D 652
23.03.10 LB
REV. 01

CONVERTOR OF 0…10 V– or 4…20 mA SIGNALS OR TEMPERATURE MEASUREMENTS INTO RELAY CONTROLS

C ←BUS

CSV 328 C1 Eng.

- **One 0…10 V– or 4…20 mA input signal or temperature measurement (NTC 10 kΩ or NTC 1 kΩ)**
- **One output with two-relays for three-wire modulating control or On-Off in two stages or On-Off with Hi / Low limits**
- **Power supply : 230 VAC (or 240 V AC for UK market) , DIN rail mounting**
- **C-Bus system for remote management, communication speed of between 1200 and 9600 bps**

CE

1. APPLICATION

Designed for converting one 0…10V– or 4…20 mA signal or one temperature measurement (NTC 10kΩ or NTC 1kΩ) into three-wire modulating control or On-Off in two stages or On-Off with minimum and maximum limits.

2. FUNCTIONS

1 Input : – one temperature measurement NTC 10 kΩ (0…100 °C, resolution 1 °C), or
– one temperature measurement NTC 1 kΩ (–30…40 °C, resolution 1 °C), or
– one 0…10 V – signal (resolution 0.1 V–), or
– one 4…20 mA signal (resolution0.1 mA)

1 output with two relays : – three-wire modulating control, or
– On-Off control in two stages with optional delays switching On and Off, or
– On-Off with minimum & maximum limits and optional delays switching On and Off

Delays for On and Off set separately.

3. SUITABLE COSTER DETECTORS

No.	Description	Model	Measurement range	Code	Data dheet
1	Immersion temperature detector	**SIH 010**	0… 100 °C	B1	N 140
	Immersion rapid temperature detector	**SIR 010**	0… 100 °C	B1	–
	Surface temperature detector	**SCH 010**	0… 100 °C	B1	N 130
	Cable-type temperature detector	**SAF 010**	0… 100 °C	B1	N 145
	Room temperature detector	**SAB 010**	0… 40 °C	B1	N 111
	Waterproof room temperature detector	**SAA 010**	0… 40 °C	B1	N 115
	Air duct temperature detector	**STA 010**	0… 100 °C	B1	N 150
	Outside temperature detector	**SAE 001**	–30… 40 °C	B2	N 120
	Immersion temperature detector	**SIH 001**	–30… 40 °C	B2	N 140
	Duct mounting relative humidity detector	**STA 001**	–30… 40 °C	B2	N 150
	Duct mounting relative humidity detector (for swimming pools)	**SUT 714**	10… 90 %	B3	–
	Duct mounting relative humidity detector	**SUR 704**	20… 80 %	B3	–
	Room relative humidity detector	**SAU 214**	20… 80 %	B3	–
	Absolute pressure detector for liquids or steam	**SPW 1....**	0… 16 bar	B3	N 410
	Differential pressure detector for liquids or steam	**SDW 10..**	0… 6 bar	B3	N 420
	Differential pressure detector for air	**SDA 7....**	0… 30 mbar	B3	N 430
	Ultrasound detector for liquid levels	**LGU 420**	0.3… 5 mt	B4	N 510

4. TECHNICAL DATA (factory settings in bold type)

Power supply	230 V AC ± 10% or 240 V AC for UK market
Frequency	50…60 Hz
Consumption	3 VA
Protection	IP40
Radio disturbances	VDE0875/0871
Vibration test	with 2g (DIN 40 046)
Construction standards	Italian Electrotech. Committee (CEI)
Enclosure	DIN 3E module
Mounting	on DIN 35 rail
Materials :	
Base	NYLON
Cover	ABS
Ambient temperature :	
Operating	0…45 °C
Storage	– 25…+ 60 °C
Ambient humidity	Class F DIN 40040
Weight	0,31 kg
1 input signal :	
NTC 10 kΩ temperature measurement	0…100 °C
NTC 1 kΩ temperature measurement	–30…40 °C
V– signal	0…10 V–
mA signal	4…20 mA
resolution temperature measurement	1 °C
resolution active signals	1 %
1 two-relay control output :	– **three-wire modulating** – On-Off in two stages – On-Off min.and max. limit
Delays On-Off controls	**0**…990 s/min
Resolution delays On-Off controls	1 s/min

Setting ranges modulating output

	Direct action	Inverted action
Signal for output 0%		
NTC 10 kΩ temp.	**0**…100 °C	0…**100** °C
NTC 1 kΩ temp.	**–30**…40 °C	–30…**40** °C
V– / mA signal	**0**…100 %	0…**100** %
Signal for output 100%	Direct action	Inverted action
NTC 10 kΩ temp.	0…**100** °C	**0**…100 °C
NTC 1 kΩ temp.	–30…**40** °C	**–30**…40 °C
V– / mA signal	0…**100** %	**0**…100 %
Actuator run time		15…**60**…990 s
Resolution actuator run time		15 s
Neutral zone		**±1**…10 %

Setting ranges two-stage On-Off output

	Direct action	Inverted action
Signal for On 1st stage		
NTC 10 kΩ temp	0…**50**…100 °C	0…**50**…100 °C
NTC 1 kΩ temp	–30…**5**…40 °C	–30…**5**…40 °C
V– / mA signal	0…**50**…100 %	0…**50**…100 %
Signal for Off 1st stage	Direct action	Inverted action
NTC 10 kΩ temp.	**0**…100 °C	0…**100** °C
NTC 1 kΩ temp.	**–30**…40 °C	–30…**40** °C
V– / mA signal	**0**…100 %	0…**100** %
Signal for On 2nd stage	Direct action	Inverted action
NTC 10 kΩ temp	0…**100** °C	**0**…100 °C
NTC 1 kΩ temp	–30…**40** °C	**–30**…40 °C
V– / mA signal	0…**100** %	**0**…100 %
Signal for Off 2nd stage	Direct action	Inverted action
NTC 10 kΩ temp.	0…**50**…100 °C	0…**50**…100 °C
NTC 1 kΩ temp.	–30…**5**…40 °C	–30…**5**…40 °C
V– / mA signal	0…**50**…100 %	0…**50**…100 %

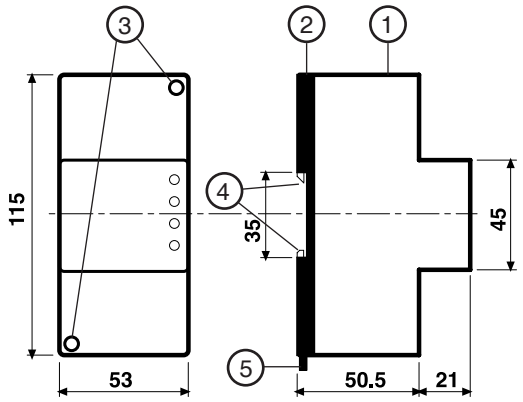
Setting ranges On-Off limit output

Signal for minimum On limit	
NTC 10 kΩ temp	**0**…100 °C
NTC 1 kΩ temp	**–30**…40 °C
V– / mA signal	**0**…100 %
Signal for minimum Off limit	
NTC 10 kΩ temp.	0…**10**…100 °C
NTC 1 kΩ temp.	–30…**–20**…40 °C
V– / mA signal	0…**10**…100 %
Signal for maximum On limit	
NTC 10 kΩ temp.	0…**100** °C
NTC 1 kΩ	–30…**40** °C
V– / mA signal	0…**100** %
Signal for maximum Off limit	
NTC 10 kΩ temp	0…**90**…100 °C
NTC 1 kΩ temp.	–30…**30**…40 °C
V– / mA signal	0…**90**…100 %

Telemanagement

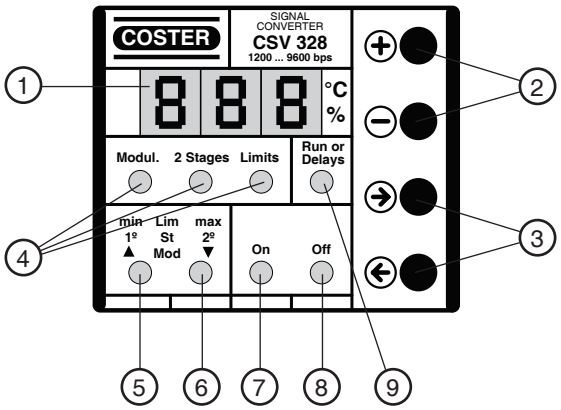
C-Bus transmission speed	**1200**, 2400, 4800, 9600 bps

5. OVERALL DIMENSIONS



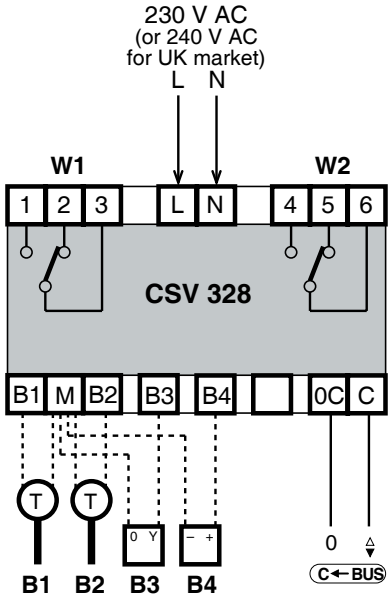
1 – Protective cover for electronic components
2 – Base with transformer, relay and terminal blocks
3 – Screws for securing base and cover
4 – DIN rail securing elements
5 – DIN rail release lever

6. FACIA



1 – Three-figure numerical display
2 – Keys for adjusting parameters
3 – Keys for displaying parameters
4 – LEDs indicating type of use relay outputs
5 – LED indicating relay Opens or 1st stage or $Limit_{min}$
6 – LED indicating relay Closes or 2nd stage or Lim_{max}
LEDs for data displayed :
7 – Value input signal for modulating output load at 100% or for On status of On-Off controls
8 – Value input signal for modulating output load at 0% or for Off status of On-Off controls
9 – Value of run time of three-wire control or of delays in On-Off control

7. WIRING DIAGRAM



B1 – Temperature detector NTC 10 kΩ 0…100 °C (as alternative to B2, B3, B4)
B2 – Temperature detector NTC 1 kΩ –30…40 °C (as alternative to B1, B3, B4)
B3 – input signal 0…10 V– (as alternative to B1, B2, B4)
B4 – Input signal 4…20 mA (as alternative to B1, B2, B3)
W1 – Control output : – Opens (three-wire modulating control)
– 1st stage (On-Off control in two stages)
– Minimum limit
W2 – Output control : – Closes (three-wire modulating control)
– 2nd stage (On-Off control in two stages)
– Maximum limit

8. INSTALLATION

CSV 328 must be installed in a dry space that respects the relevant environmental conditions included under 4.Technical Data. If installed in a location classified as “Hazardous” it must be installed in a cabinet for electrical equipment contructed according to the regulations in force for the class of danger concerned. It can be mounted on a DIN rail or in a DIN modular enclosure.

9. ELECTRICAL CONNECTIONS

Proceed as follows :
- Separate base from cover after having loosened the securing screws
- Mount the base on the DIN rail and check that it is firmly anchored by the securing elements (2.4)
- Carry out the wiring according to the diagram and in compliance with the safety regulations in force,and using:
  – 1.5 mm² wires for power supply.
  – 1 mm² wires for incoming and outgoing signals.
- Apply power (230 V AC, or 240 V AC for UK market) and check its presence across terminals L and N
- Remove power, replace cover on base/terminal block and secure it with the two screws supplied (2.3) .

You are advised not to insert more than two cables in a single terminal of the controller and, if necessary, to use an external junction box.

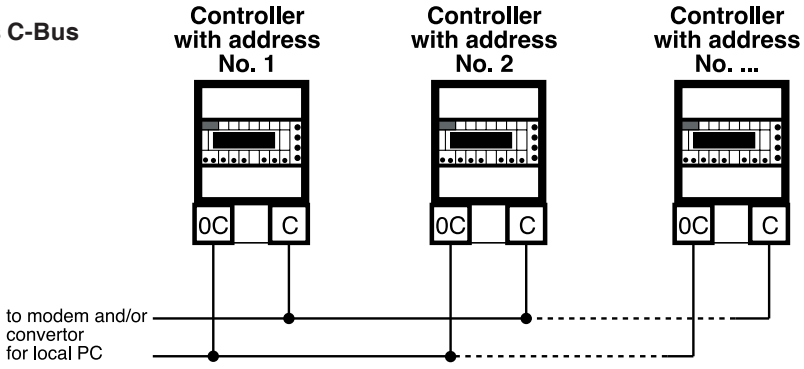
10. COMMUNICATION

10.1 C-Bus C-Bus communication for telemanagement (for detailed information please see Sheet T 021).

By means of C-Bus output CVS 328 can be telemanaged: two-way exchange of data using one or more local PCs and/or a remote central controller via analogue telephone line (PSTN).

Velocità C-Bus impostabile da 1200 a 9600 bps (di fabbrica 1200 bps
From the PC or PCs it is possible to see the incoming signals, the status of the outputs and to adjust the settings except for the configuration of the dipswitches .

10.2 Electrical connections C-Bus



10.3 Telemanagement address

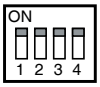
Under telemanagement each of the controllers, in order to be identified by the central control PCs and/or the local PCs, have to be assigned a progressive address number :
– Press continually → key until all the LEDs flash.
– Display flashing: use + or – keys to enter the address.
– Press → to return to the first page

11. OPERATION

CSV 328 converts : – One temperature measurement NTC 10 kΩ (0…100 °C, resolution 1 °C), or
– One temperature measurement NTC 1 kΩ (–30…40 °C, resolution 1 °C), or
– One 0…10 V – signal (resolution 0.1 V–), or
– One 4…20 mA signal (resolution 0.1 mA)
in : – One three-wire modulating control signal, or
– One On-Off signal in two stages, or
– Two On-Off signals for minimum & maximum limits

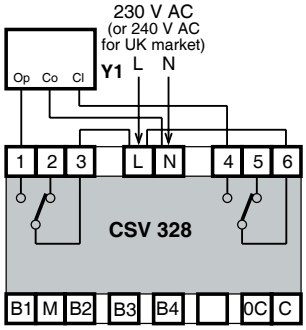
11.1 Configuration

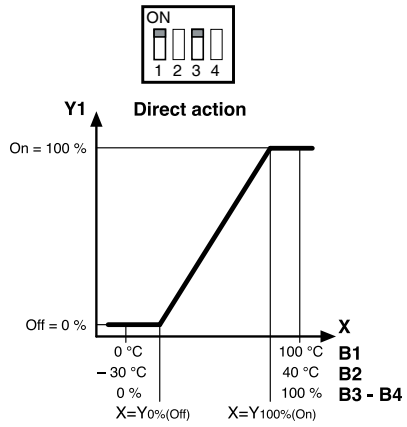
It is essential to configure the convertor in relation to its use, by means of the dipswitches located on the base.
In the diagrams, black shading indicates the position of the dipswitches (N.B. in the actual convertor the switches are white).

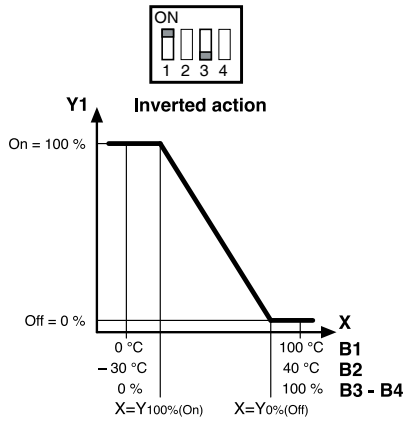


Factory setting: Configured for three-wire control with direct action.
To change the configuration, position only the microswitches concerned:
1 On = Three-wire modulating control with direct action
1 Off = On-Off control
2 On = On-Off control in two stages (active only if 1 is Off)
2 Off = On-Off control of minimum & maximum limit (active only if 1 is Off, the microswitch 3 is inactive)
3 On = Direct action (e.g. cooling)
3 Off = Reverse action (e.g. heating)
4 On = Delays controls On-Off in seconds 0…990 seconds (active only if 1 is Off)
4 Off = Delays controls On-Off in minutes 0…990 minutes (active only if 1 is Off)
After having completed the electric wiring and configured the microswitches, switch on the convertor and keep pressed the – and → keys until "ini" appears on the display.
The display normally shows the value of the incoming signal (°C ; %)
The → and ← keys permit displaying the setting parameters (display flashing)
The + and – keys permit adjusting the parameters shown on the display
The setting data, shown by the display flashing, are indicated by the lighting of the LED concerned
If, for 60 seconds, no key is pressed, display shows the value as a % of the incoming signal

11.2 Three-wire modulating control





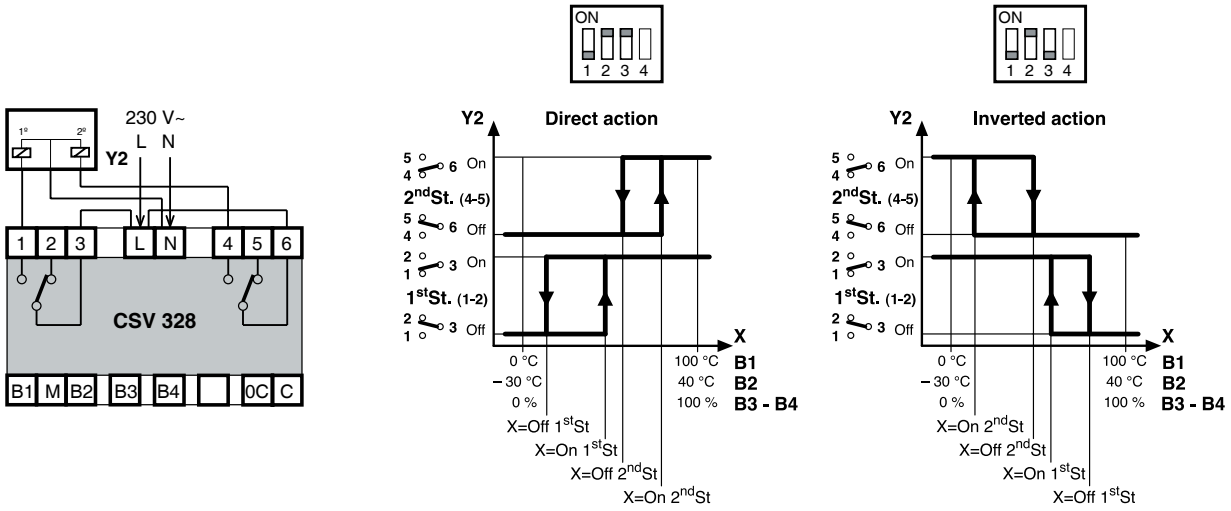


With direct action :
The value of the input signal corresponding to the value of the output 100 % must be greater than the value of the input signal corresponding to the output value of 0 %.
With inverted action :
The value of the input signal corresponding to the value of the output for 100% must be less then the value of the input signal corresponding to the output value of 0%.

Setting :

"Modul" LED always lit.
Display fixed with value of input signal (°C ; %)
Press → : "Run" LED lit.
Display flashing with actuator run time value (15…990 s).
Adjust with + or – .
Press → : "Off" LED lit.
Display flashing with **X=Y0%** : value input signal (°C; %) corresponding to value of output 0%.
Adjust with + or –.
Press → : "On" LED lit.
Display flashing with **X=Y100%** :value incput signal (°C; %) corresponding to value of output 100%.
Adjust with + or –.
Press → : All LEDs flashing.
Display flashing with value of neutral zone of modulating control in ±%.
If necessary, adjust with + or –.
Premere → : Tutti i led spenti.
Display lampeggiante con velocità di trasmissione C-Bus
Modificare con + o – (b12 = 1200 bps; b 24 = 2400 bps; b48 = 4800 bps; b96 = 9600 bps).
Press → : "On" and "Off" LEDs lit.
Display flashing with telemanagement address (if not set - - - appears).
Press → : Display fixed with value (°C; %) of input signal.

11.3 On-Off control in two stages



With direct action :
The value of signal for On at 1st stage must be higher than value of Off signal at 1st stage
The value of signal for On at 2nd stage must be higher than value of Off signal at 2nd stage
With inverted action :
The value of signal for On at 1st stage must be lower than value of Off signal at 1st stage
The value of signal for On at 2nd stage must be lower than value of Off signal at 2nd stage

The On and Off interventions of the two stages can be delayed (0…990 s/min).

LED “2 stages” always lit. :

LED “2 stages” always lit.
Display fixed with value of input signal (°C ; %)

Press → : LED "1st" and LED "On" lit.
Display flashing with **X=On1stSt** : value input signal (°C; %) to energise (On action) 1st stage relay.
Adjust with + or –.

Press → : LED “1st”, LED “On” & LED “Delays” lit.
Display flashing with value of delay On action of 1st stage.
Adjust with + or –.

Press → : LED "1st" and LED "Off" lit.
Display flashing with **X=Off1stSt**: value input signal (°C; %) to de-energise (Off action) 1st stage relay.
Adjust with + or –.

Press → : LED “1st”, LED “Off” & LED “Delays” lit.
Display flashing with delay value of 1st stage Off action.
Adjust with + or –.

Press → : LED “2nd” & LED “On” lit.
Display flashing with **X=On2ndSt** : value input signal (°C; %) to energise (On action) 2nd stage relay.
Adjust with + or –.

Press → : LED “2nd”, LED “On” & LED °”Delays” lit
Display flashing with value of delay On action of 2nd stage.
Adjust with + or –.

Press → : LED “2nd” & LED “Off” lit.
Display flashing with **X=Off2ndSt**: value input signal (°C; %) to de-energise (Off action) 2nd stage relay.
Adjust with + or –.

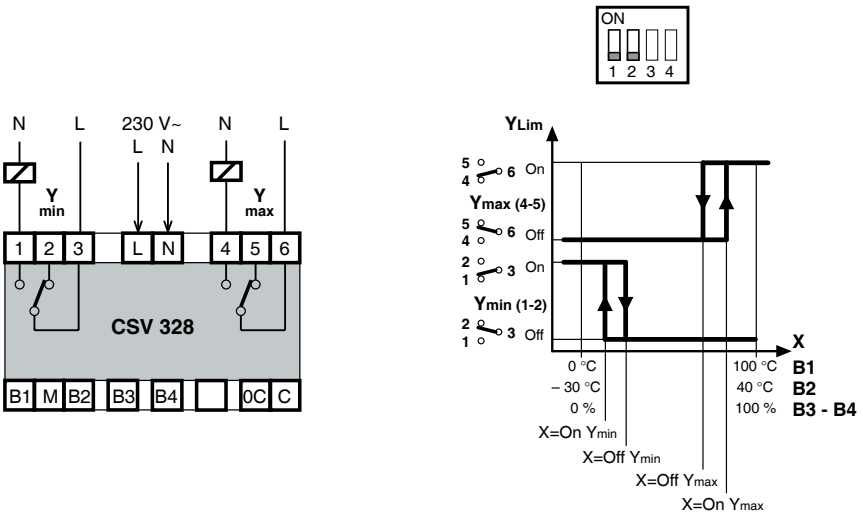
Press → : LED “2nd”, LED “Off” & LED “Delays” lit.
Display flashing with delay value of 2nd stage Off action.
Adjust with + or –.

Premere → : Tutti i led spenti.
Display lampeggiante con velocità di trasmissione C-Bus
Modificare con + o – (b12 = 1200 bps; b 24 = 2400 bps; b48 = 4800 bps; b96 = 9600 bps).

Press → : All LEDs flashing.
Display flashing with telemanagement address (if not entered - - - appears).
If necessary, adjust with + or –.

Press → : Display fixed with value (°C; %) of input signal.

11.4 On-Off control of minimum and maximum limit



The value of signal for On of min. Limit must be lower than value of signal for Off min. Limit..
The value of signal for On of max. Limit must be higher than value of signal for Off of max. Limit.

The On and Off interventions of the minimum & maximum limits can be delayed (0…990 s/min)

Setting :

LED “Limits” always lit.
Display fixed with value of incoming signal (°C; %)

Press → : LED “Min” & LED “On” lit..
Display flashing with **X=OnY$_{min}$** : input signal threshold (°C; %) to energise min. limit relay
Adjust with + or –.

Press → : LED “Min”, LED “On” & LED “Delays” lit.
Display flashing with value of delay for action On of minimum Limit..
Adjust with + or –.

Press → : LED “Min” & LED “Off” lit..
Display flashing with **X=OffY$_{min}$** : input signal threshold (°C; %) to de-energise min. limit relay.
Adjust with + or –.

Press → : LED “Min”, LED “Off” & LED “Delays” lit.
Display flashing with value of delay for action of minimum Limit.
Adjust with + or –.

Press → : LED “max” & LED “On” lit.
Display flashing with **X=OnY$_{max}$**: input signal threshold (°C; %) to energise max. limit relay.
Adjust with + or –.

Press → : LED “Max”, LED “On” & LED “Delays” lit.
Display flashing with value of delay for action On of maximum Limit.
Adjust with + or –.

Press → : LED "max" and LED "Off" lit.
Display flashing with **X=OffY$_{max}$**: input signal threshold (°C; %) to de-energise max. limit relay.
Adjust with + or –.

Press → : LED “Max”, LED “Off” & LED “Delays” lit.
Display flashing with value of delay for Off action of maximum Limit.
Adjust with + or –.

Premere → : Tutti i led spenti.
Display lampeggiante con velocità di trasmissione C-Bus
Modificare con + o – (b12 = 1200 bps; b 24 = 2400 bps; b48 = 4800 bps; b96 = 9600 bps).

Press → : All LEDs flashing.
Display flashing with telemanagement address (if not entered - - - appears).
If necessary adjust with + or –.

Press → : Display fixed with value (°C; %) of incoming signal.

Modifiche scheda

Data	Revisione n.	Pagina	Paragrafo	Descrizione modifiche
23.03.10 VM	**01**	4,5 e 6	10.2, 10.3 e 10.4	Taratura velocità di trasmissione C-Bus

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