

# A28

## Two-stage Capillary and Space Thermostat, IP30 / IP65

### Product Bulletin

These thermostats are designed for various types of heating, cooling, ventilation, or airconditioning applications. All models have two SPDT switches providing the following control possibilities:

- Two stage heating
- Two stage cooling
- Heating/cooling with automatic changeover

Models are provided with a standard IP30 case or splashproof, dust-tight IP65 plastic case.

Controls are compact with fixed differential per stage and (on most models) adjustable differential between stages. Liquid filled element provides wide range, constant differential over whole range and no influence from barometric pressure. Since the bulb contains the major portion of the total fill the thermostat may be considered as cross-ambient, capillary and cup temperature variations affect the operating point only slightly due to the small amount of fill they contain.

For quantity orders it is possible to have the below stated optional constructions.

- Without case and cover for panelmounting
- Close differential per stage
- Different capillary lengths

All standard IP30 enclosure models have a universal way of adjustment. For this purpose a knob and sealing cap are enclosed.



### Features

- **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.



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.

## Adjustment

Models **"set low"** (see also cover label):

The dial indicates the switch point "SP1" (see "Switching Diagram").

Models **"set high"** (see also cover label):

The dial indicates the switch point "SP2" (see "Switching Diagram").

For IP30 models the standard screwdriver adjustment can be converted easily in the field to knob adjustment.

Also concealing of adjustment is possible after installation.

## Contact Function

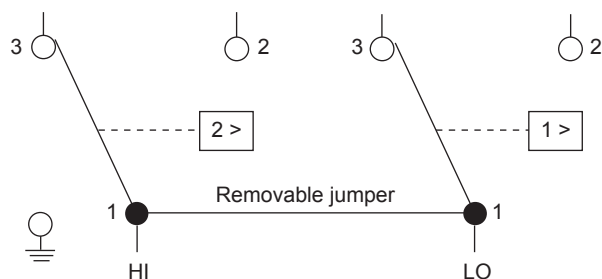


Fig. 1

1-2 closes on temperature increase

## Switching Diagram (Heating Mode)

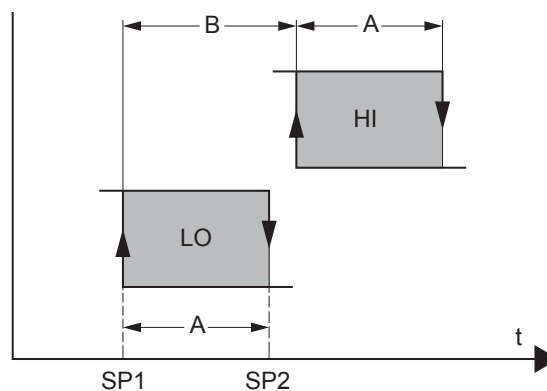


Fig. 2

<b>A</b>	Differential per stage
<b>B</b>	Differential between the stages
<b>SP1</b>	Dial setting (for exceptions see 'SP2')
<b>SP2</b>	Dial setting (range 0 to 43°C and 1 to 60°C)
<b>t</b>	Temperature increase
<b>LO</b>	Low stage
<b>HI</b>	High stage

## Repair and Replacement

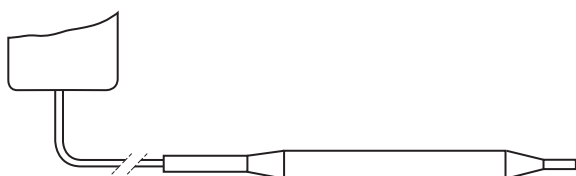
Repair is not possible. In case of an improperly functioning control, please check with your nearest supplier. When contacting the supplier for a replacement you should state the type/model number of the control. This number can be found on the data plate or cover label.

## Type Number Selection Table

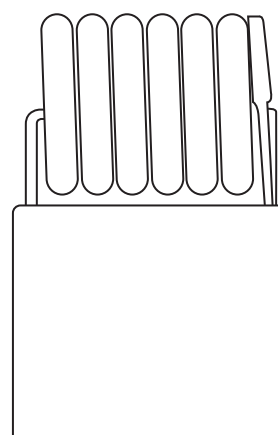
Ordering Codes	Range (°C)	Diff. per Stage (K)	Diff. Between Stages (K)	Element Style (cap. length)	Bulb Size (mm)	Element Finish	Setting (see Page 2 "Adjustment")	Max. Bulb Temp (°C)	Bulb Well (optional)
<b>Type A28AA Capillary Thermostats, General Purpose IP30</b>									
<b>A28AA-9006</b>	-35 to 10	2	1 to 4	1b (2 m)	9.5 x 110	Tin-plated	set low	60	WEL14A602R
<b>A28AA-9007</b>	-5 to 28	1.5	1 to 4	1b (2 m)	9.5 x 135	Tin-plated	set low	60	WEL14A603R
<b>A28AA-9106</b>	-5 to 28	1.5	1 to 4	1b (5 m)	9.5 x 135	Tin-plated	set low	60	WEL14A603R
<b>A28AA-9118</b>	1 to 60	2	1 to 4	1b (3 m)	9.5 x 115	---	set high	85	WEL14A602R
<b>Type A28AA Space thermostat</b>									
<b>A28AA-9113</b>	0 to +43	1.5	1 to 4	3	---	St. Steel	set high	60	---
<b>Type A28QA Capillary Thermostats, Splashproof IP65 , Dust-tight Case</b>									
<b>A28QA-9110</b>	-35 to 10	2	1 to 4	1b (2 m)	9.5 x 110	Tin-plated	set low	60	WEL14A602R
<b>A28QA-9111</b>	-5 to 28	1.5	1 to 4	1b (2 m)	9.5 x 135	Tin-plated	set low	60	WEL14A603R
<b>A28QA-9114</b>	-35 to 40	2	1 to 4	1b (3.5 m)	9.5 x 110	Tin-plated	set low	60	WEL14A602R
<b>A28QA-9115</b>	1 to 60	2	1 to 4	1b (3 m)	9.5 x 115	---	set high	60	WEL14A602R
<b>Type A28QA Space Thermostats, Splashproof IP65, Dust-tight Case</b>									
<b>A28QA-9113</b>	0 to 43	1.5	1 to 4	3	---	St. Steel	set high	60	---
<b>Type A28QA Capillary Thermostats, Splashproof IP65, Dust-tight Case, Concealed adjustment. For use on cooling-towers evaporative condensers, or air cooled condensers.</b>									
<b>A28QA-9101</b>	5 to 50	2	4	1b (2 m)	9.5 x 110	Tin-plated	set low	100	WEL14A602R
<b>Type A28QJ Capillary Thermostats, Splashproof IP65, Dust-tight Case. For use on heat pumps and heat recovery units.</b>									
<b>A28QJ-9100</b>	10 to 95	1.5	1 to 4	1b (3 m)	9.5 x 100	---	set low	115	WEL14A602R

**Note:** If what you need is not in the specific type numbering selection table then please contact your representative.

## Sensor styles

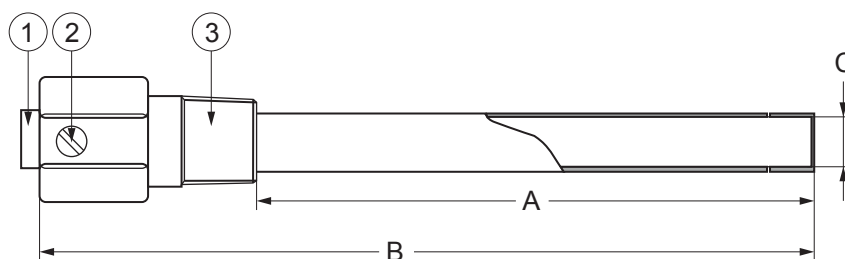


**Fig. 3**  
**Style 1b**  
swaged bulb, can be used with closed-tank connector  
FTG13A-600



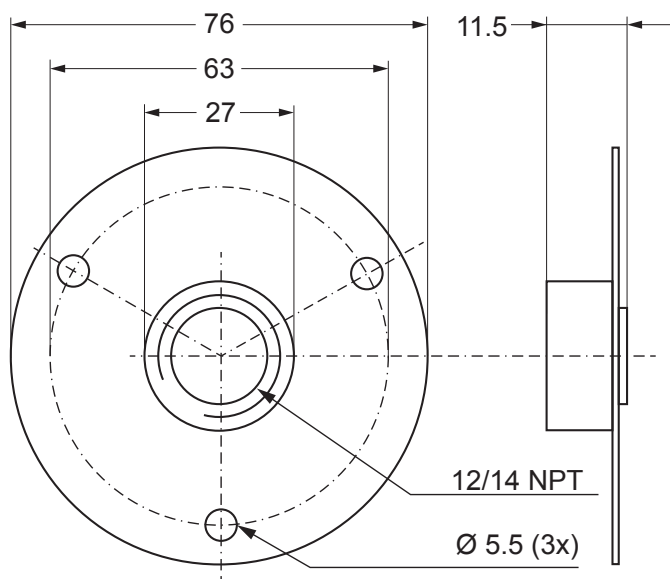
**Fig. 4**  
**Style 3 (coil)**

## Accessories (optional)

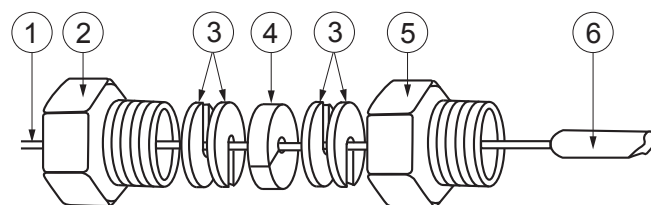


Codes	A	B	C (Internal)	1	2	3
WEL14A602R	125 mm	171 mm	9.8 mm	Bushing	Set screw	Adapter, 1/2"-14 NPT
WEL14A603R	147 mm	193 mm	9.8 mm			

**Fig. 5**  
Bulb well (brass, copper pipe)



**Fig. 6**  
Duct flange to be used with  
closed-tank connector FTG13A-600R.  
Order number T-752-1001

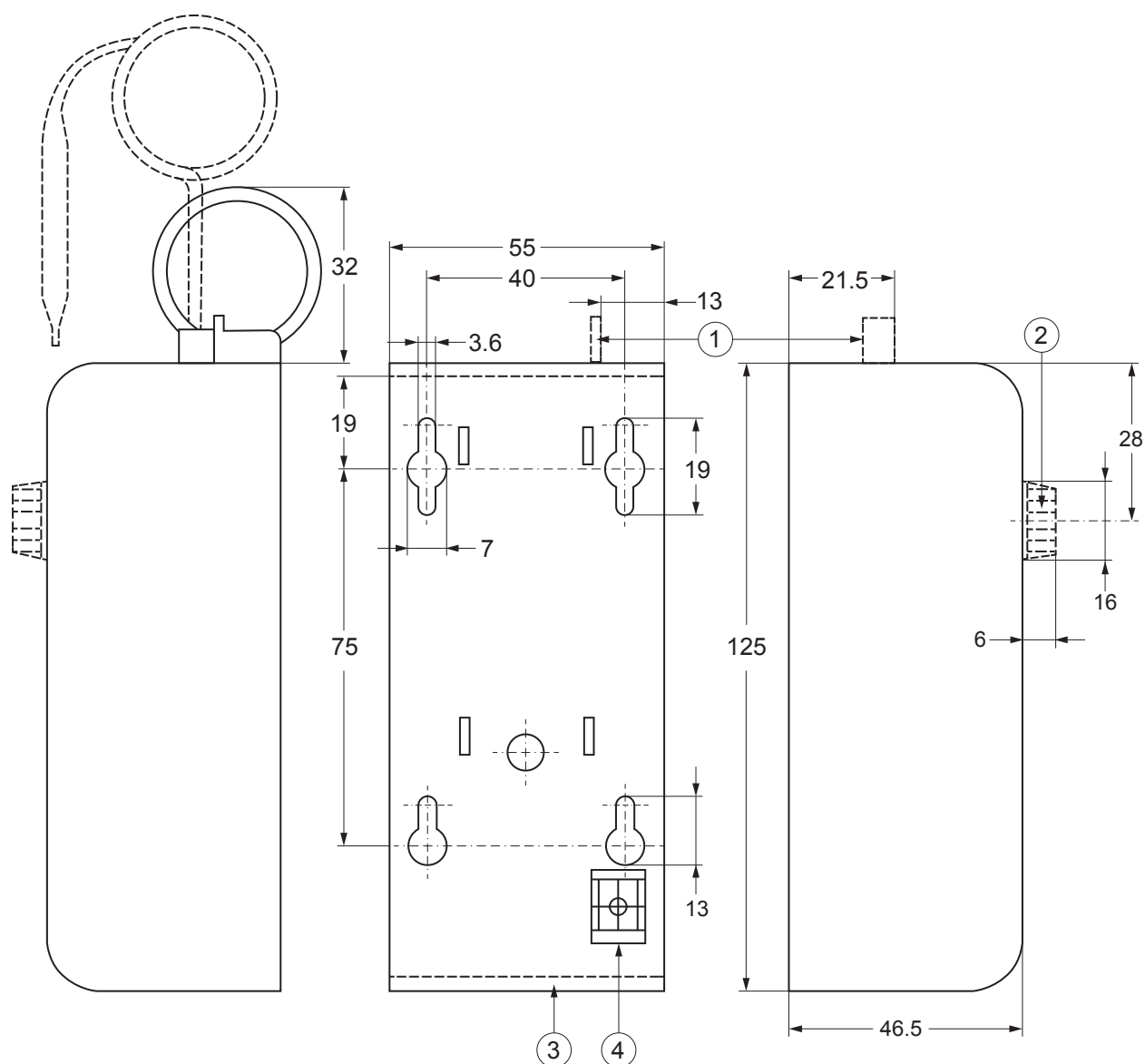


1	Style 1b bulb support tube
2	Packing nut
3	Washer
4	Packing
5	Adapter, 1/2"-14 NPT
6	Bulb

**Fig. 7**  
Closed-tank connector  
Order number FTG13A-600R

## Dimensions (in mm)

### A28AA (standard IP30 enclosure)

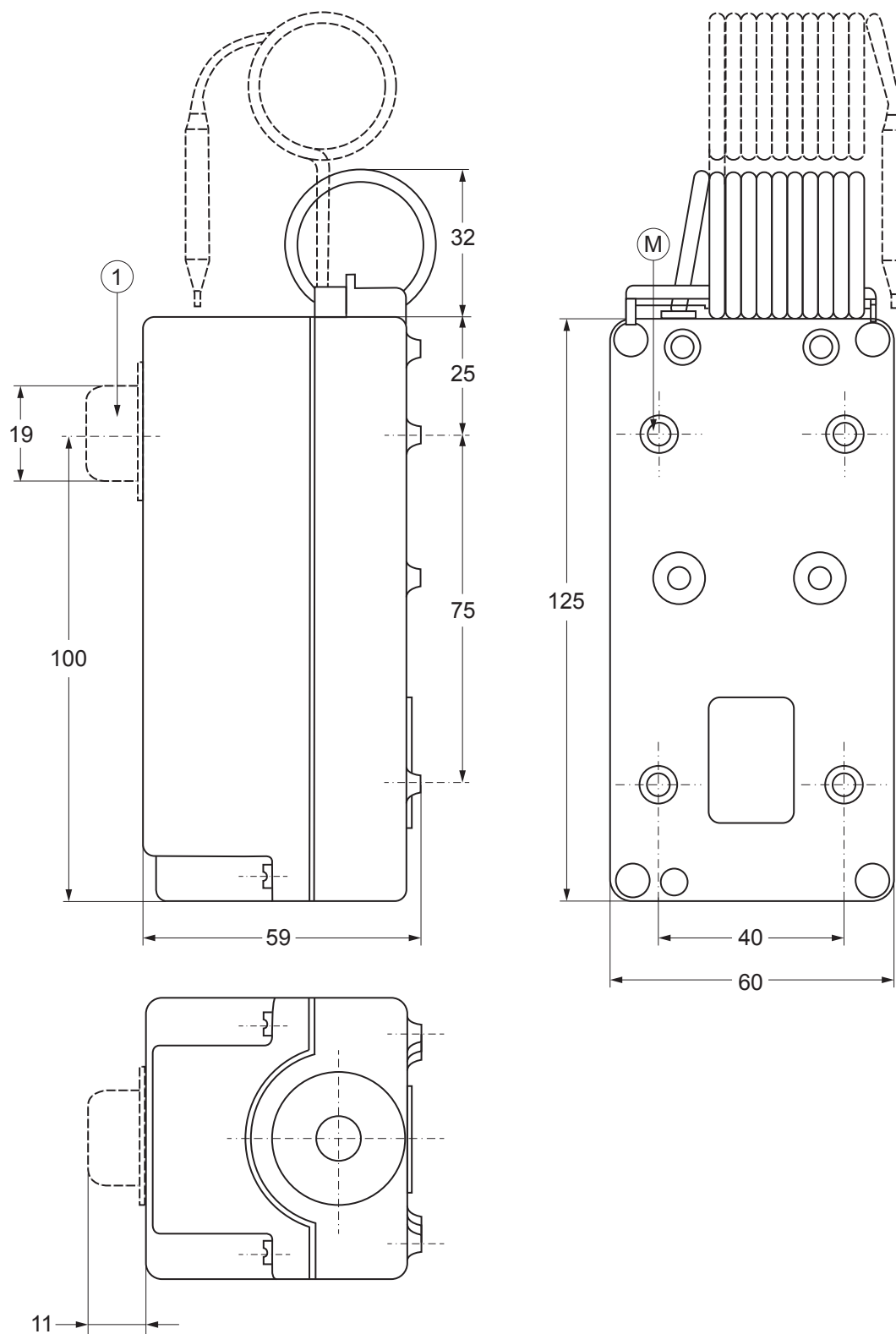


1	Reset lever
2	Knob packed separately with the control
3	Ø 22.3 mm cable inlet hole for PG-16
4	Earth screw

Fig. 8

## Dimensions (in mm)

**A28QA/QJ (splash-proof IP65, dust-tight enclosure)**



<b>1</b>	Knob (knob models only)
<b>M</b>	Mounting holes Ø 4.5 mm use upper 2 holes only

**Fig. 9**

## Technical Specifications

Products		A28AA	A28QA/QJ Splashproof, Dust-tight	
Enclosure		IP30		IP65
Element style	Style 1b bulb element	Style 3	Style 1b bulb element	Style 3
Application	General purpose	Space	General purpose  Cooling towers and air-cooled condensers	Space (out-door and agriculture)
Operating Ranges		See "Type Number Selection Table"		
Differentials		See "Type Number Selection Table"		
Adjustment	Universal	---	External knob (general purpose) Concealed under cover (coolingtower and air-cooled condensers)	
	Controls with adjustable differential between stages have an adjustment lever under the cover			
Material				
Case	1.75 mm cold-rolled zinc plated steel	Polycarbonate Blue-colour finish		
Cover	1.50 mm ABS plastic			
Conduit Opening	22.3 mm Ø hole for PG16	Conduit opening also applicable for PG16 connector		
Ambient Temperature Limits	-35 to 55°C			
Electrical Ratings	~15(5)A 230V		~15(5)A 230V (A28QJ: ~15(3)A) 230V)	
Shipping Weight				
Ind. pack	0.4 kg	0.5 kg		
Overpack	10 kg (24 pcs.)	12 kg (24 pcs.)		
CE Compliance		Johnson Controls declares that these products are in compliance with the essential requirements and other relevant provisions of the EMC Directive and Low Voltage Directive.		

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



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