

## 700 LINE

### GENERAL INFORMATION

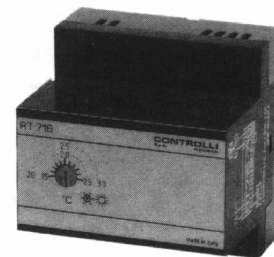
#### USE

Series 700 controllers are used in air-conditioning, thermoventilation and heating systems where it is required to control proportional valves on two or four piping fan-coil units.

#### MANUFACTURING SPECIFICATIONS

Electronic controller with integral circuit, proportional time output signal by TRIAC. Controller use return-air duct or room sensor; they can be connected to summer compensation module, remote set-point adjuster, summer-winter change-over and timer program for 8 °C set-back.

They consist of a thermoplastic housing containing control and driving unit.



#### CONTROLLER SPECIFICATIONS

Series **RT710** - for 2 piping fan-coil unit - proportional band 1°C supply 24 V ~ Output by TRIACS for driving MVA41/43 - V.ZB valves (n° 3 couples max in parallel).

model	scale	action	sensor	installation
<b>RT715</b>	15 to 26	summer or winter	room or duct see STA-STR	on track size 35 mm DIN 46277/3
<b>RT716</b>	20 to 30 15 to 25	summer-winter by change-over		

Series **RT720** - for 4 piping fan-coil unit - proportional band 1°C - dead zone 0 to 6°C - supply 24 V ~ Output by TRIACS for driving MVA41/43 - V.ZB valves (n° 3 couples max in parallel).

model	scale	action	sensor	installation
<b>RT725</b>	15 to 26	summer-winter in sequence	room or duct see STA-STR	on track size 35 mm DIN 46277/3

Power consumption : 10 VA for driving 1 valve  
26 VA for driving 3 valves  
Ambient temperature : 0 to 50°C (working)  
-25 to 65°C (storage)

Housing : ABS  
Protection : IP 30 (DIN 40050)  
Weight : 0.2 kg

#### TEMPERATURE SENSORS SPECIFICATIONS

Series **ST...** - sensing element: NTC 5000 Ohm at 20 °C.

model	other characteristics
<b>STR71</b> <b>STA71</b> <b>STA77</b> <b>STA78</b> <b>STA79</b>	return air duct with mounting kit room room with + 3°C set-point adjustment as above with internal set-point room with set-point adjustment and speed (3) fan selector and on/off switch

#### AUXILIARIES

Series **WT750** - Summer compensation module of n° 100 RT700 max (not suitable to RT716) supply 24 V ~ Input from SBE Balco sensor.

model	scale	authority	compensation °C	installation
<b>WT755</b>	5 to 35	0 to 1	max 11°C in respect to controller set-point	panel mounting

<b>SBE</b>	outdoor - Noryl grey case with rubber conduit opening Ø 10 mm dimensions 55 x 85 x 51.5 mm - max temperature 50°C - Protection IP 43 (DIN 40050)
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Rev. c	11/99	1	DBL038E
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# CONTROLLI

ISO 9000

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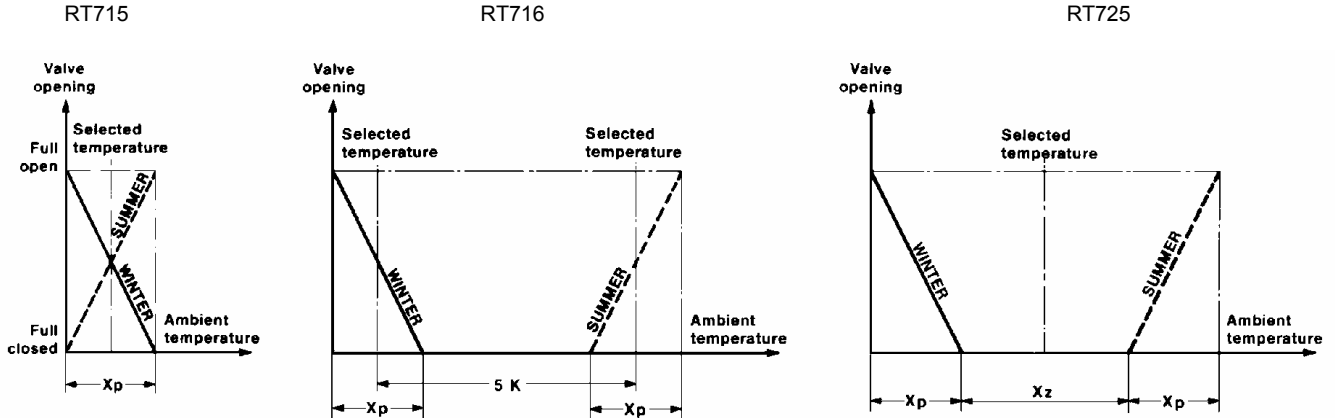
ACCESSORIES

model	description
<b>RM717</b>	Remote set-point for RT715 and RT725 controllers on which set-point is automatically neutralized. Panel mounting.
<b>37T</b>	Summer/winter change-over - snap-point 18/30°C - stop - on type mounting - 1 SPDT 5 A - 220 V ~ according to IEC 730-11 (93)/6.5.3
<b>TL1</b>	380-220/24 V 20 VA transformer
<b>MV705</b>	Fan command module. To be connected to RT700 controller – Relays contacts: 2(0,5)A – 250 V ~

**WORKING DIAGRAM**

2 - PIPING FAN-COIL CONTROL

4 - PIPING FAN-COIL CONTROL



RT715 - RT716 controllers are used for opening or closing a unique control valve. On RT715 controllers the working temperature is adjusted by user depending on season. An eventual compensation module WT755 can modify summer set-point depending on outside temperature. On RT716 controller only the winter working temperature has to be set: the summer one is modified automatically when changing over summer. The summer/winter working is realized by direct/reserve action changeable on field on terminal unit through centralized drive.

RT725 controllers are used for driving two control valves. The summer/winter working is realized in sequence with "dead zone" adjustable for obtaining the max energy saving. Also this system can be fitted with summer compensator module.

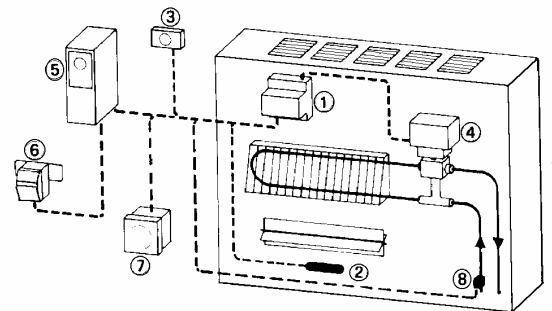
**INSTALLATION**

RT700 controllers must be mounted in fan-coil units or in panel. The base of controller is fixed on track size 35 mm DIN 46277/3 turning the pawl 90° clockwise.

– STR71 air sensor is fitted with mounting kit to be mounted on the return air in the fan-coil unit.

– Room sensor STA must be located at 1.5 mt from floor where it will be exposed to unrestricted natural air circulation and to average conditions of the controlled space. Do not locate the sensor near sources of heat or cold which may affect the control point.

fig. 1



- ① controller
- ② return air sensor
- ③ room sensor
- ④ control valve
- ⑤ summer compensator module
- ⑥ outside sensor
- ⑦ time switch
- ⑧ summer/winter change-over

## WT755 SUMMER COMPENSATOR MODULE

Panel or wall mounting type.

Mount the base to the wall fixing by two 3.5 mm screws through the holes ③

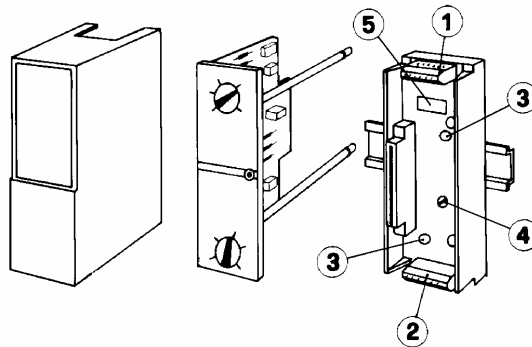
or

Mount the base on 35 x 27 x 2.3 mm track (DIN 46277/3) by turning 90° clockwise the fixing screw ④

Insert the unit card in the plug-in electrical device of the base paying attention that the two studs enter in the snapping blocks; after which push deeply the card until blocks.

Mount protection housing firmly on the base.

A label placed under the upper terminal board of the base states the controller model and allows the user to indicate the reference of the relevant sector of the system.



- ① Upper terminal board
- ② Lower terminal board
- ③ Holes for panel or wall mounting
- ④ Screw for fixing on track
- ⑤ Identification label

## SBE OUTSIDE SENSOR FOR WT750 SUMMER COMPENSATOR MODULE

Locate the sensor on the less sunny side, rain protected.

Do not locate it near chimneys or other sources of heat or cold, which might affect the control point.

Install the sensor on wall employing the fixing bracket fitted with.

## WIRING DIAGRAM

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Make connections according to diagram.

For connections use wires with min. size 1 mm<sup>2</sup>.

**Attention:** connections wires to actuator and sensor must run separately.

All wires must not run near voltage line if it is not possible, use screened connections.

Each controller can drive max 3 valves in parallel.

When using more controllers, be sure that same supply phase is connected to all terminals 1 and the other phase to all terminals 2.

Controller is fitted with 3.15A protection fuse placed on PCB under cover.

### SUMMER/WINTER COMMUTATION

(For RT710 controllers)

**Summer** - Connect terminal 7 with terminal 10 of each controller employing 37 T summer/winter change-over or the centralized change-over (contact closed, summer working) as indicated on diagram.

**Winter** - Open connection between terminal 7 and 10 of each controller.

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### NIGHT SET-BACK

Automatic set-back of 8 °C in respect to set-point can be realized on all RT700 controllers using a daily or weekly time switch, which connects all terminals 7 and 9 of controllers.

Closed contact: set-back working

Open contact: normal working.

### REMOTE SET-POINT

RT715 and RT725 controllers can be connected to RM717 remote set-point adjuster.

Disconnect connection between terminals 12 and 13 of controller and wire terminals 11-12-14 to terminals 11-12-14 of adjuster.

By this way controller set-point is automatically excluded.

### SUMMER COMPENSATION

All RT700 controllers, except RT716, can be connected to summer/winter compensation module,

Wire terminals 7 and 8 of all controllers (max 100) to terminals 3 and 5 of WT755 compensator module.

**WIRING DIAGRAMS FOR 2 PIPING FAN-COIL CONTROL SYSTEMS**

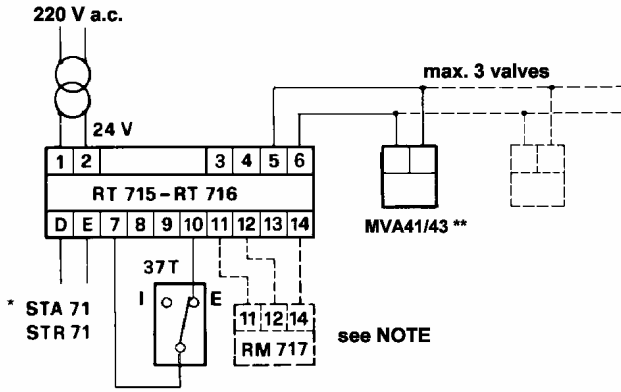


Fig. 1 - Diagram for RT710 controller with STA71 or STR71, with summer/winter change-over through 37 T thermostat and remote set-point adjuster mod. RM717 only for RT715.

\* For applications with STA77, STA78 or STA79 sensors see following diagram Fig. 2.

\*\* colour cable: white-brown

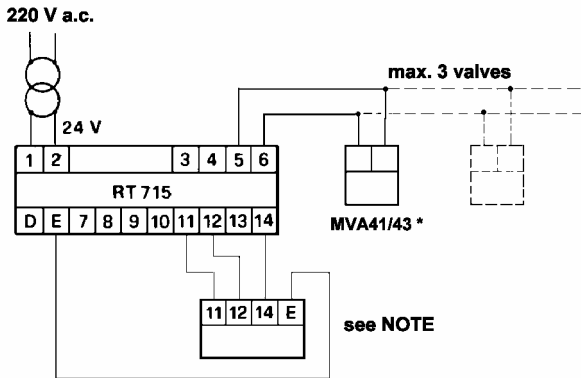


Fig. 2 - Particular wiring for sensor STA77-STA78-STA79.

\* colour cable: white-brown

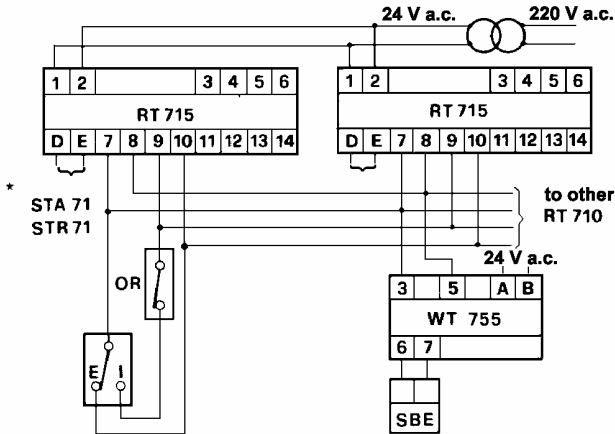


Fig. 3 - Particular wiring for RT715 controllers with summer/winter change-over through centralized selector and with timer OR for winter set-back and summer compensation through WT755 module and outside sensor SBE.

\* For applications with STA77 or STA78 sensor see Fig.2.

**WIRING DIAGRAMS FOR 4 PIPING FAN-COIL CONTROL SYSTEMS**

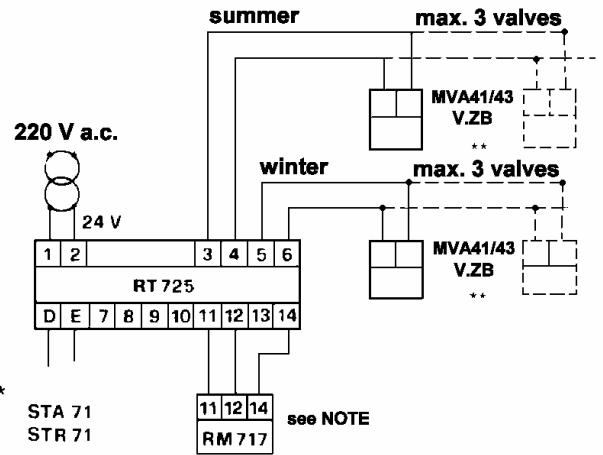


Fig. 4 - Diagram for RT725 with sensor STA71 or STR71 with remote set-point adjuster mod. RM717.

\* For applications with STA77 or STA78 sensor see Fig. 2.

\*\* colour cable: white-brown

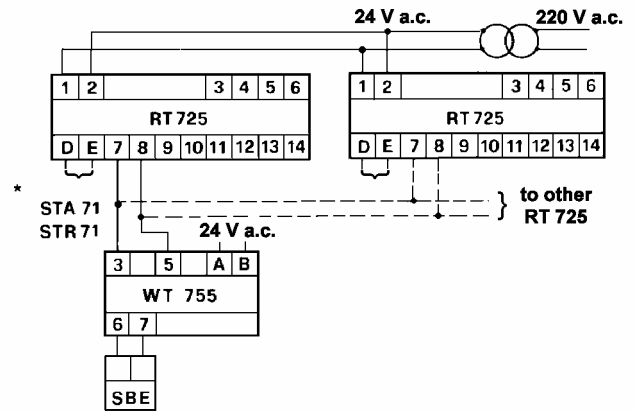


Fig. 5 - Particular wiring for RT725 controller with sensor STA71 or STR71 with summer compensation through WT755 compensator module and outside sensor SBE.

\* For applications with STA77-STA78-STA79 sensor see Fig. 2.

**NOTE:** RT700 controllers are supplied with connection between terminals 12-13; when controllers are wired to RM717 or to sensor STA77-STA78-STA79 with adjustable set-point it is necessary to disconnect this connection (by this way set-point of controller is automatically excluded).

## START-UP

Check connections are as per wiring diagram

Check all controllers are supplied with right voltage value.

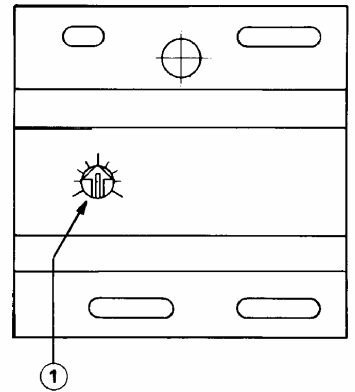
### RT715 - RT716 CONTROLLERS

- Adjust desired set-point by knob ① or by knob of room sensor mod. STA77-78-79.

RT716 controllers have a double temperature scale.

Set winter working temperature.

During summer working, the set-point increases automatically 5°C in respect to winter value set.

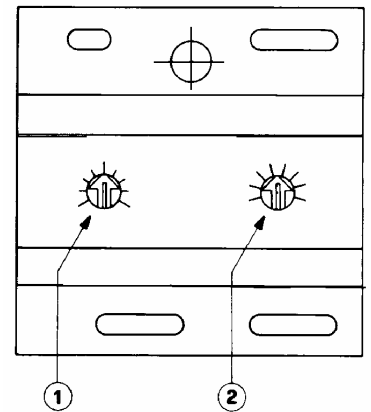


### RT725 CONTROLLERS

- Adjust desired set-point by knob ① or by knob of room sensor mod. STA77-78-79.

- Set the "dead zone" value by knob ②.

The selected "dead zone" value is symmetric in respect to set-point.



### RM717 REMOTE SET-POINT ADJUSTER

- Adjust the selected set-point by knob of RM717 remote set-point adjuster (only for RT715 - RT725 controllers).

Controller set-point knob ② is automatically excluded.

### WX755 SUMMER COMPENSATION MODULE

It permits to change automatically the set-point value on RT700 controller to compensate the outside summer climatic conditions.

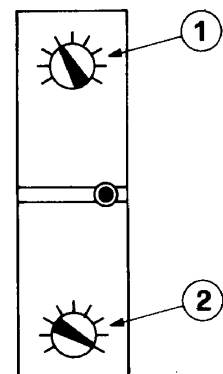
- Select by knob ① the outside temperature of starting compensation.

For outside temperature lower than this value, the set-point on RT700 controller is not modified.

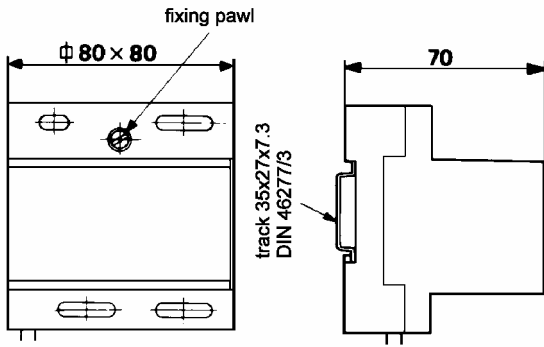
- Select by knob ② the desired authority (slope), adjustable from 0 to 1.

By authority 0: no compensation

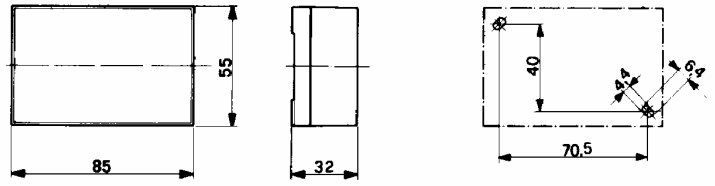
By authority 1: temperature value set on WT755 module changes of 1°C for each degree of outside temperature variations.



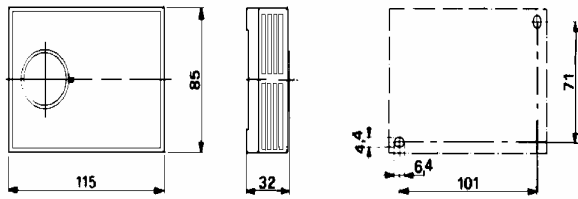
**DIMENSIONS (mm)**



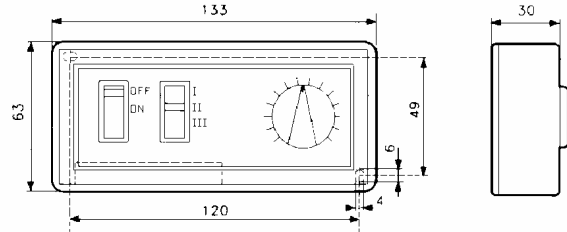
RT700 controller – MV705 module



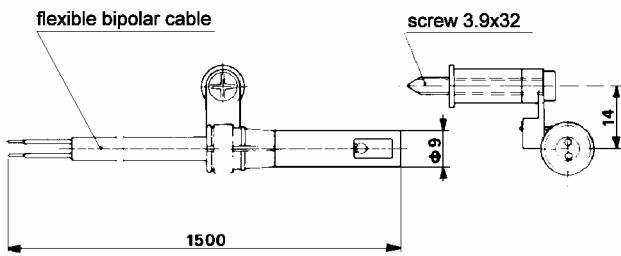
STA71 sensor



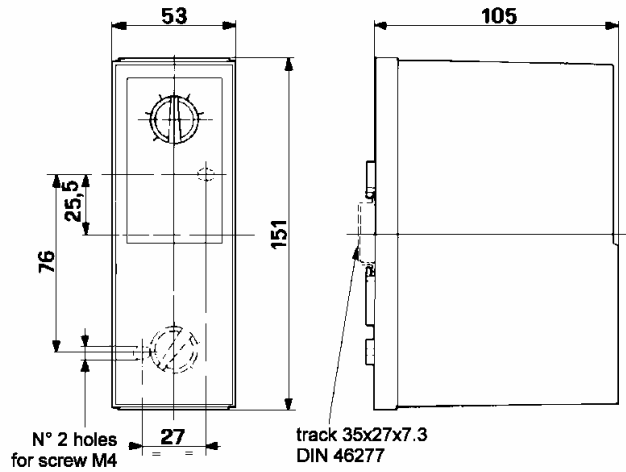
STA77 - STA78 sensor



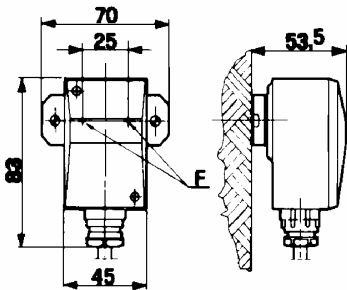
STA79 sensor



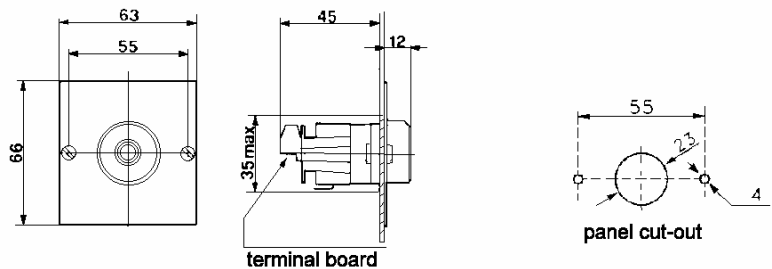
STR71 sensor



WT755 compensation module  
This unit is supplied with device for fast fixing on track  
size 35 x 27 x 7.3 mm (DIN 46277/3)



SBE sensor



terminal board

panel cut-out

The performances stated in this sheet can be modified without any notice.

