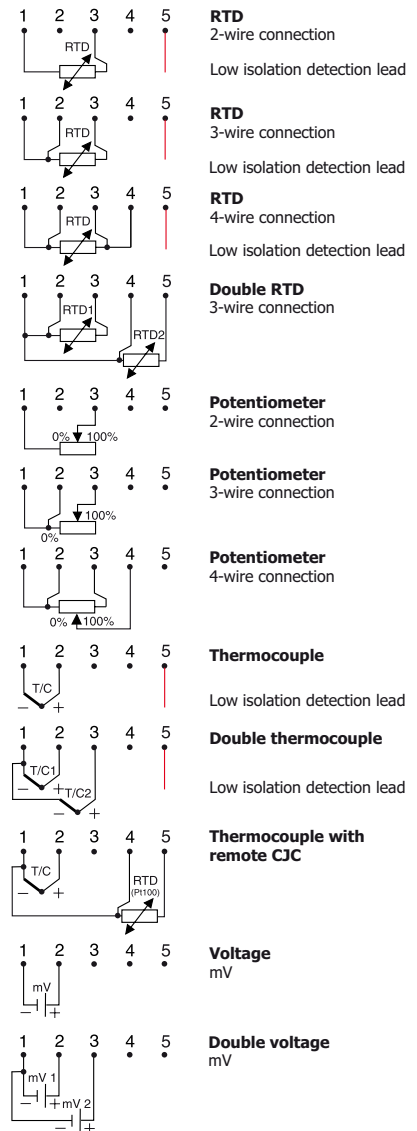
Specifications:

Input RTD and Resistance	2-, 3- and 4-wire connection	
Pt10 ¹⁾ , Pt50 ¹⁾ , Pt100 ¹⁾ , Pt200 ¹⁾ , Pt500 ¹⁾ , Pt1000 ¹⁾	-200 to +850 °C/-328 to +1562 °F	
PtX 10 ≤ X ≤ 1000 ^{1), 4)}	-200 to +850 °C/-328 to +1562 °F	
Pt10 ²⁾ , Pt50 ²⁾ , Pt100 ²⁾	-200 to +850 °C/-328 to +1562 °F	
Ni50 ³⁾ , Ni100 ³⁾ , Ni120 ³⁾ , Ni1000 ³⁾	-200 to +850 °C/-328 to +1562 °F	
Input Potentiometer / Resistance	0 to 4000 Ω	
Input Thermocouples	B, C, D, E, J, K, L, N, R, S, T, U	
Input Voltage	-10 to +1000 mV	
Double channels for redundancy and arithmetic functions		
Differential	Ch1 - Ch2 or Ch2 - Ch1	
Average value	0.5 x (Ch1 + Ch2)	
Average value with redundancy	0.5 x (Ch1 + Ch2), Ch1 or Ch2 if the other one is broken	
Minimum value	Min (Ch1, Ch2)	
Maximum value	Max (Ch1, Ch2)	
Ambient temperature	-40 to +85 °C/-40 to +185 °F	
Galvanic isolation	1500 VAC, 1 min	
Power supply	TT 60 C Non Ex	9 to 32 VDC
	TT 60 C Ex	9 to 17.5 VDC
Ex-approval		
	TT 60 C Non Ex	ATEX: II 3 G EEx nL IIC T4-T6 (FNICO)
	TT 60 C Ex	ATEX: II 1 G Ex ia IIC T4-T6 (FISCO)
Typical accuracy	Pt100: 0.10 °C/0.18 °F ⁵⁾	
Connection head	DIN B or larger	

¹⁾IEC 60751, $\alpha=0.00385$ ²⁾JIS 1604, $\alpha=0.003916$ ³⁾IEC 60751, $\alpha=0.006180$ ⁴⁾With Krohne PC software ProfiSoft

⁵⁾For other inputs, see datasheet

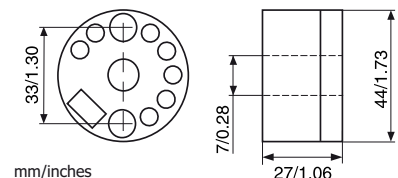
Input connections



Output connections



Dimensions



Ordering information

TT 60 C Non Ex	VIP04H000010000
TT 60 C Ex	VIP04HX00010000
Configuration kit	VI70CFG00092
Factory configuration	VI70CAL00001



Universal High-performance Profibus-PA Transmitters



Thanks to the digital output TT 60 R offers very accurate measurements as well as sensor and process information. With five input terminals new features such as two redundant Pt100 in 3-wire connection, are included. Configuration from a PC with Krohne software, ProfiSoft, or over the Profibus network.

- Up to 125 transmitters in one Profibus network
- Profile version 3.0, Class A & B
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Double Pt100, 3-wire, and T/C input
- Multiple outputs: Input value of Ch1 and Ch2, a scaled process value, redundancy with double sensor elements, arithmetic functions (difference, average, minimum and maximum)
- Easy wiring, plug-in screw terminals
- Sensor matching corrects for sensor errors
- 50 point linearization – any sensor can be matched
- Excellent sensor monitoring functions such as: sensor break, sensor short circuit, low sensor isolation and sensor aging
- Up to 8 Masters Class 2
- Integrated in Siemens PDM system

Specifications:

Input RTD and Resistance	2-, 3- and 4-wire connection
Pt10 ¹⁾ , Pt50 ¹⁾ , Pt100 ¹⁾ , Pt200 ¹⁾ , Pt500 ¹⁾ , Pt1000 ¹⁾	-200 to +850 °C / -328 to +1562 °F
PtX 10 ≤ X ≤ 1000 ^{1), 4)}	-200 to +850 °C / -328 to +1562 °F
Pt10 ²⁾ , Pt50 ²⁾ , Pt100 ²⁾	-200 to +850 °C / -328 to +1562 °F
Ni50 ³⁾ , Ni100 ³⁾ , Ni120 ³⁾ , Ni1000 ³⁾	-200 to +850 °C / -328 to +1562 °F
Input Potentiometer / Resistance	0 to 4000 Ω
Input Thermocouples	B, C, D, E, J, K, L, N, R, S, T, U
Input Voltage	-10 to +1000 mV
Double channels for redundancy and arithmetic functions	
Differential	Ch1 - Ch2 or Ch2 - Ch1
Average value	0.5 x (Ch1 + Ch2)
Average value with redundancy	0.5 x (Ch1 + Ch2), Ch1 or Ch2 if the other one is broken
Minimum value	Min (Ch1, Ch2)
Maximum value	Max (Ch1, Ch2)
Ambient temperature	-20 to +70 °C / -4 to +158 °F
Galvanic isolation	1500 VAC, 1 min
Power supply	9 to 32 VDC
Typical accuracy	Pt100: 0.10 °C / 0.18 °F ⁵⁾
Mounting	Rail acc. to DIN EN50022, 35 mm

¹⁾IEC 60751, $\alpha=0.00385$ ²⁾JIS 1604, $\alpha\alpha=0.003916$ ³⁾IEC 60751, $\alpha=0.006180$ ⁴⁾With Krohne PC software ProfiSoft

⁵⁾For other inputs, see datasheet

Input connections

RTD 2-wire connection
Low isolation detection lead

RTD 3-wire connection
Low isolation detection lead

RTD 4-wire connection
Low isolation detection lead

Double RTD 3-wire connection

Potentiometer 2-wire connection

Potentiometer 3-wire connection

Potentiometer 4-wire connection

Thermocouple
Low isolation detection lead

Double thermocouple
Low isolation detection lead

Thermocouple with remote CJC

Voltage mV

Double voltage mV

Output connections

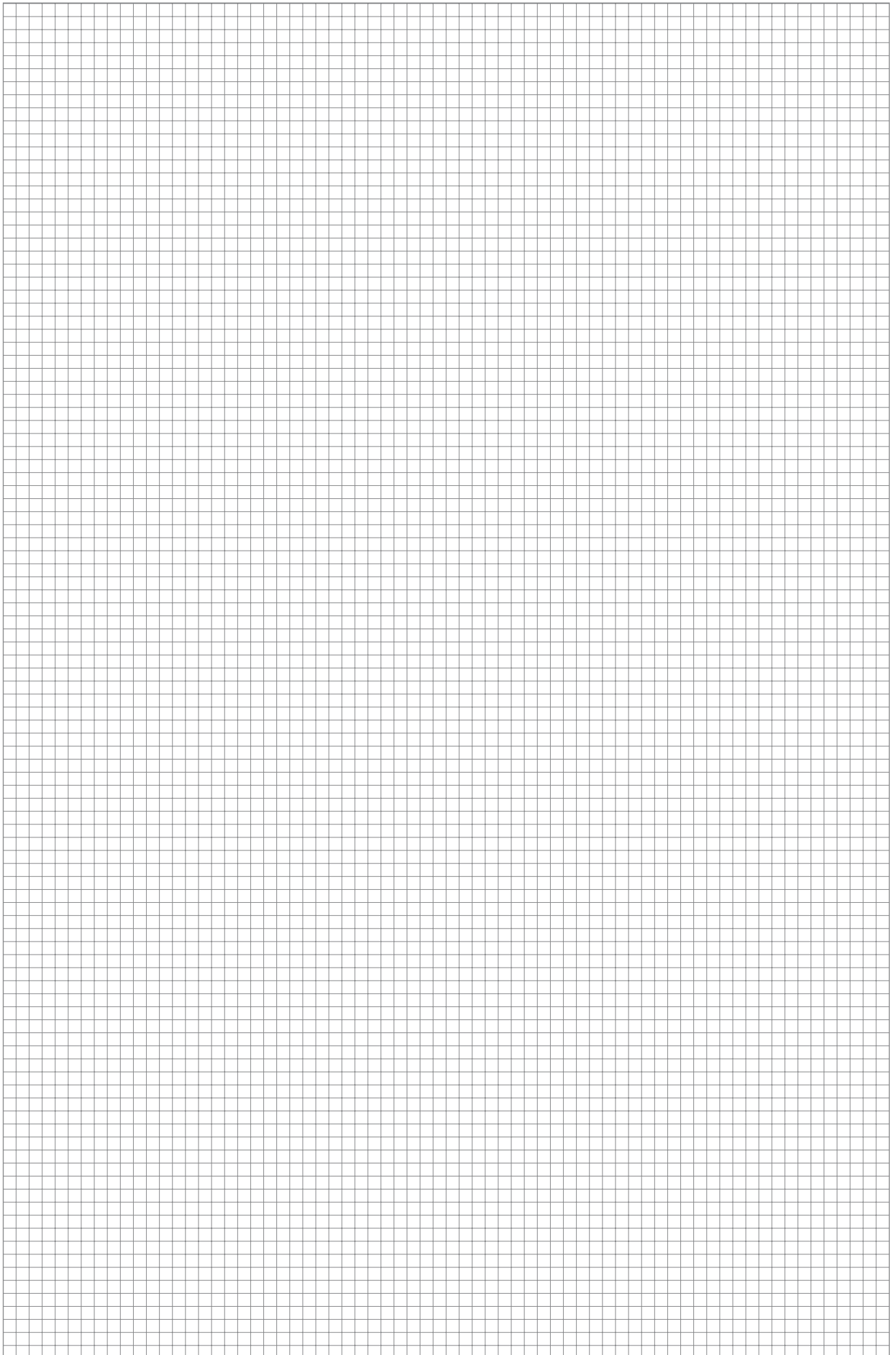
Bus connection (polarity independent)

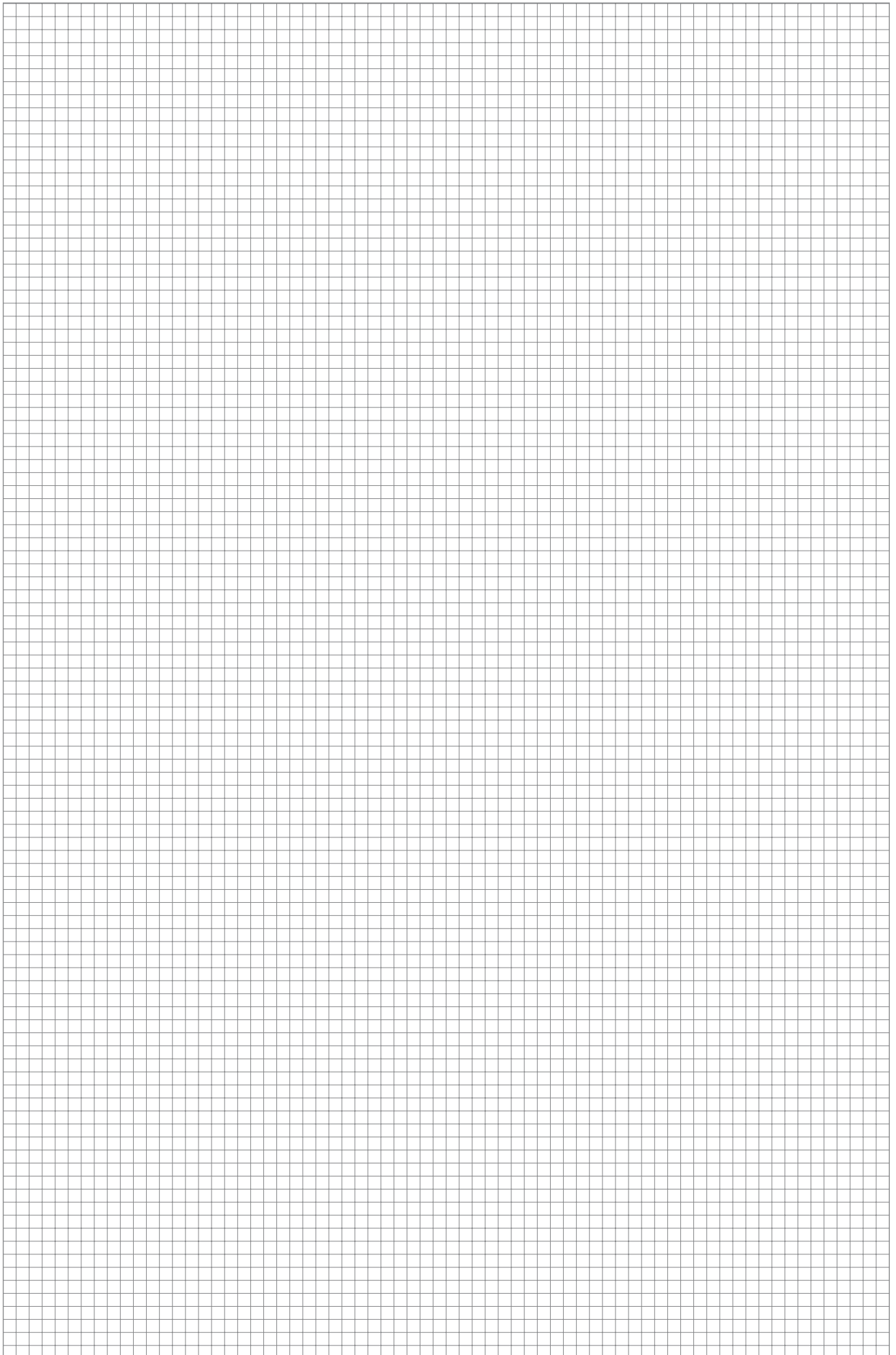
Dimensions

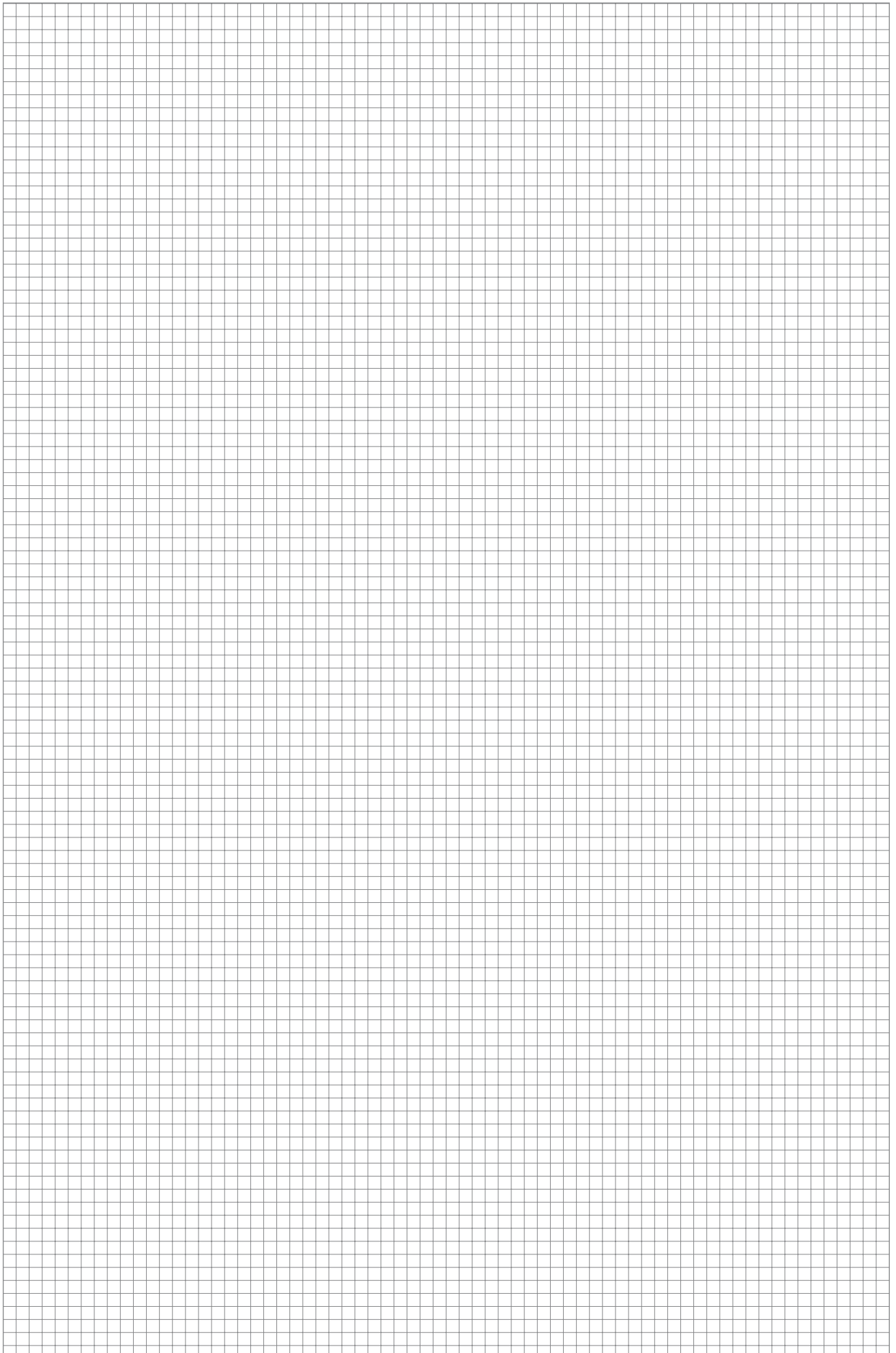
mm/inches

Ordering information

TT 60 R	VIP04L000010000
Configuration kit	VI70CFG00092
Factory configuration	VI70CAL00001







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