INSTRUCTION MANUAL

ALM42
ALM46
ALM48
ALM43

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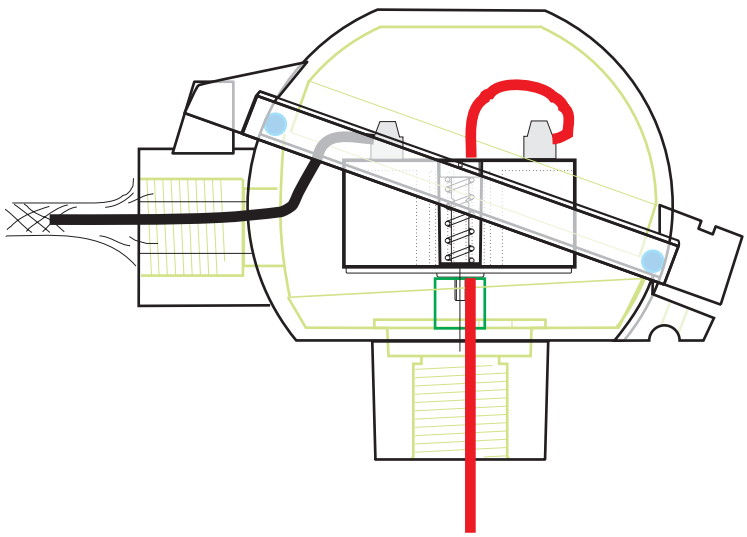
INSTALLATION REQUIREMENTS

- The ALM series does not have ATEX approval.

- The ALM series transmitters have an ingress protection of IP20.
This requires usage in a dry, clean and well controlled environment.
Mount the headmount transmitter in a (DAN) head as described below..

CE

- Use twisted pair, shielded cable to connect the transmitter to its power supply
in order to obtain the best immunity to Electromagnetic signals.
On the power supply side connect the shield to the power supply's earthing point,
on the transmitter side connect the shield to the grounded head somewhere close to the
transmitter. Make sure the transmitter is firmly connected to the head.



WARRANTY

Our transmitters have a 5 year warranty.
Follow usage instruction in this manual.
In case of malfunction return to your supplier.

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SPECIFICATIONS

GENERAL INTRODUCTION:
The "ALM"-series are low cost loop-powered temperature transmitters.
The ALM42-R and ALM42-T are free to scale head-mount transmitters for Pt100 (-R) and thermocouples (-T).
The ALM46 both -R and -T are pre-scaled head-mount transmitters.
For both ALM42 and ALM46 fine tuning of the range can be done by potentiometers.
The ALM43 is limited to a single Pt100 sensor.

The ALM48 represents the rail-mount version of the ALM42. It is also free scalable by means of internal solder links. The ALM48-Z features an extra zero-shift option: the range of an ALM48-Z may start as high as 400°C. Follow the instructions of selecting and fine tuning the range and you'll have a transmitter that fills your requirements.

Type Size	Alm42 Headmount	Alm46 Headmount	Alm48 Railmount
Power supply (LED indicator)	14-40 V DC	14-40 V DC	14-40 V DC
Power supply effect	0.002%/V	0.02%/V	0.002%/V
Polarity protected	yes	yes	yes
Output	4 - 20 mA	4 - 20 mA	4 - 20 mA
Load capability	(V(bat)-14V)/20mA	(V(bat)-14V)/20mA	(V(bat)-14V)/20mA
Ambient temperature	-20..+80°C	-10..+70°C	-20..+80°C
Zero adjustment	potentiometer: -50..+50°C	potentiometer: -25..+25°C	potentiometer: -50..+50°C
Zero shift (in 4 steps)	not available	not available	optional (enter "Z")
Span adjustment	potentiometer; +100% of minimum selected span (see table 1)		
Burn out	Upscale (max 35mA)	Upscale (max 35mA)	Upscale (max 35mA)
Zero drift	±0.025%/°C	±0.030%/°C	±0.025%/°C
Span drift	±0.010%/°C	±0.015%/°C	±0.010%/°C
Rail mounting	optional	optional	standard
			continue >>>>

Type Size	Alm43 Headmount
Power supply	14-40 V DC
Polarity protected	yes
Output	4 - 20 mA
Load capability	(V(bat)-14V)/20mA
Ambient temperature	-10..+70°C
Zero adjustment	potentiometer: -25..+25°C
Zero shift	not available
Range	selectable by solderlink
Span adjustment	potentiometer
Burn out	Upscale (max 35mA)
Accuracy	0.2% of scale o 0.2°C
Rail mounting	optional
Input	Pt100 only
Range	0...+800°C
Linearisation	Yes (0.1%)
Sensor lead effect	0.39 Ohm / °C

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SPECIFICATIONS (Continued)

Type	Alm42	Alm46	Alm48
Pt100			
Range	-50...800°C selectable in 4 steps	-25...800°C 4 fixed range models	-50...800°C selectable in 4 steps
Linearisation	0.1%	0.15%	0.1%
Sensor lead effect	0.03°C/ohm	0.05°C/ohm	0.03°C/ohm
Max sensor line resistance	250 ohm	100 ohm	250 ohm
Thermocouple			
Range type K	-50...1200°C selectable in 3 steps	-25...1200°C 3 fixed range models	-50...1200°C selectable in 3 steps
Range type J	-50...900°C selectable in 3 steps	-25...900°C 3 fixed range models	-50...900°C selectable in 3 steps
Range type T	-50...400°C selectable in 2 steps	-25...400°C 2 fixed range models	-50...400°C selectable in 2 steps
For non-standard thermocouple calibration consult factory			
Burnout Downscale	optional	optional	optional
Cold junction drift	0.03°C/°C	0.05°C/°C	0.03°C/°C
Max sensor line resistance	10 kiloOhms	5 kiloOhms	10 kiloOhms
mV			
Range (see table 1)	10...160 mV selectable in 4 steps	10...160 mV 4 fixed range models	10...160 mV selectable in 4 steps

TABLE 1 ALM46 FIXED RANGE

The ALM46 is factory scaled. Therefore you must specify the desired span.

SPAN	Pt100	Thermocouple K	Thermocouple J	Thermocouple T	mV
1	50....100°C	150....300°C	150...300°C	150....300°C	10....20
2	100....200°C	300....600°C	300...600°C	300...400°C	20....40
3	200....400°C	600..1200°C	600...900°C		40....80
4	400....800°C				80...160

On the ALM42 and ALM43 you can easily select any of these ranges yourself,
just by making a solder link on top of the transmitter .
On the ALM48 you can easily select any of these ranges yourself, just by making a solder link inside

TABLE 2 ZERO SHIFT OPTION

Alm48 - "Z" gives you the option to select the
ZERO between the following temperatures:

RTD	Thermocouples
-50.....50°C	0...100°C
50...150°C	100...200°C
150...250°C	200...300°C
250.. 350°C	300...400°C

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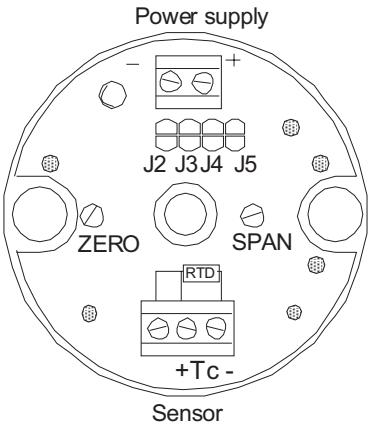
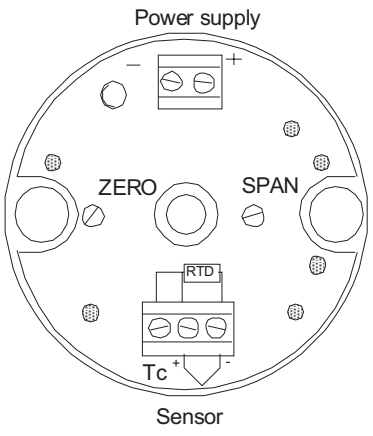
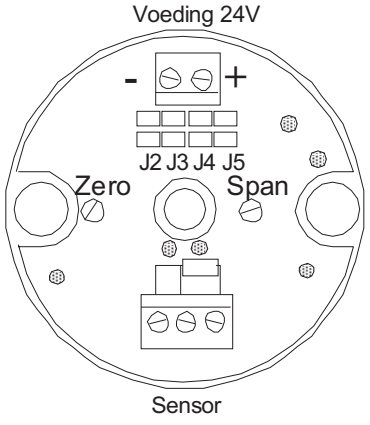
ALM42



ALM46

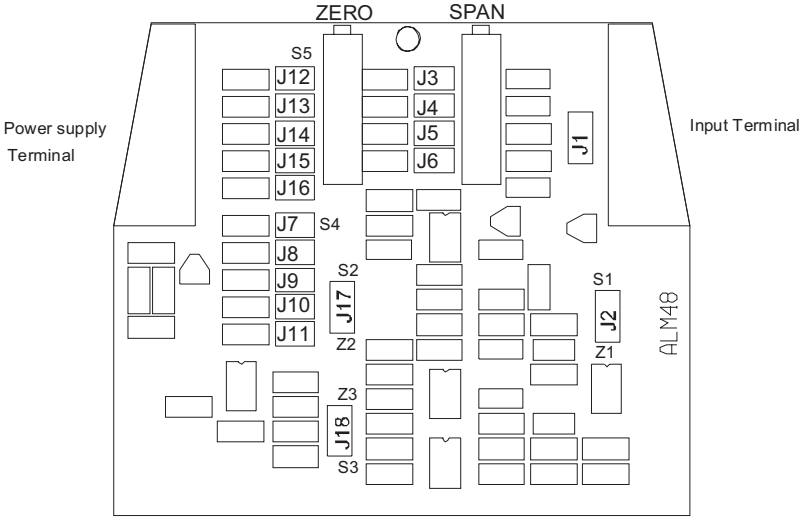


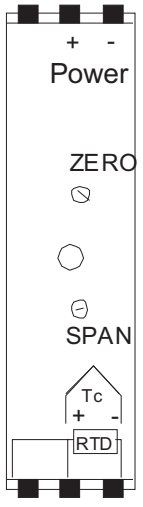
ALM43-R



INSIDE ALM48

LOCATION OF SOLDER LINKS





Input Terminal

Alm48 -"Z" gives you the option to select the ZERO between the following temperatures:

table 2 ALM48-Z

Links	Pt100 ZERO	Thermocouples ZERO
J8 / J13	-50....50°C	0...100°C
J9 / J14	50...150°C	100...200°C
J10 / J15	150..250°C	200...300°C
J11 / J16	250...350°C	300...400°C

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ALM42, ALM43 and ALM46 PROGRAMMING AND CALIBRATION INSTRUCTIONS

table 1a

ALM42/43	Pt100	Thermocouple K	Thermocouple J	Thermocouple T	ALM46
J2	50...100°C	150...300°C	150...300°C	150...300°C	-1
J3	100...200°C	300...600°C	300...600°C	300...400°C	-2
J4	200...400°C	600...1200°C	600...900°C	-	-3
J5	400...800°C	-	-	-	-4

On the ALM42 and ALM43 you can easily select any of these ranges yourself, just by making a solder link on top of the transmitter .
The ALM46 is factory scaled. Therefore you must have specified the desired span. (1.. 4)

In order to calibrate the transmitter you will need a welder and solder, 24V power supply with mA indicator. (Model TL245 is recommended as a fast and simple calibration tool)
and an input simulator (Pt100 or Thermocouple)

The **ALM46** is factory scaled, you only need to fine tune the range if necessary (Begin at step 4)
ALM42 & ALM43 :
1. Select the desired Span from table 1a.
2, Link the two pads with solder.
3. Connect Power (14-40VDC) and a milliampere indicator to the powersupply terminals as indicated, note + and -
4. Connect a Pt100 or Thermocouple simulator to the input terminals as indicated.
5. Simulate the ZERO value and use the ZERO potentiometer to obtain the required reading.
6. Simulate the value for SPAN and use the SPAN potentiometer to obtain the required reading.
7. Repeat steps 5 and 6.

ALM48 PROGRAMMING AND CALIBRATION INSTRUCTIONS

table 1b

ALM48	Pt100	Thermocouple K	Thermocouple J	Thermocouple T	mV
J3	50...100°C	150...300°C	150...300°C	150...300°C	10...20
J4	100...200°C	300...600°C	300...600°C	300...400°C	20...40
J5	200...400°C	600...1200°C	600...900°C	-	40...80
J6	400...800°C	-	-	-	80...160

On the ALM48 you can easily select any of these ranges yourself, just by making a solder link inside the transmitter .

In order to calibrate the transmitter you will need a welder and solder, 24V power supply with mA indicator. (Model TL245 is recommended as a fast and simple calibration tool)
and an input simulator (Pt100 or Thermocouple)

1. Open the housing by firmly pulling both halves from each other.
2. For option Z you may select the required ZERO from table 2. Link the indicated pads with solder.

3. Select the desired Span from table 1b. Link the two pads with solder.
4. Connect Power (14-40VDC) and a milliampere indicator to the powersupply terminals as indicated, note + and -
5. Connect a Pt100 or Thermocouple simulator to the input terminals as indicated.
6. Simulate the ZERO value and use the ZERO potentiometer to obtain the required reading.
7. Simulate the value for SPAN and use the SPAN potentiometer to obtain the required reading.
8. Repeat steps 6 and 7.

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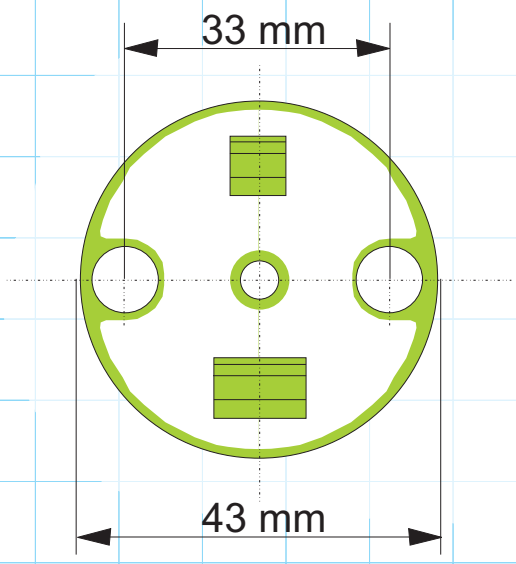
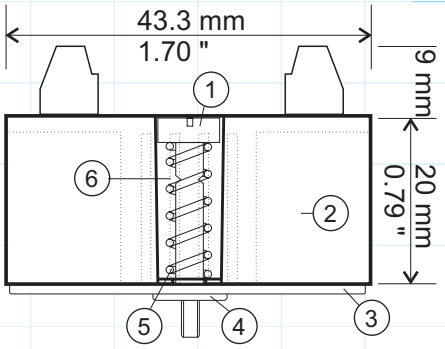
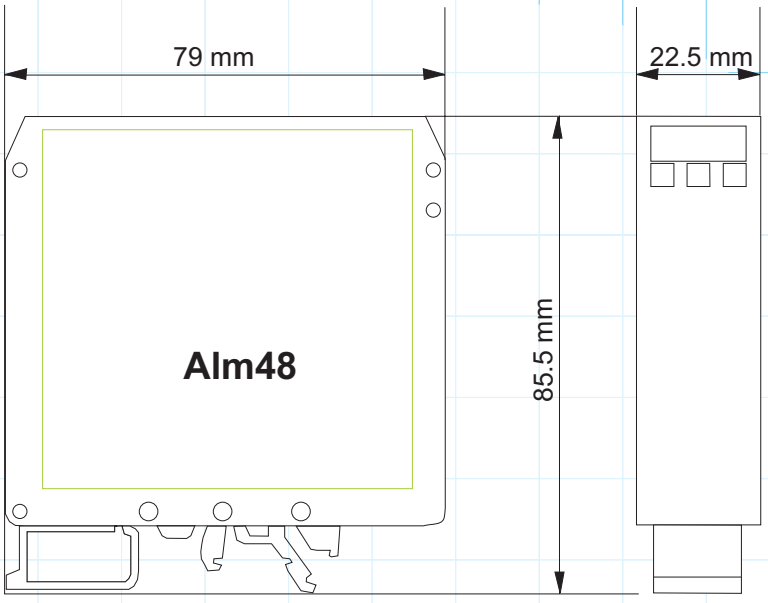




MOUNTING in CONNECTION HEAD
1. Screw M4
2. Transmitter
3. Measuring insert plate
4. Ferrule
5. Spring
6. Notch



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