



## ROOM CONTROLLER FOR AIR HANDLING UNIT

**DB-TA-31A**

### FUNCTION

The DB-TA-31A series can control temperature in room applications on heating, cooling, ventilation 2-pipe or 4-pipe systems. Regulation is proportional integral PI. Unit can have one 0..10 V (2-pipe) or two 0..10 V outputs (4-pipe) according to setting done. The use of a second sensor as low or high limit sensor allows the unit to control small air handling unit with basic configuration:

- single coil (2-pipe);
- double coil (4-pipe);
- season changeover with internal switch (DB-TA-31A-110);
- season changeover with remote switch (DB-TA-31A-100);
- on/off switch to power on and off the unit;
- air duct sensor for low and/or high limit.

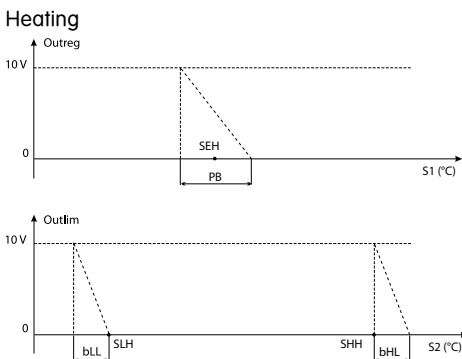
TYPE	ON/OFF	S/W
DB-TA-31A-100	•	
DB-TA-31A-110	•	•

**On request:**  
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

### TECHNICAL DATA

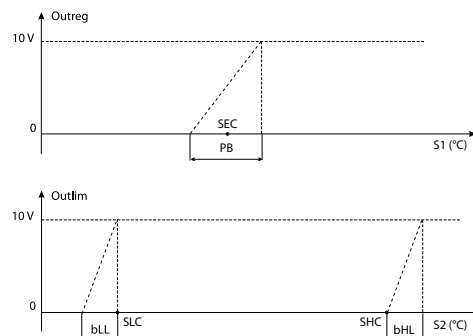
**Power supply:** 24 Vac  $\pm$  10%, 50/60 Hz  
**Inputs:**  
 - season changeover  
 - limit sensor (to define during order)  
 - remote air sensor (optional)  
**Outputs:** 1 or 2 0-10 V outputs ( $R_L > 10$  kOhm)  
**Power cons.:** < 1.5 W  
**Sensor:**  
 - internal or remote NTC 10K air sensor,  
 - remote NTC 10K for limit sensor (cod. STC-NTC10-02)  
**Setpoint:** +6...+45 °C  
**Display:** resolution 0.1 °C  
**Working:** 0...+45 °C  
 10...90 % r.h. (without condensing)  
**Storage:** -20...+70 °C  
 < 95% r.h.  
**Housing:** ABS fireproof according to UL94 V-0 color (RAL 9010)  
**Protection:** IP30, class II  
**Dimensions:** 144 x 82 x 34 mm  
**Weight:** 220 g

### 2-PIPE OPERATING LOGIC

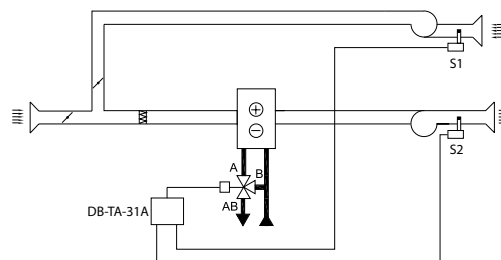


TS2 < SLH      Out1 = Max(Outreg, Outlim)  
 TS2 > SHH      Out1 = Min(Outreg, Outlim)  
 SLH < TS2 < SHH      Out1 = Outreg

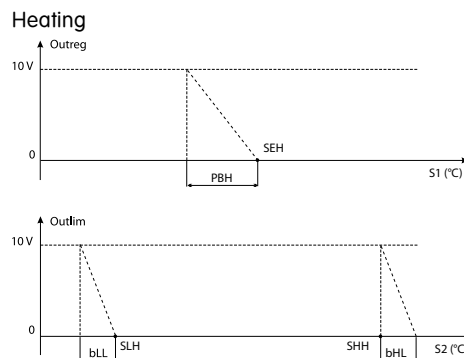
### Cooling



TS2 < SLC      Out1 = Min(Outreg, Outlim)  
 TS2 > SHC      Out1 = Max(Outreg, Outlim)  
 SLC < TS2 < SHC      Out1 = Outreg



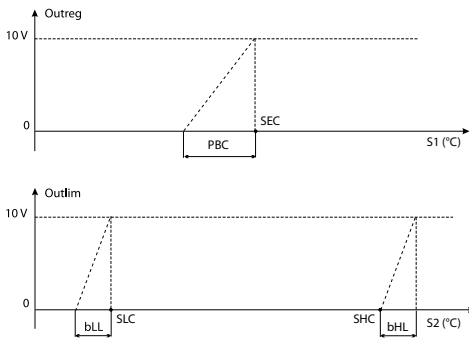
### 4-PIPE OPERATING LOGIC



TS2 < SLH      Out1 = Max(Outreg, Outlim)  
 TS2 > SHH      Out1 = Min(Outreg, Outlim)  
 SLH < TS2 < SHH      Out1 = Outreg



Raffreddamento



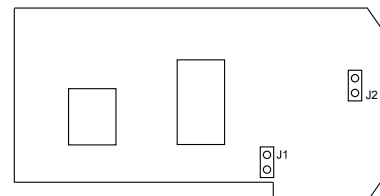
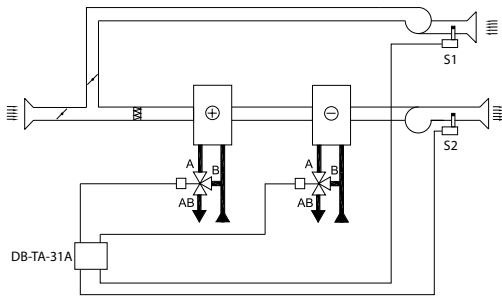
$TS2 < SLC$        $Out1 = \text{Min}(Outreg, Outlim)$   
 $TS2 > SHC$        $Out1 = \text{Max}(Outreg, Outlim)$   
 $SLC < TS2 < SHC$        $Out1 = Outreg$

- TS1** regulation sensor temperature
- TS2** limit sensor temperature
- SEH** heating setpoint
- SEC** cooling setpoint
- SLH** heating low limit setpoint
- SHH** heating high limit setpoint
- SLC** cooling low limit setpoint
- SHC** cooling high limit setpoint
- PB** 2-pipe prop. band
- PBH** heating 4-pipe prop. band
- PBC** cooling 4-pipe prop. band
- bLL** low limit prop. band
- bHL** high limit prop. band

jumper setting:

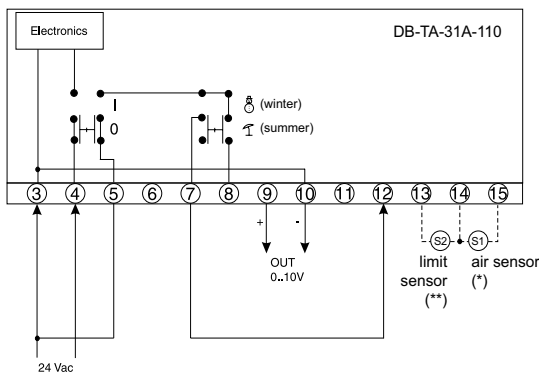
- J1, J2 closed = internal air sensor
- J1, J2 open = remote air sensor

Units are produced with internal sensor setting

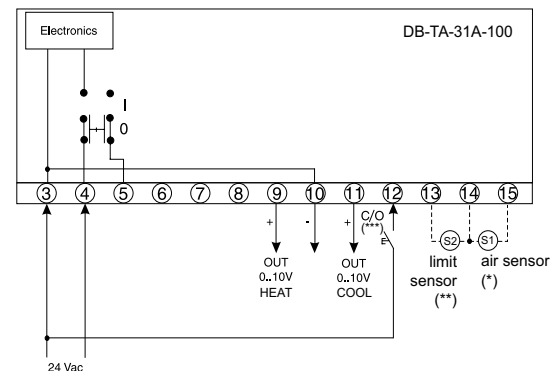
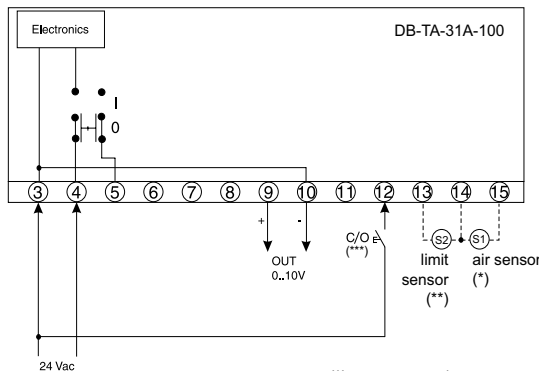
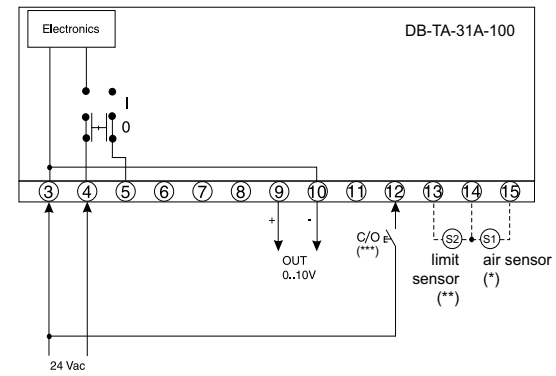


WIRING DIAGRAM

2-pipe operating



4-pipe operating



(\*) remote air sensor  
 (\*\*) limit sensor  
 (\*\*\*) remote centralized contact

