General Information
Temperature Transmitters & Instruments Section

SensorTec Configured Part Number — Q ☐ ☐ — ☐ (Lower Limit - Upper Limit) ☐

Use for Inhead Transmitter Configuration Q ☐ — ☐☐☐ — ☐ (Lower Limit - Upper Limit) ☐

Use for DIN-rail Transmitter Configuration Q ☐ -L ☐☐ — ☐ (Lower Limit - Upper Limit) ☐
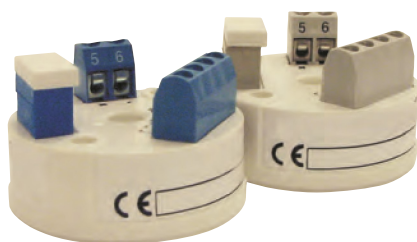
2 = Intelligent Transmitter (Isolated Input)
4 = Universal HART-Compatible Transmitter
7 = Multi-Range Transmitter (Non-Isolated Input)
9 = Intelligent Transmitter (Non-Isolated Input)
10 = Multi-Range Transmitter (Non-Isolated Input)

R = RTD
C = Thermocouple

B = 3-Wire 100Ω RTD
C = 4-Wire 100Ω RTD
L = 3-Wire 1000Ω RTD
M = 4-Wire 1000Ω RTD
_ = Insert Thermocouple Type (B,C,E,J,K,L,N,R,S,T,U)

C = Celsius
F = Fahrenheit

Lower Limit = Lower Temperature Limit
Upper Limit = Upper Temperature Limit

U = Upscale Burnout > 20mA
D = Downscale Burnout < 4mA

X = Intrinsic Safe Version
_ = Standard Version (Leave Blank)

Q2 / Q2-X

Universal Programmable 2-wire Transmitters

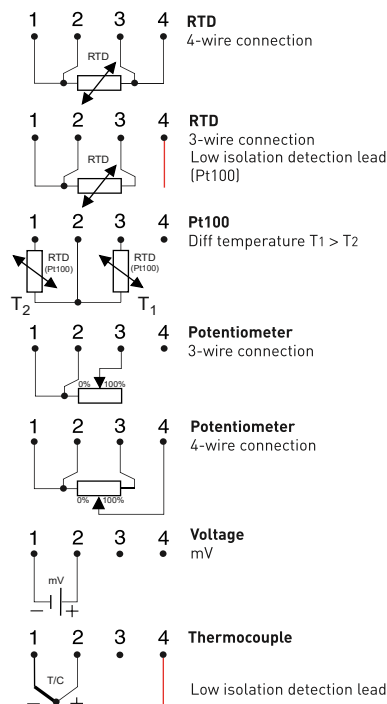Ex CSA® FM APPROVED CE 5 YEAR WARRANTY

Q2 / Q2-X 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
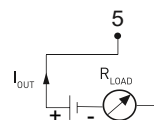- Low sensor isolation detection

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

Output load diagram

$R_{LOAD}=(U-6.5)/0.022$ (Q2)
$R_{LOAD}=(U-8)/0.022$ (Q2-X)

Specifications:

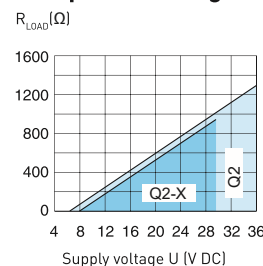| Input RTD	3-, 4-wire connection
Pt100 (α=0.00385)	-200 to +1000 °C / -328 to +1832 °F
Pt1000 (α=0.00385)	-200 to +200 °C / -328 to +392 °F
PtX 10 ≤ X ≤ 1000 (α=0.00385)	Upper range depending on X-value
Pt100 (α=0.003902)	-200 to +1000 °C / -328 to +1832 °F
Pt100 (α=0.003916)	-200 to +1000 °C / -328 to +1832 °F
Ni100[1], Ni120[2]	-60 to +250 °C / -76 to +482 °F
Ni1000[1]	-100 to +150 °C / -148 to +302 °F
Cu10[3]	-200 to +260 °C / -328 to +500 °F
Input Potentiometer / resistance	3-, 4-wire connection, 0 to 2000 Ω
Input Thermocouples	Types B, C, 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
Operating temperature	-40 to +85 °C / -40 to +185 °F
Galvanic isolation	1500 VAC, 1 min
Power supply Q2	6.5 to 36 VDC
Q2-X	8 to 30 VDC
Intrinsic safety	
Q2-X ATEX:	II 1 G EEx ia IIC T4-T6
Q2-X FM:	IS Class I, DIV 1, GP A-D
Q2-X CSA:	Class I, Groups A-D
Typical accuracy	±0.1 % of span
Connection head	DIN B or larger

[1] DIN 43760   [2] Edison No. 7   [3] Edison No. 15

Dimensions

33/1.30

7/0.28

44/1.73

26/1.02

mm/inches

Q2-L/Q2-LX
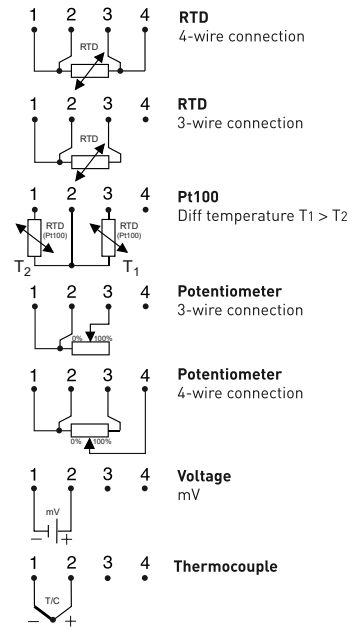
Universal Programmable 2-wire Transmitters

Q2-L/Q2-LX 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
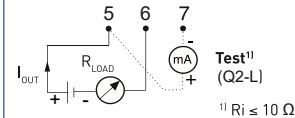- Test output without breaking the loop (Q2-L)

Input connections

RTD
4-wire connection

RTD
3-wire connection

Pt100
Diff temperature T1 > T2

Potentiometer
3-wire connection

Potentiometer
4-wire connection

Voltage
mV

Thermocouple

Output connections

Test[1]
(Q2-L)

[1] Ri ≤ 10 Ω

Output load diagram

$R_{LOAD}(\Omega)$

Supply voltage U (V DC)

$R_{LOAD}=(U-7.5)/0.022$ (Q2-L)
$R_{LOAD}=(U-8)/0.022$ (Q2-LX)

Dimensions

17,5/0.69   58/2.28   35/1.38   45/1.77   90/3.54

mm/inches

Specifications:

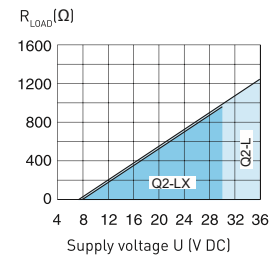| Input RTD		3-, 4-wire connection
Pt100 (α=0.00385)		-200 to +1000 °C / -328 to +1832 °F
Pt1000 (α=0.00385)		-200 to +200 °C / -328 to +392 °F
PtX 10 ≤ X ≤ 1000 (α=0.00385)		Upper range depending on X-value
Pt100 (α=0.003902)		-200 to +1000 °C / -328 to +1832 °F
Pt100 (α=0.003916)		-200 to +1000 °C / -328 to +1832 °F
Ni100[1], Ni120[2]		-60 to +250 °C / -76 to +482 °F
Ni1000[1]		-100 to +150 °C / -148 to +302 °F
Cu10[3]		-200 to +260 °C / -328 to +500 °F
Input Potentiometer/resistance		3-, 4-wire connection. 0 to 2000 Ω
Input Thermocouples		Types B, C, 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
Operating temperature		-20 to +70 °C / -4 to +158 °F
Galvanic isolation		1500 VAC, 1 min
Power supply	Q2-L	7.5 to 36 VDC
	Q2-LX	8 to 30 VDC
Intrinsic safety (Mounting in safe area)		
Q2-LX ATEX:		II (1) G [EEx ia] IIC
Q2-LX FM:		IS Class I-III, DIV 1, GP A-G
Q2-LX CSA:		Class I, Groups A-D; Class II, Groups E-G; Class III
Typical accuracy		±0.1 % of span
Mounting		Rail acc. to DIN EN50022, 35 mm

[1] DIN 43760   [2] Edison No. 7   [3] Edison No. 15

Q4/Q4-X

Universal HART-compatible 2-wire Transmitters

Q4/Q4-X are smart and universal 2-wire in-head transmitters for temperature and other measurement applications. Q4/Q4-X are fully HART-compatible, with communication through the HART protocol.
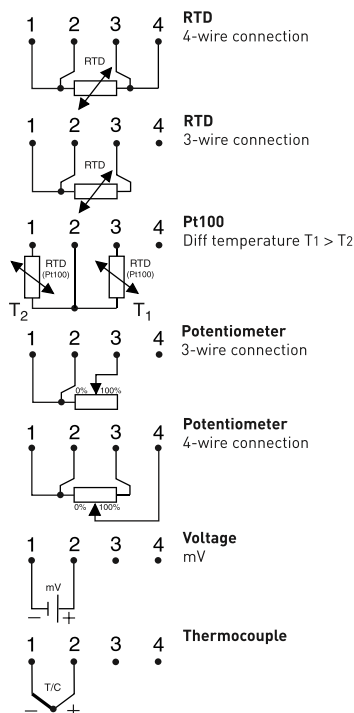
- Utilizes HART Protocol for remote configuration and monitoring
- Communicates with HART Communicator or PC via modem
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Sensor error correction
- Easy wiring, large center hole
- 50 point linearization – any sensor can be matched
- Consistent sensor break function
- Full access to all features while in operation
- Low sensor isolation detection
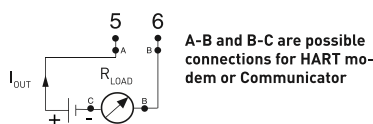- Integrated in Emerson AMS and Siemens PDM systems

Input connections

RTD — 4-wire connection
RTD — 3-wire connection
Pt100 — Diff temperature T1 > T2
Potentiometer — 3-wire connection
Potentiometer — 4-wire connection
Voltage — mV
Thermocouple

Output connections

A-B and B-C are possible connections for HART modem or Communicator

Output load diagram

$R_{LOAD}(\Omega)$

Supply voltage U (V DC)

$R_{LOAD}=(U-10)/0.023$ (Q4)
$R_{LOAD}=(U-12)/0.023$ (Q4-X)

Dimensions

mm/inches

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		B, C, 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
Operating temperature		-40 to +85 °C / -40 to +185 °F
Galvanic isolation		1500 VAC, 1 min
Power supply	Q4	10 to 42 VDC
	Q4-X	12 to 30 VDC
Intrinsic safety		
Q4-X ATEX:		II 1 G EEx ia IIC T4-T6
Q4-X FM:		IS Class I-III, DIV 1, GP A-D, G
Q4-X CSA:		Class I, Groups A-D; Class II, Group G; Class III
Typical accuracy		±0.1% of temperature span
Connection head		DIN B or larger

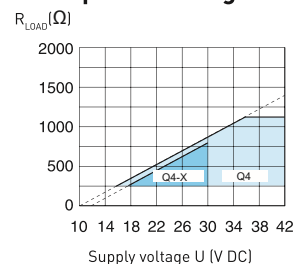[1]IEC 60751, α=0.00385   [2]Pt100 acc. to JIS 1604, α=0.003916   [3]DIN 43760

HART
COMMUNICATION PROTOCOL

Q4-L

Universal HART-compatible 2-wire Transmitter

CE 5 YEAR WARRANTY

7 -Test
5 +Out- 6

CE

Q4-L is a smart and universal 2-wire transmitter for temperature and other measurement applications. Q4-L 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
- Integrated in Emerson AMS and Siemens PDM systems

Input connections

				RTD 4-wire connection
				RTD 3-wire connection
				Pt100 Diff temperature T1 > T2
				Potentiometer 3-wire connection
				Potentiometer 4-wire connection
				Voltage mV
				Thermocouple

Output connections

Test[1]
A-B and B-C are possible connections for HART modem or Communicator
[1] Ri ≤ 10 Ω

Output load diagram

$R_{LOAD}[\Omega]$

Supply voltage U (V DC)

$R_{LOAD}=(U-11)/0.023$

Dimensions

17,5/0.69   58/2.28   35/1.38   45/1.77   90/3.54

mm/inches

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	B, C, 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
Operating 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
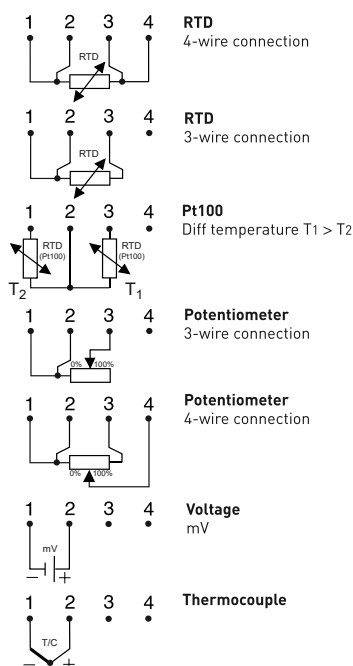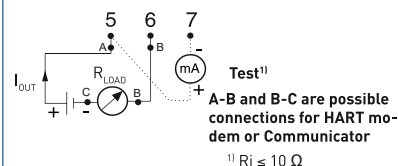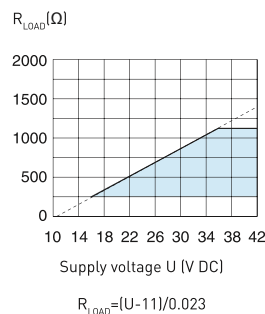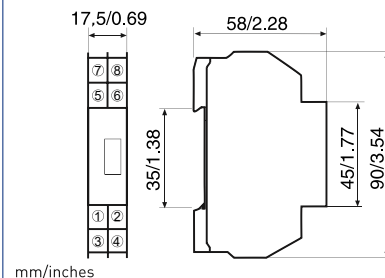
[1] IEC 60751, α=0,00385   [2] Pt100 acc. JIS 1604, α=0,003916 [3] DIN 43760

Q7-R/-C
Q7-RX/-CX

Analog Adjustable 2-wire Transmitters

Q7 is a family of multirange 2-wire temperature transmitters for Pt100 or Thermocouple 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 (Q7-R/Q7-RX)
- mV linear output for T/C (Q7-C/Q7-CX)
- Consistent sensor break function
- Easy wiring, large center hole
- Moulded electronics for high protection

Input connections

Q7-R/Q7-RX

1 2 3   Pt100
           3-wire connection

RTD (Pt100)

Q7-C/Q7-CX

1 2 3   Thermocouple

T/C – +

Output connections

4 5

I_{OUT} R_{LOAD}
+ -

Output load diagram

$R_{LOAD}(\Omega)$

1600
1200
800
400
0

4 8 12 16 20 24 28 32 36
Supply voltage U (V DC)

Q7-R/-C
Q7-RX/-CX

$R_{LOAD}=(U-6.5)/0.025$ (Q7-R/-C)
$R_{LOAD}=(U-8.5)/0.025$ (Q7-RX/-CX)

Dimensions

33/1.30
7,5/0.29
44/1.73
19/0.75

mm/inches

Specifications:

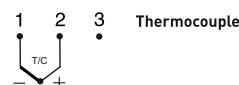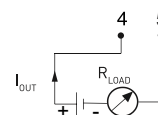|	Q7-R/Q7-RX	Q7-C/Q7-CX
Input	Pt100 [1], 3-wire connection	T/C J, L, T, K, N
Adjustments		
Span	50/100/150/200/300/400/500 °C	10 to 50 mV continuously
	100/200/300/400/600/800/1000 °F	Temperature ranges acc to datasheet
Fine adjustment	±10 %	±10 %
Zero	-50 to + 50 °C	±10 % of span
	-60 to + 120 °F	
Output	4-20 mA	4-20 mA
Linearization	Temperature linear output	mV linear output
Galvanic isolation	No	No
Power supply		
Q7-R/-C	6.5 to 32 VDC	6.5 to 32 VDC
Q7-RX/-CX	8.5 to 30 VDC	8.5 to 30 VDC
Sensor break	Upscale, Downscale	Upscale, Downscale
Intrinsic safety		
Q7-RX/-CX ATEX:	II 1 G EEx ia IIB T4-T6	II 1 G EEx ia IIB T4-T6
Q7-RX/-CX FM:	IS Class 1, DIV 1, GP A-D	IS Class I, Div. 1, GP A-D
Q7-RX/-CX CSA:	Class 1, Groups A-D	Class I, Groups A-D
Operating Temperature	-40 to +85 °C / -40 to +185 °F	-40 to +85 °C / -40 to +185 °F
Typical accuracy	±0.15 % of temperature span	±0.5 % to ±1.0 % of temperature span
Connection head	DIN B or larger	DIN B or larger

[1] IEC 60751, α=0.00385

Q7-LR Q7-LC

Analog Adjustable 2-wire Transmitters

Q7-LR is a multirange 2-wire temperature transmitter for Pt100 input.
Q7-LC is adjustable for 5 different thermocouple types.
Q7-LR/-LC are designed for highest reliability and excellent industrial performance.

- Rangeable with solderpads and potentiometers
- Temperature linear output for Pt100 (Q7-LR)
- mV linear output for thermocouples (Q7-LC)
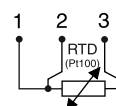- Consistent sensor break function

Specifications:

	Q7-LR	Q7-LC
Input	Pt100 [1], 3-wire connection	T/C J, L, T, K, N
Sensor break	Upscale, Downscale	Upscale, Downscale
Adjustments		
Span	50/100/150/200/300/400/500 °C	10 to 50 mV continuously
	100/200/300/400/600/800/1000 °F	Temperature ranges acc. to datasheet
Fine adjustment	±10 %	±10 %
Zero	-50 to +50 °C	±10 % of span
	-60 to +120 °F	
Output	4-20 mA	4-20 mA
Operating Temperature	-20 to +70 °C / -4 to +158 °F	-20 to +70 °C / -4 to +158 °F
Linearization	Temperature linear output	mV linear output
Galvanic isolation	No	No
Power Supply	6.5 to 32 VDC 6.5 to 32 VDC	
Typical accuracy	±0.15 % of temperature span	±0.5 % to ±1.0 % 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
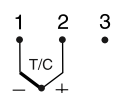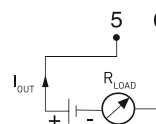
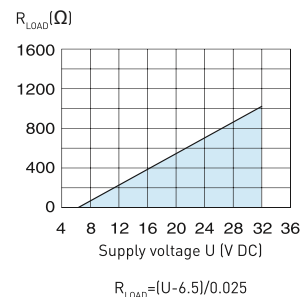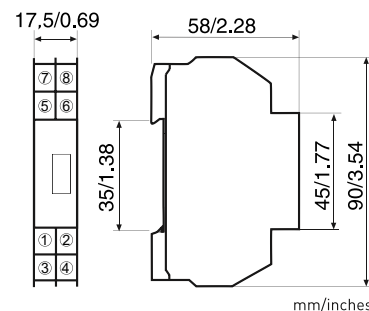### Q7-LR

Pt100
3-wire connection

Q7-LC

Thermocouple

Output connections

Output load diagram

R_{LOAD}(Ω)

Supply voltage U (V DC)

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

Dimensions

17,5/0.69   58/2.28

35/1.38   45/1.77   90/3.54

mm/inches

Q9

Basic Programmable 2-wire Transmitter

CE

5 YEAR WARRANTY

Q9 is a basic, programmable non-isolated, easy-to-use 2-wire transmitter. The Low Profile housing has a hight of only 18.5 mm / 0.72 inch. Configuration is made in seconds with the user friendly Windows software. No external power supply required for configuration.
The transmitter is programmable for RTD's in 3- and 4-wire connection according to different standards as well as for 11 T/C types.
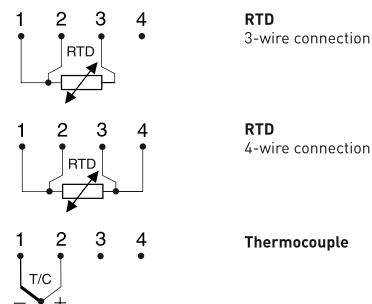Useful error correction functions improve the accuracy.

- Robust terminals with test connections
- Only 18.5 mm / 0.72 inch high
- Accepts RTD in 3- and 4-wire connection and 11 T/C types
- Temperature linear output
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Configuration without external power
- Easy-to-use Windows configuration software
- NAMUR compliant
- Rugged design tested for 10 g vibrations
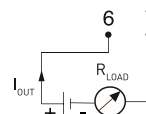- USB communication

Specifications:

Input RTD	3-, 4-wire connection
Pt100 (α=0.00385)[1]	-200 to +1000 °C / -328 to +1832 °F
Pt1000 (α=0.00385)[1]	-200 to +200 °C / -328 to +392 °F
PtX 10 ≤ X ≤ 1000 (α=0.00385)[1]	Upper range depending on X-value
Pt100 (α=0.003902)	-200 to +1000 °C / -328 to +1832 °F
Pt100 (α=0.003916)	-200 to +1000 °C / -328 to +1832 °F
Ni100[2]	-60 to +250 °C / -76 to +482 °F
Ni1000[2]	-10 to +150 °C / +14 to +302 °F
Ni120[3]	-70 to +300 °C / -94 to +572 °F
Cu10[4]	-200 to +260 °C / -328 to +500 °F
Input Thermocouples	
Types	B, C, E, J, K, L, N, R, S, T, U
Sensor failure	Upscale, downscale or off
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
T/C	2 mV
Output	4-20 mA, temperature linear
Operating temperature	-40 to +85 °C / -40 to +185 °F
Galvanic isolation	No
Power supply	8 to 32 VDC
Typical accuracy	±0.15 % of temperature span
Connection head	DIN B or larger

[1] IEC 60751, [2] DIN 43760, [3] Edison No.7, [4] Edison No.15
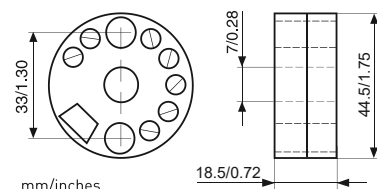
Input connections

RTD 3-wire connection

RTD 4-wire connection

Thermocouple

Output connections

Output load diagram

Supply voltage U (V DC)

$R_{LOAD}=(U-8)/0.022$
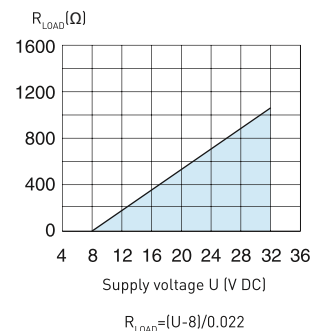
Dimensions

mm/inches

Q9-L

Basic Programmable 2-wire Transmitter

CE — 5 YEAR WARRANTY

Q9-L is a basic, programmable non-isolated, easy-to-use 2-wire transmitter. Configuration is made in seconds with the user friendly Windows software. No external power supply required for configuration.
Q9-L is programmable for RTD's in 3- and 4-wire connection according to different standards as well as for 11 T/C types.
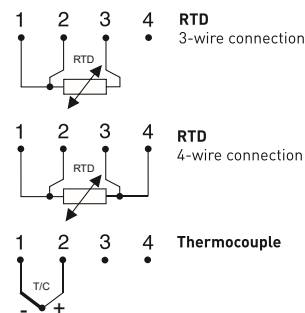Useful error correction functions improve the accuracy.

- Accepts RTD in 3- and 4-wire connection and 11 T/C types
- Temperature linear output
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Configuration without external power
- Easy-to-use Windows configuration software
- NAMUR compliant
- Test output without breaking the loop
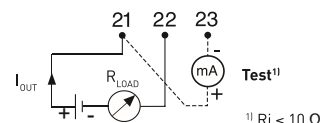- USB communication
- Withstands vibrations up to 10 g

Input connections

RTD 3-wire connection

RTD 4-wire connection

Thermocouple

Output connections

I_{OUT}, R_{LOAD}, mA, Test[1]

[1] $Ri \leq 10\ \Omega$

Output load diagram

$R_{LOAD}(\Omega)$

Supply voltage U (V DC)

$R_{LOAD} = (U-8)/0.022$

Dimensions

17.5/0.69   68/2.68   35/1.38   45/1.77   98/3.86   63/2.48

mm/inch

Specifications:

Input RTD	3-, 4-wire connection
Pt100 (α=0.00385)	-200 to +1000 °C / -328 to +1832 °F
Pt1000 (α=0.00385)	-200 to +200 °C / -328 to +392 °F
PtX 10 ≤ X ≤ 1000 (α=0.00385)	Upper range depending on X-value
Pt100 (α=0.003902)	-200 to +1000 °C / -328 to +1832 °F
Pt100 (α=0.003916)	-200 to +1000 °C / -328 to +1832 °F
Ni100[2]	-60 to +250 °C / -76 to +482 °F
Ni1000[2]	-10 to +150 °C / +14 to +302 °F
Ni120[3]	-70 to +300 °C / -94 to +572 °F
Cu10[4]	-200 to +260 °C / -328 to +500 °F
Input Thermocouples	
Types	B, C, E, J, K, L, N, R, S, T, U
Sensor failure	Upscale, downscale or off
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C /18 °F
T/C	2 mV
Output	4-20 mA, temperature linear
Operating temperature	-20 to +70 °C / -4 to +158 °F
Galvanic isolation	No
Power supply	8 to 32 VDC
Typical accuracy	±0.15 % of temperature span
Mounting	Rail acc. to DIN EN 50022, 35 mm

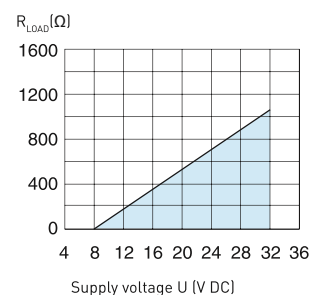[1] IEC 60751, [2] DIN 43760, [3] Edison No.7, [4] Edison No.15

Q10

Analog Adjustable 3-wire Transmitters

Input connections

Q10 (Pt100)
Pt100
3-wire connection

Q10 (Pt1000)
Pt1000
3-wire connection

Q10 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.
Q10 is designed for high reliability and good industrial performance.
The "low profile" housing is extremely durable and facilitates easy connections and adjustments.
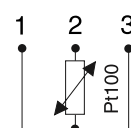
- 0-10 V output
- Rangeable with solder pads and potentiometers
- Temperature linear output
- Selectable sensor break function
- Short-circuit protected output
- Polarity protected power supply
- Easy wiring, large center hole
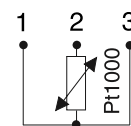- Moulded electronics for high protection

Output & power supply connections
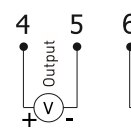
Alternative 1

Alternative 2

Dimensions

mm/inches

Specifications:

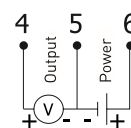|	Q10 (Pt100)	Q10 (Pt1000)
Input	Pt100 [1], 3-wire connection	Pt1000 [1], 3-wire connection
Maximum lead resistance	11 Ω / wire	11 Ω / wire
Sensor break	Upscale (>11 V), Downscale (0 V)	Upscale (>11 V), Downscale (0 V)
Adjustments		
Span	50/100/150/200 °C	50/100/150/200 °C
	100/200/300/400 °F	100/200/300/400 °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
Operating 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

Q10-L

Analog Adjustable 3-wire Transmitters

Input connections

Q10 (Pt100)
Pt100
3-wire connection
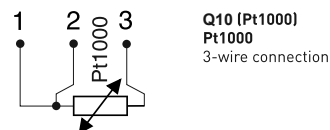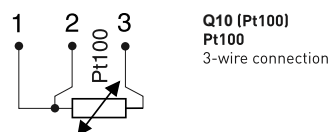
Q10 (Pt1000)
Pt1000
3-wire connection

Q10 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.
Q10 is designed for high reliability and good industrial performance.

Output & power supply connections

Alternative 1

Alternative 2

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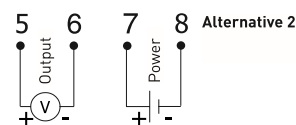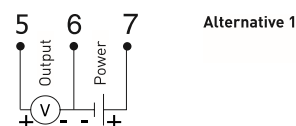- Polarity protected power supply

Specifications:

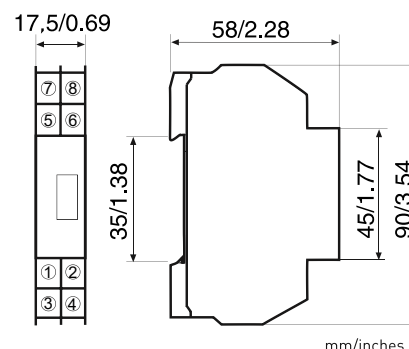|	Q10 (Pt100)	Q10 (Pt1000)
Input	Pt100 [1], 3-wire connection	Pt1000 [1], 3-wire connection
Maximum lead resistance	11 Ω / wire	11 Ω / wire
Sensor break	Upscale (>11 V), Downscale (0 V)	Upscale (>11 V), Downscale (0 V)
Adjustments		
Span	50/100/150/200 °C	50/100/150/200 °C
	100/200/300/400 °F	100/200/300/400 °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
Operating 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

Dimensions

17,5/0.69   58/2.28   35/1.38   45/1.77   90/3.54

mm/inches

LCD-H11X

Loop Powered Heavy-duty LCD Field Indicator

LCD-H11X

CE | 10 YEAR WARRANTY

Indicator Connections

LCD-H11X is a digital, heavy-duty LCD indicator for installation directly in a 4-20 mA loop without need for external power.
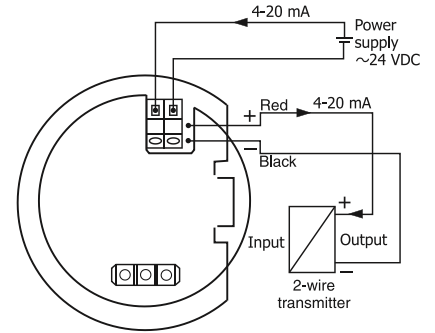
The indicator is equipped with high-contrast, easy-to-read LCD digits. The scale is easily programmable, without reference signal, by three push buttons for any values between - 1999 and 9999.

- Can be used with any DIN B transmitter or as display only
- Installation directly in a 4-20 mA loop without need for power supply
- Only 1.5 V voltage drop
- High-contrast, 4-digit LCD display
- Simple push button scaling without reference signal
- Any range between -1999 to 9999 for 4 to 20 mA input
- Labels for different engineering units are included
- Typical accuracy of 0.05 % allows for high precision read-outs
- HART transparent
- Designed for ambient temperatures between -25 to +70 °C / -13 to +158 °F
- Field mounting in rugged IP 66 / NEMA 4X housing
- 90° indexing of display orientation

Specifications:

Input Current	4-20 mA
Maximum current	30 mA
Minimum current for operation	~3.5 mA
Voltage drop	~1.5 V
Indication	
Display	Black LCD with 4 digits including minus sign
Digit height	12.7 mm / 0.5 "
Indication range	Any range between -1999 to 9999
Decimals	Selectable, 0 to 3
Under range / Over range	Flashing symbols LO/HI
Engineering units	Set of labels included (including blanks)
Response time	Appr. 0.5 s
Scale setting	3 pushbuttons inside the housing
Operation temperature	-25 to +70 °C /-13 to +158 °F
Typical accuracy	±0.05 % FS ±1 digit
Connections	Stranded, ≤ 1.5 mm², AWG 16
Enclosure	
Material	Pressure Die Cast Aluminium; Silicone Rubber gasket; Glass window
Paint	Spray Epoxy Primer with Polyurethane Top Coat. Color: RAL 5005 Signal Blue
Protection	NEMA 4X / IP66
	FM/CSA Class 1, Div 1 & 2
	[FM Cert 3019264] [CSA Cert 1717515]
Conduit Connections	3 x ¾" NPT Threaded ports
Mounting	Wall mount or optional 2" Conduit 316 SS bar clamp

Dimensions

mm/inches
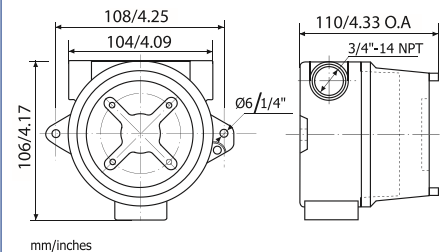
Ordering information

LCD-H11X	70LCDH11X
Configuration	70CAL00001
SS Bar clamp	70PMB-2-SS316

For indicator only (without housing), contact SensorTec

LCD-H20

Loop Powered LCD Indicator for In-head Mounting

LCD-H20

CE — 5 YEAR WARRANTY

LCD-H20 is a digital indicator for installation directly in a 4-20 mA loop without need for external power.
LCD-H20 is designed for in-head mounting in a sensor connection head with glass window.
The indicator is equipped with high-contrast, easy-to-read LCD digits.
The scale is easily programmable, without reference signal, by three pushbuttons for any values between -1999 and 9999.
As an option, LCD-H20 can be delivered mounted in a connection head.

- Installation directly in a 4-20 mA loop without need for power supply
- 2.5 V voltage drop
- High-contrast, 4-digit LCD display with 12 mm digits
- Simple pushbutton scaling without reference signal
- Any range between -1999 to 9999 for 4 to 20 mA input
- Labels for different engineering units are included
- Typical accuracy of 0.1 % allows for high precision read-outs
- HART transparent
- Designed for ambient temperatures between -20 to +70 °C /-4 to +158 °F
- Protection IP65 when mounted in connection head Type 1 or Type 2

Specifications:

Input Current	4 - 20 mA
Operating range	3.8 - 22 mA
Voltage drop	2.5 V
Indication	
Display	Black LCD with 4 digits incl. minus sign
Digit Height	12 mm
Indication range	Any range between -1999 to 9999
Decimals	Selectable, 0 to 3
Engineering units	Set of labels included (including blanks)
Response time	Adjustable 0.25 s to 2 s
Scale setting	3 pushbuttons
Operating temperature	-20 to +70 °C / -4 to +158 °F
Typical accuracy	±0.1 % of programmed span ±1 digit
Dimensions	Diameter 59 mm, thickness 20 mm
Protection	IP20 (IP65 in connection head)
Connection	Stranded, ≤ 1 mm², AWG 16
Mounting	Connection head Type 1 or Type 2 with mounting kit KDST1

Connections/Dimensions Indicator

mm
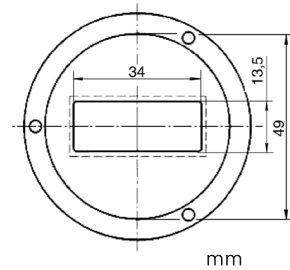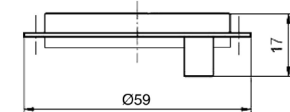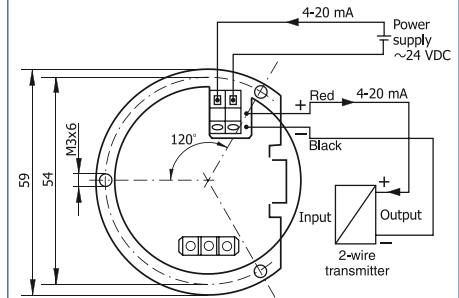
Dimensions connection head

mm
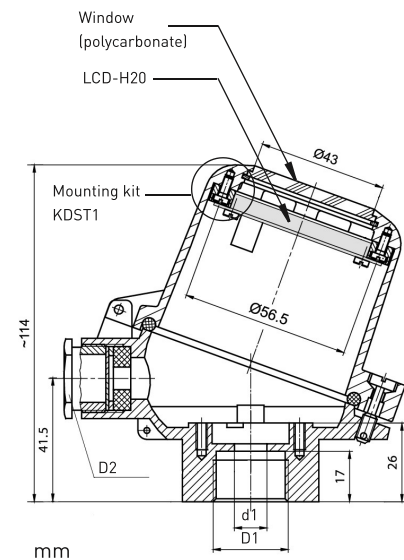
	D1	d1	D2
Head Type 1	M24x1.5	14	M20x1.5
Head Type 2	½"NPT	17	¾"NPT