Series A19A/A19B/A19D

Thermostats for Refrigeration, Cooling, Heating, Ventilation and Air-conditioning

Introduction

These thermostats are designed for refrigeration, cooling, heating, ventilation and air-conditioning applications. Standard models are provided for remote sensing or room sensing. Models with manual reset are available for low or high limit functions.

Description

These thermostats are available with fixed or adjustable differential. The various control ranges cover a broad range of temperature applications with a minimum number of models. On request a built-in high or low limit stop is possible and can be adjusted quickly and easily in the field. All models have a universal way of adjustment. For this purpose a knob and sealing cap are enclosed.
All A19 style 1 wholesaler code models have a bulb clamp plus screw also enclosed.

A19A capillary thermostat
A19B space thermostat

Feature and Benefits	
❑ **Liquid filled sensing element**	No cross ambient temperature problems Contact differential over the whole range
❑ **Dust tight Penn switch**	Prevents pollution of the contacts by electrostatic influences.
❑ **Trip free manual reset**	Override is not possible in the control function
❑ **Front adjustment**	Less mounting space required.

Order No. PD-A19A-E

Note

These controls are designed for use only as operating controls. Where an operating control failure would result in personal injury or loss of property it is the responsibility of the installer to add devices or systems that protect against, or warn of, control failure.

SPDT contacts are standard on all models. Instruments have compact sizes. Types A19ACC and A19ADC have a trip-free manual reset . Reset button must be pressed and released. Contact cannot be blocked in closed position. All types have VDE and SEV approval.

To facilitate ordering, wholesaler codes have been added on some universal models.
All models are provided with a separate knob and sealing cap.

Type number matrix

A19AAC capillary thermostat, fixed differential.
A19AAF capillary thermostat, special close fixed differential.
A19ABC capillary or immersion thermostat, adjustable differential.
A19ACC capillary thermostat, lock-out low with manual reset.
A19ADC immersion thermostat, lock-out high with manual reset.
A19BAC space thermostat, fixed differential.
A19BBC space thermostat, adjustable differential.
A19DAC strap-on thermostat.
A19DAF strap-on thermostat

Adjustment

1. Models “set low” (refer to cover label)
   The dial indicates the low switch point (1 - 2 open, 1 - 3 closed).
   The high switch point (1 - 2 closed, 1 - 3 open) is obtained by adding the differential to the low switch point.
2. Models “set high” (refer to cover label)
   The dial indicates the high switch point (1 - 2 closed, 1 - 3 open). The low switch point (1 - 2 open, 1 - 3 closed) is obtained by deducting the differential from the high switch point.

Exception: Type A19ADC, dial indicates high switch point (1 - 3 closed, 1 - 2 open).

Note

The standard screwdriver adjustment can be converted easily in the field to knob adjustment. Also concealing of adjustment and scale is possible after installation.

Contact functions

Types A19AAC, A19AAF, A19ABC, A19BAC, A19BBC, A19DAC

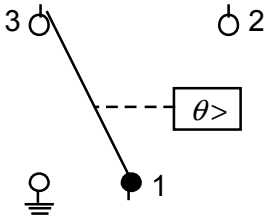


Fig. 1
1-2 closes on temperature increase

Type A19ACC

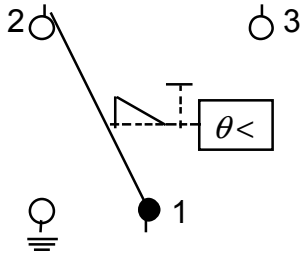


Fig. 2
1-2 opens on temperature decrease

Type A19ADC

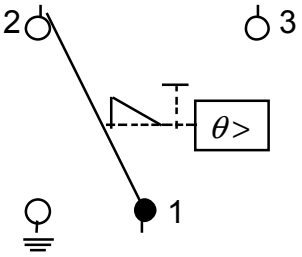


Fig.3
1-2 opens on temperature increase

Repair and replacement

Repair is not possible. In case of an improperly functioning control, please check with your nearest supplier. When contacting the supplier for a replacement you should state the type/model number of the control. This number can be found on the data plate or cover label.

Sensor styles

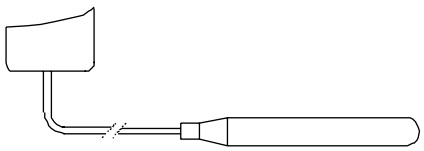


Fig. 4
Style 1a (drawn bulb)

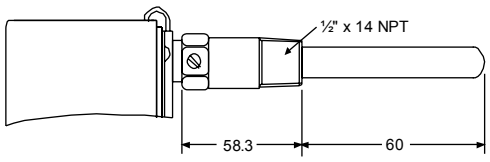


Fig. 7
Style 2

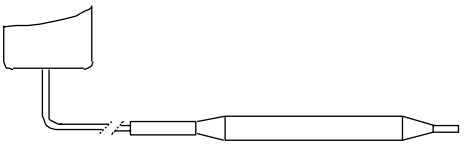


Fig.5
Style 1b swaged bulb, can be used with closed-tank connector FTG13A-600

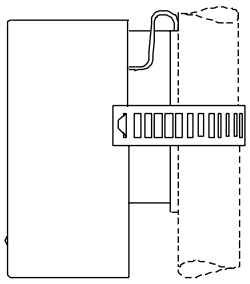


Fig. 8
Style 20

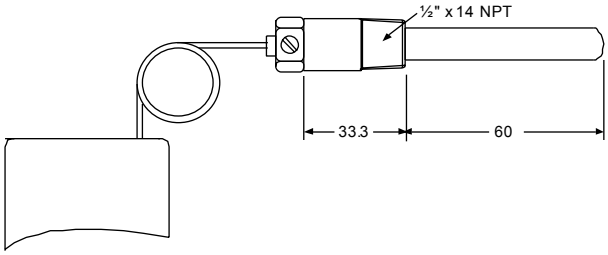


Fig. 6
Style 4h

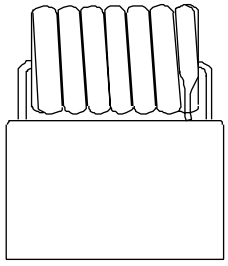


Fig. 9
Style 3 (coil)

Bulb size and finish, bulb wells

Range (°C)	Style	Bulb size (mm)	Finish	Bulb well (optional)
-35 to +10	1b	9.5 x 110	Tin-plated	**WEL14A602R**
-35 to +10	3	-	Stainless Steel	**-**
-5 to +28	1b	9.5 x 135	Tin-plated	**WEL14A603R**
-5 to +28	3	-	Stainless Steel	**-**
-35 to +40	1b	9.5 x 110	Tin-plated	**WEL14A602R**
-35 to +40	3	-	Stainless Steel	**-**
0 to 13	1a	9.3 x 80	-	**WEL16A601R**
0 to 43	3	-	Stainless Steel	**-**
1 to 60	1b	9.5 x 115	-	**WEL14A602R**
5 to 32	1b	9.5 x 155	Tin-plated	No bulb well available
10 to 95	1a	7.4 x 75	-	**WEL11A601R**
40 to 120	1b	9.5 x 100	-	**WEL14A602R**
35 to 150	1a	5 x 265	-	No bulb well or closed tank connector possible
90 to 290	1a	5 x 155	-	No bulb well or closed tank connector possible

Type number selection table:

Range (°C)	Diff. (K)	Bulb style	Setting (see page 2 adjustment)	Cap. length	Max. bulb temp.	Wholesaler code	Order number
Type A19AAC Capillary thermostat, fixed differential							
-35 to +10	2.5	1b	set low	2 m	60 °C		**A19AAC-9102**
-5 to +28	2	1b	set low	2 m	60 °C		**A19AAC-9005**
-5 to +28	2	1b	set low	5 m	60 °C		**A19AAC-9124**
1 to 60	2	1b	set low	3 m	85 °C		**A19AAC-9127**
40 to 120	3.5	1b	set high	2 m	145 °C		**A19AAC-9009**
35 to 150	4	1a	set high	2 m	180 °C		**A19AAC-9107**
90 to 290	5.5	1a	set high	2 m	290 °C		**A19AAC-9108**
Type A19ABC Capillary or immersion thermostat, adjustable differential							
-35 to +40	2.8 to 8	1b	set low	3.5 m	60 °C	A19-A4	**A19ABC-9037**
-35 to +40	2.8 to 8	1b	set low	6.5 m	60 °C	A19-A5	**A19ABC-9036**
-35 to +10	2.8 to 11	1b	set low	2 m	60 °C	A19-A1	**A19ABC-9103**
-5 to +28	2 to 8	1b	set low	2 m	60 °C	A19-A2	**A19ABC-9104**
1 to 60	2 to 8	1b	set low	5 m	85 °C		**A19ABC-9117**
1 to 60	2 to 8	1b	set low	3 m	85 °C	A19-A3	**A19ABC-9116**
10 to 95	3.5 to 13	1a	set high	3.5 m	115 °C		**A19ABC-9106**
40 to 120	3.5 to 13	2	set high	-	145 °C		**A19ABC-9011** bulb well incl.
40 to 120	3.5 to 13	4h	set high	2 m	145 °C		**A19ABC-9012** bulb well incl.
Type A19ACC Capillary thermostat, lock-out low with manual reset							
-35 to +10	6 ⌣	1b	set low	2 m	60 °C		**A19ACC-9100**
-35 to +10 ✱	6 ⌣	1b	set low	3.5 m	60 °C		**A19ACC-9105**
-35 to +10 ✱	6 ⌣	1b	set low	5 m	60 °C		**A19ACC-9111**
-35 to +10 ✱	6 ⌣	1b	set low	6.5 m	60 °C	A19-F	**A19ACC-9116**
-5 to +28	4 ⌣	1b	set low	2 m	60 °C		**A19ACC-9101**
-5 to +28	4 ⌣	1b	set low	5 m	60 °C		**A19ACC-9103**
-5 to +28	4 ⌣	1b	set low	3 m	60 °C		**A19ACC-9107**
Type A19ADC immersion thermostat, lock-out high with manual reset							
40 to 120	7 ✦	2	set high	-	145 °C		**A19ADC-9200** bulb well incl.
Type A19AAF Capillary thermostat, close, fixed differential							
0 to 10	1.5	1a	set low	2 m	80 °C		**A19AAF-9101**
0 to 10	1.5	1a	set low	2 m	80 °C	A19-M !	**A19AAF-9102**
5 to 32	0.75	1b	set high	2 m	60 °C		**A19AAF-9103**

⌣ Indicates temperature increase above cut-out point to make reset possible.

✦ Indicates temperature decrease below cut-out point to make reset possible.

✱ Low limit stop factory set +2.5 °C may be removed in the field.

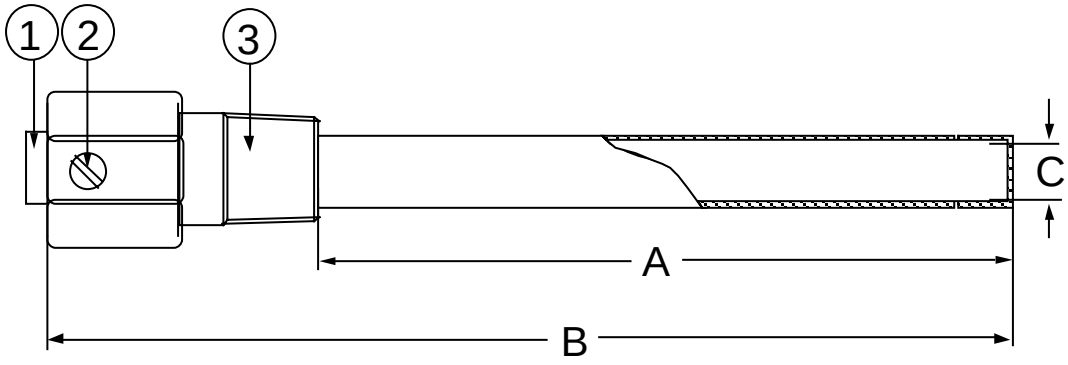
! Milk-cooler thermostat.

Type number selection table:

Range (°C)	Diff. (K)	Bulb style	Setting (see page 2 adjustment)	Cap. length	Max. bulb temp.	Wholesaler code	Order number
Type A19BAC Space thermostat, fixed differential							
-35 to +10	2.5	3	set low	-	60 °C	A19-B1	**A19BAC-9250**
-5 to +28	2	3	set low	-	60 °C	A19-B2	**A19BAC-9251**
0 to 43	2	3	set high	-	60 °C	A19-B3	**A19BAC-9001**
Type A19BBC Space thermostat, adjustable differential							
-35 to +40	2.8/8	3	set low	-	60 °C	A19-B4	**A19BBC-9275**
Type A19DAC, Strap-on thermostat, fixed differential							
40 to 120	4.5	20	set high	-	145°C		**A19DAC-9001**
92 to 116	2	20	set high	-	145°C		**A19DAF-9001**

Note: If what you need is not in the type number selection table, then please contact your representative.

Accessories (optional)



Order no.	Dimension A	Dimension B	Dimension C Internal
WEL11A601R	60 mm	118 mm	7.3 mm
WEL14A602R	125 mm	171 mm	9.8 mm
WEL14A603R	147 mm	193 mm	9.8 mm
WEL16A601R	71 mm	117 mm	9.5 mm

1. Bushing
2. Set screw
3. Adapter, 1/2"-14 NPT

Fig. 10
Bulb well (brass, copper pipe)

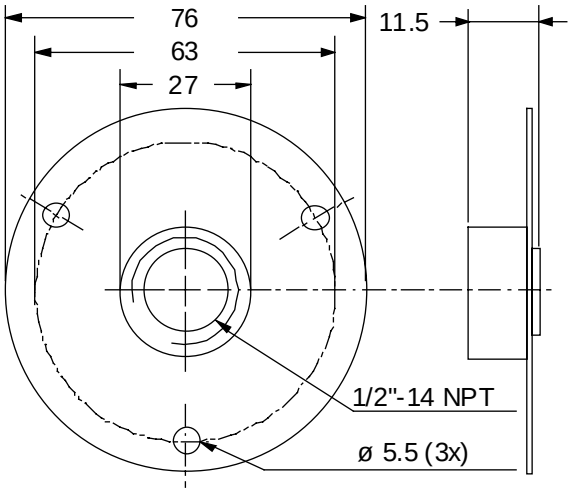
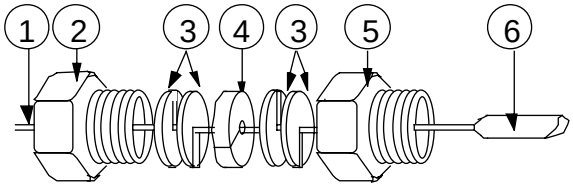


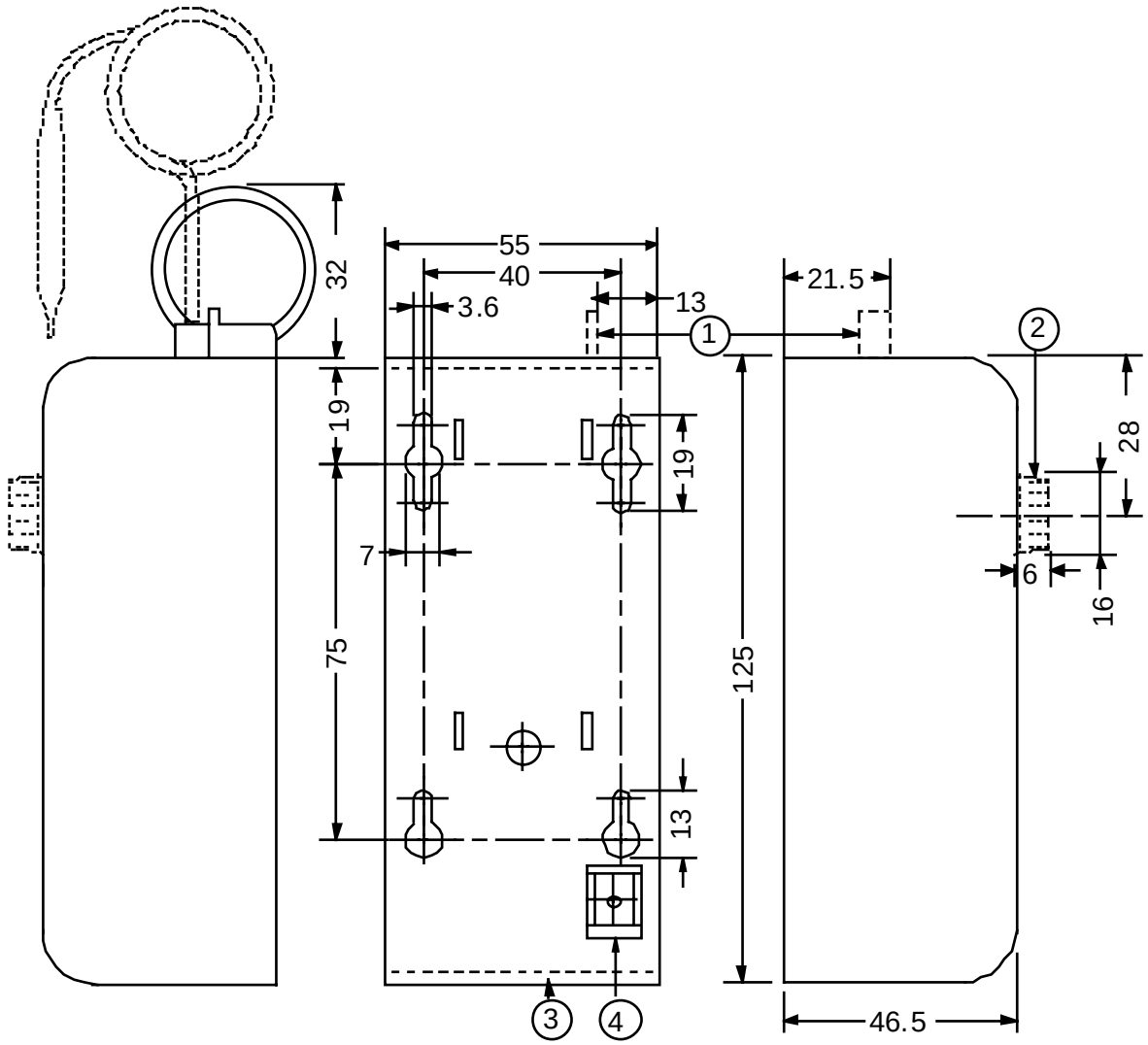
Fig. 11
Duct flange to be used with closed-tank connector FTG13A-600R.
Order number **T-752-1001**



1. Style 1b bulb support tube
2. Packing nut
3. Washer
4. Packing
5. Adapter, 1/2"-14 NPT
6 . Bulb

Fig. 12
Closed-tank connector
Order number **FTG13A-600R**

*D*imensions (mm)



1 Reset lever
2 Knob packed separately with the control
3 22.3 mm dia. cable inlet hole for PG-16
4 Earth screw

Fig. 13

Specifications

CE Conformity	According to low voltage directive and EMC directive	
Operating range	-35 to +290 °C. See type number selection table.	
Differential	See type number selection table.	
Differential adjustments	Controls with adjustable differential (types A19ABC and A19BBC) have an adjustment lever under the cover.	
Sensor styles	Styles 1a, 1b, 2, 3, 4h, and 20 (see drawings page 3)	
Electrical ratings	~15(8) A, 230 V; except A19AAF and A19DAF: ~15(3) A 230 V, and A19ABC-9036/9037: ~15(5) A 230 V	
Ambient temp. limits	-35 to +55 °C	
Conduit opening	22.3 mm diam. hole for PG-16 connector	
Material	**Case**	1.75 mm cold-rolled zinc plated steel
	Cover	1.5 mm ABS plastic
Protection Class	IP30	
Shipping weight	**Individual pack**	0.4 kg
	Overpack	10 kg (24 pcs)
Dimensions	(see dimension drawing)	

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office or representative. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.

JOHNSON CONTROLS

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