



# TTA, TUA, TTUA, TCO2A, TCO2AU

## IT ⚠ AVVERTENZE

Le operazioni di installazione e manutenzione devono essere eseguite da personale qualificato e in assenza di alimentazione dell'apparecchio e dei carichi esterni. AB Industrietechnik non risponderà di eventuali danni causati da inadeguata installazione e/o dalla manomissione o rimozione dei dispositivi di sicurezza.

### Applicazione:

I trasmettitori della serie TTA, TUA, TTUA, TCO2A e TCO2AU consentono di rilevare la temperatura e/o l'umidità e/o il CO<sub>2</sub> in ambiente non industriale. Sono ideali per sistemi di riscaldamento, raffreddamento e trattamento d'aria in aree domestiche e commerciali. Sono disponibili modelli con uscite in tensione, resistenza e su protocollo Modbus RTU.

### Caratteristiche tecniche:

Alimentazione:	24 V~ ± 10% / 15...35 V~
Uscite:	CO <sub>2</sub> : 0...10 V~ rif. 0...2000 ppm Temp.: 0...10 V~ rif. 0...50°C (32...122°F) uscita resistiva Umidità: 0...10 V~ rif. 0...100 % u.r. Modbus RTU
Sensore temperatura:	vds tabella
Sensore umidità:	precisione ± 3% u.r. (20°C)
Sensore CO <sub>2</sub> :	senore NDIR precisione (25°C) ±(50ppm +2% della misura) campionamento CO <sub>2</sub> 15 s
Temperatura ambiente:	0..50°C (32...122°F)
Umidità ambiente:	10..90%u.r. senza condensa
Limiti di tensione:	min. 0 V~ , max. 11.5 V~
Display:	4 digit con visualizzazione unità di misura a seconda dei modelli (°C, °F, ppm, %r.h.)
Potenza media:	< 1 W
Potenza trasformatore:	2 VA (5 VA per versione CO <sub>2</sub> )
Contenitore:	85 x 100 x 30.5 mm
Classe di protezione:	IP30
Norme conformità CE:	EN 60730-1/A16:2007, EN 61000-6-1:2007, EN 61000-6-3:2007

## EN ⚠ WARNING

Each single operation done on the unit, either installation or maintenance, must be done without main supply on the unit and external loads. Such operations are permitted only by skilled workers. AB Industrietechnik is not responsible for possible damages caused by an inadequate installation and/or by removed or exchanged security devices.

### Application:

The transmitters TTA, TUA, TTUA, TCO2A and TCO2AU can measure a value of temperature and/or humidity and/or CO<sub>2</sub> in not industrial places. They are designed for heating, cooling and air handling in domestic areas and commercial buildings. Units with voltage output, resistive output or with Modbus RTU output are available.

### Technical features:

Power supply:	24 V~ ± 10% / 15...35 V~
Outputs:	CO <sub>2</sub> : 0...10 V~ ref. to 0...2000 ppm Temp.: 0...10 V~ ref. to 0...50°C (32...122°F), resistive output Humidity: 0...10 V~ ref. to 0...100 % r.h. Modbus RTU
Temp. sensor:	see schedule
Humidity sensor:	precision ± 3% r.h. (20°C)
CO <sub>2</sub> sensor:	senore NDIR precision (25°C) ±(50ppm +2% of measure) sampling CO <sub>2</sub> 15 s
Room temperature:	0..50°C (32...122°F)
Room humidity:	10..90%r.h. with no condense
Voltage limit:	min. 0 V~ , max. 11.5 V~
Display:	4 digit with unit based on model (°C, °F, ppm, %r.h.)
Average power:	< 1 W
Transformer power:	2 VA (5 VA for CO <sub>2</sub> version)
Casing:	85 x 100 x 30.5 mm
Protection class:	IP30
CE standards:	EN 60730-1/A16:2007, EN 61000-6-1:2007, EN 61000-6-3:2007

## DE ⚠ ACHTUNG

Die Installation darf nur von qualifizierten Fachleuten durchgeführt werden. AB Industrietechnik übernimmt keine Haftung für Schäden, die durch unsachgemäße Verwendung, falsche Installation oder durch Entfernung von Sicherheitsvorrichtungen verursachten werden.

### Anwendung:

Die Übertragungsgeräte der Serie TTA, TUA, TTUA, TCO2A und TCO2AU ermöglichen das Messen von Temperatur und/oder Feuchtigkeit und/oder CO<sub>2</sub> in nichtbetrieblichen Räumen. Sie sind ideal für Heiz-, Kühl- und Luftaufbereitungssystemen im Wohn- und Geschäftsbereichen. Es sind Modelle mit Spannung, Widerstand sowie Modbus Ausgänge verfügbar.

### Technische Eigenschaften:

Einspeisung:	24 V~ ± 10% / 15...35 V~
Ausgänge:	CO <sub>2</sub> : 0...10 V~ ent. 0...2000 ppm Temp.: 0...10 V~ ent. 0...50°C (32...122°F), Widerstands Ausgang Feuchtigkeit: 0...10 V~ ent. 0...100 % r.F. Modbus RTU
Temperatur Sensor:	siehe Tabelle
Feuchtigkeit Sensor:	Genauigkeit ± 3% r.F. (20°C)
CO <sub>2</sub> Sensor:	NDIR Sensor Genauigkeit (25°C) ±(50ppm +2% vom Messwert) Messintervall CO <sub>2</sub> 15 s 0..50°C (32...122°F)
Raumtemperatur:	0..50°C (32...122°F)
Feuchtigkeit:	10..90%r.F. ohne Kondensat
Spannungsgrenzen:	min. 0 V~ , max. 11.5 V~
Display:	4 digit mit Messeinheit abhängig vom Modell (°C, °F, ppm, %r.h.)
Entnommene Leistung:	< 1 W
Trafoleistung:	2 VA (5 VA für CO <sub>2</sub> Version)
Gehäuse:	85 x 100 x 30.5 mm
Schutzklasse:	IP30
EG Konformitätsnormen:	EN 60730-1/A16:2007, EN 61000-6-1:2007, EN 61000-6-3:2007

## FR ⚠ ATTENTION

Pendant les opérations de montage et de maintenance mettre l'appareil ainsi que les charges connectées à celui-ci hors tension. Toutes ces opérations doivent être effectuées par un technicien qualifié. AB Industrietechnik ne pourra être tenu pour responsable des dommages causés suite à une mauvaise installation et/ou une maintenance manipulant ou enlevant les dispositifs de sécurité.

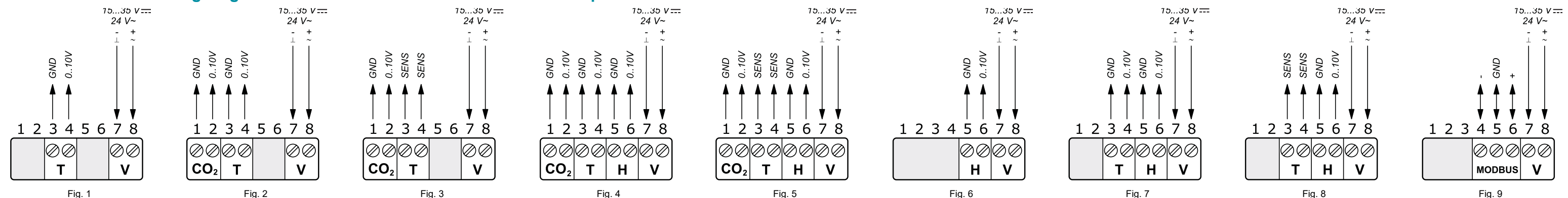
### Applications:

Les transmetteurs de la série TTA, TUA, TTUA, TCO2A ou TCO2AU permettent de relever la température et/ou l'humidité et/ou CO<sub>2</sub> en ambiance non industrielle. Ils sont idéals pour les applications de chauffage, de refroidissement, de traitement d'air dans les endroits résidentiels et commerciaux. Les modèles avec sortie en tension, sortie résistive ou Modbus RTU sont disponibles.

### Caractéristiques techniques:

Alimentation:	24 V~ ± 10% / 15...35 V~
Sorties:	CO <sub>2</sub> : 0...10 V~ rapporté à 0...2000 ppm Temp.: 0...10 V~ rapporté à 0...50°C (32...122°F), sorties résistives Humidité: 0...10 V~ rapporté à 0...100 % h.r. Modbus RTU
Senseur de temp.:	voir tableau
Senseur d'humidité:	précision ± 3% h.r. (20°C)
Senseur CO <sub>2</sub> :	senore NDIR précision (25°C) ±(50ppm +2% de la mesure) échantillonnage CO <sub>2</sub> 15 s 0..50°C (32...122°F)
Temp. d'ambiance:	10..90%h.r. sans condensation
Humidité d'ambiance:	10..90%h.r. sans condensation
Limites de tension:	min. 0 V~ , max. 11.5 V~
Display:	4 digit avec visualisation de l'unité de mesure selon les modèles (°C, °F, ppm, %r.h.)
Puissance moyenne:	< 1 W
Puissance du transformateur:	2 VA (5 VA pour la version de CO <sub>2</sub> )
Boîtier:	85 x 100 x 30.5 mm
Classe de protection:	IP30
Normes CE:	EN 60730-1/A16:2007, EN 61000-6-1:2007, EN 61000-6-3:2007

## Schema elettrico / Wiring diagram / Elektrische Schaltbilder / Schema électrique:



IT Fig 1..9: Schemi di collegamento riferiti ai vari modelli, vedasi tabella pagina seguente (colonna "schema elet."). SENS = sensore passivo (vedi tabella)

Per i modelli con uscite 0..10 V (Fig. da 1 a 8):  
 RL > 10000 ohm con RL resistenza di carico applicata in uscita

EN Fig 1..9: Wiring diagrams corresponding to the different models, see schedule on the following page (column called "Elect. wirings"). SENS = passive sensor (see schedule)

For versions with 0..10 V outputs (Fig. from 1 to 8):  
 RL > 10000 ohm with RL: load resistance applied on output

DE Abb. 1..9: Auf die verschiedenen Modelle bezogene Schaltpläne, siehe Tabelle auf der nächsten Seite (siehe Spalte "Anschlussbild"). SENS = Widerstand Fühler (siehe Tabelle)

Für modelle mit ausgänge 0..10 V (Fig. von 1 bis 8):  
 RL > 10000 ohm mit RL Ausgangswiderstand verbinden

FR Fig 1..9: Schémas de raccordement correspondants aux différents modèles, voir tableau page suivante (colonne intitulée "Schémas élec."). SENS = senseur passif (voir tableau)

Pour les modèles avec sorties 0..10 V (Fig. de 1 à 8):  
 RL > 10000 ohm avec RL résistance de charge appliquée en sortie

Tipo Type Typ Type	Descrizione Description Beschreibung Description	Display	Uscite Outputs Ausgänge Sorties	Precisione Accuracy Genauigkeit Précision	Schema elet. Elect. wirings Anschlussbild Schémas élec.
TTA	T	-	0...10 V	± 0,4	Fig.1
TTA-D	T	✓	0...10 V	± 0,4	Fig.1
TTA-M	T	-	Modbus	± 0,2	Fig.9
TTA-D-M	T	✓	Modbus	± 0,2	Fig.9
TCO2A	CO <sub>2</sub> + T	-	0...10 V + 0...10 V	± 0,4	Fig.2
TCO2A-PT100	CO <sub>2</sub> + PT100, 100 Ohm/0°C	-	0...10 V + ohm	± 0,3	Fig.3
TCO2A-PT1000	CO <sub>2</sub> + PT1000, 1000 Ohm/0°C	-	0...10 V + ohm	± 0,3	Fig.3
TCO2A-NTC1.8	CO <sub>2</sub> + NTC 1.8, 1800 Ohm/25°C	-	0...10 V + ohm	± 0,5	Fig.3
TCO2A-NTC2.2	CO <sub>2</sub> + NTC 2.2k3A1, 2252 Ohm/25°C	-	0...10 V + ohm	± 0,2	Fig.3
TCO2A-NTC10-01	CO <sub>2</sub> + NTC 10k3A1, 10kOhm/25°C	-	0...10 V + ohm	± 0,2	Fig.3
TCO2A-NTC10-02	CO <sub>2</sub> + NTC 10k, 10kOhm/25°C	-	0...10 V + ohm	± 0,3	Fig.3
TCO2A-NTC10-03	CO <sub>2</sub> + NTC 10k4A1, 10kOhm/25°C	-	0...10 V + ohm	± 0,25	Fig.3
TCO2A-NTC20	CO <sub>2</sub> + NTC 20k6A1, 20kOhm/25°C	-	0...10 V + ohm	± 0,2	Fig.3
TCO2A-NI1000-01	CO <sub>2</sub> + Ni1000, 1000 Ohm/0°C	-	0...10 V + ohm	± 0,5	Fig.3
TCO2A-NI1000-02	CO <sub>2</sub> + Ni1000, 1000 Ohm/0°C	-	0...10 V + ohm	± 0,5	Fig.3
TCO2A-D	CO <sub>2</sub> + T	✓	0...10 V + 0...10 V	± 0,4	Fig.2
TCO2A-D-PT100	CO <sub>2</sub> + PT100, 100 Ohm/0°C	✓	0...10 V + ohm	± 0,3	Fig.3
TCO2A-D-PT1000	CO <sub>2</sub> + PT1000, 1000 Ohm/0°C	✓	0...10 V + ohm	± 0,3	Fig.3
TCO2A-D-NTC1.8	CO <sub>2</sub> + NTC 1.8, 1800 Ohm/25°C	✓	0...10 V + ohm	± 0,5	Fig.3
TCO2A-D-NTC2.2	CO <sub>2</sub> + NTC 2.2k3A1, 2252 Ohm/25°C	✓	0...10 V + ohm	± 0,2	Fig.3
TCO2A-D-NTC10-01	CO <sub>2</sub> + NTC 10k3A1, 10kOhm/25°C	✓	0...10 V + ohm	± 0,2	Fig.3
TCO2A-D-NTC10-02	CO <sub>2</sub> + NTC 10k, 10kOhm/25°C	✓	0...10 V + ohm	± 0,3	Fig.3
TCO2A-D-NTC10-03	CO <sub>2</sub> + NTC 10k4A1, 10kOhm/25°C	✓	0...10 V + ohm	± 0,25	Fig.3
TCO2A-D-NTC20	CO <sub>2</sub> + NTC 20k6A1, 20kOhm/25°C	✓	0...10 V + ohm	± 0,2	Fig.3
TCO2A-D-NI1000-01	CO <sub>2</sub> + Ni1000, 1000 Ohm/0°C	✓	0...10 V + ohm	± 0,5	Fig.3
TCO2A-D-NI1000-02	CO <sub>2</sub> + Ni1000, 1000 Ohm/0°C	✓	0...10 V + ohm	± 0,5	Fig.3
TCO2A-M	CO <sub>2</sub> + T	-	Modbus	± 0,2	Fig.9
TCO2A-D-M	CO <sub>2</sub> + T	✓	Modbus	± 0,2	Fig.9
TCO2AU	CO <sub>2</sub> , + H + T	-	0...10 V + 0...10 V + 0...10 V	± 0,4	Fig.4
TCO2AU-PT100	CO <sub>2</sub> , + H + PT100, 100 Ohm/0°C	-	0...10 V + 0...10 V + ohm	± 0,3	Fig.5
TCO2AU-PT1000	CO <sub>2</sub> , + H + PT1000, 1000 Ohm/0°C	-	0...10 V + 0...10 V + ohm	± 0,3	Fig.5
TCO2AU-NTC1.8	CO <sub>2</sub> , + H + NTC 1.8, 1800 Ohm/25°C	-	0...10 V + 0...10 V + ohm	± 0,5	Fig.5
TCO2AU-NTC2.2	CO <sub>2</sub> , + H + NTC 2.2k3A1, 2252 Ohm/25°C	-	0...10 V + 0...10 V + ohm	± 0,2	Fig.5
TCO2AU-NTC10-01	CO <sub>2</sub> , + H + NTC 10k3A1, 10kOhm/25°C	-	0...10 V + 0...10 V + ohm	± 0,2	Fig.5
TCO2AU-NTC10-02	CO <sub>2</sub> , + H + NTC 10k, 10kOhm/25°C	-	0...10 V + 0...10 V + ohm	± 0,3	Fig.5
TCO2AU-NTC10-03	CO <sub>2</sub> , + H + NTC 10k4A1, 10kOhm/25°C	-	0...10 V + 0...10 V + ohm	± 0,25	Fig.5
TCO2AU-NTC20	CO <sub>2</sub> , + H + NTC 20k6A1, 20kOhm/25°C	-	0...10 V + 0...10 V + ohm	± 0,2	Fig.5
TCO2AU-NI1000-01	CO <sub>2</sub> , + H + Ni1000, 1000 Ohm/0°C	-	0...10 V + 0...10 V + ohm	± 0,5	Fig.5
TCO2AU-NI1000-02	CO <sub>2</sub> , + H + Ni1000, 1000 Ohm/0°C	-	0...10 V + 0...10 V + ohm	± 0,5	Fig.5
TCO2AU-D	CO <sub>2</sub> , + H + T	✓	0...10 V + 0...10 V + 0...10 V	± 0,4	Fig.4
TCO2AU-D-PT100	CO <sub>2</sub> , + H + PT100, 100 Ohm/0°C	✓	0...10 V + 0...10 V + ohm	± 0,3	Fig.5
TCO2AU-D-PT1000	CO <sub>2</sub> , + H + PT1000, 1000 Ohm/0°C	✓	0...10 V + 0...10 V + ohm	± 0,3	Fig.5

Tipo Type Typ Type	Descrizione Description Beschreibung Description	Display	Uscite Outputs Ausgänge Sorties	Precisione Accuracy Genauigkeit Précision	Schema elet. Elect. wirings Anschlussbild Schémas élec.
TCO2AU-D-NTC1.8	CO <sub>2</sub> , + H + NTC 1.8, 1800 Ohm/25°C	✓	0...10 V + 0...10 V + ohm	± 0,5	Fig.5
TCO2AU-D-NTC2.2	CO <sub>2</sub> , + H + NTC 2.2k3A1, 2252 Ohm/25°C	✓	0...10 V + 0...10 V + ohm	± 0,2	Fig.5
TCO2AU-D-NTC10-01	CO <sub>2</sub> , + H + NTC 10k3A1, 10kOhm/25°C	✓	0...10 V + 0...10 V + ohm	± 0,2	Fig.5
TCO2AU-D-NTC10-02	CO <sub>2</sub> , + H + NTC 10k, 10kOhm/25°C	✓	0...10 V + 0...10 V + ohm	± 0,3	Fig.5
TCO2AU-D-NTC10-03	CO <sub>2</sub> , + H + NTC 10k4A1, 10kOhm/25°C	✓	0...10 V + 0...10 V + ohm	± 0,25	Fig.5
TCO2AU-D-NTC20	CO <sub>2</sub> , + H + NTC 20k6A1, 20kOhm/25°C	✓	0...10 V + 0...10 V + ohm	± 0,2	Fig.5
TCO2AU-D-NI1000-01	CO <sub>2</sub> , + H + Ni1000, 1000 Ohm/0°C	✓	0...10 V + 0...10 V + ohm	± 0,5	Fig.5
TCO2AU-D-NI1000-02	CO <sub>2</sub> , + H + Ni1000, 1000 Ohm/0°C	✓	0...10 V + 0...10 V + ohm	± 0,5	Fig.5
TCO2AU-M	CO <sub>2</sub> , + H + T	-	Modbus	± 0,2	Fig.9
TCO2AU-D-M	CO <sub>2</sub> , + H + T	✓	Modbus	± 0,2	Fig.9
TUA	H	-	0...10 V	-	Fig.6
TUA-D	H	✓	0...10 V	-	Fig.6
TUA-M	H	-	Modbus	-	Fig.9
TUA-D-M	H	✓	Modbus	-	Fig.9
TTUA	H + T	-	0...10 V + 0...10 V	± 0,4	Fig.7
TTUA-PT100	H + PT100, 100 Ohm/0°C	-	0...10 V + ohm	± 0,3	Fig.8
TTUA-PT1000	H + PT1000, 1000 Ohm/0°C	-	0...10 V + ohm	± 0,3	Fig.8
TTUA-NTC1.8	H + NTC 1.8, 1800 Ohm/25°C	-	0...10 V + ohm	± 0,5	Fig.8
TTUA-NTC2.2	H + NTC 2.2k3A1, 2252 Ohm/25°C	-	0...10 V + ohm	± 0,2	Fig.8
TTUA-NTC10-01	H + NTC 10k3A1, 10kOhm/25°C	-	0...10 V + ohm	± 0,2	Fig.8
TTUA-NTC10-02	H + NTC 10k, 10kOhm/25°C	-	0...10 V + ohm	± 0,3	Fig.8
TTUA-NTC10-03	H + NTC 10k4A1, 10kOhm/25°C	-	0...10 V + ohm	± 0,25	Fig.8
TTUA-NTC20	H + NTC 20k6A1, 20kOhm/25°C	-	0...10 V + ohm	± 0,2	Fig.8
TTUA-NI1000-01	H + Ni1000, 1000 Ohm/0°C	-	0...10 V + ohm	± 0,5	Fig.8
TTUA-NI1000-02	H + Ni1000, 1000 Ohm/0°C	-	0...10 V + ohm	± 0,5	Fig.8
TTUA-D	H + T	✓	0...10 V + 0...10 V	± 0,4	Fig.7
TTUA-D-PT100	H + PT100, 100 Ohm/0°C	✓	0...10 V + ohm	± 0,3	Fig.8
TTUA-D-PT1000	H + PT1000, 1000 Ohm/0°C	✓	0...10 V + ohm	± 0,3	Fig.8
TTUA-D-NTC1.8	H + NTC 1.8, 1800 Ohm/25°C	✓	0...10 V + ohm	± 0,5	Fig.8
TTUA-D-NTC2.2	H + NTC 2.2k3A1, 2252 Ohm/25°C	✓	0...10 V + ohm	± 0,2	Fig.8
TTUA-D-NTC10-01	H + NTC 10k3A1, 10kOhm/25°C	✓	0...10 V + ohm	± 0,2	Fig.8
TTUA-D-NTC10-02	H + NTC 10k, 10kOhm/25°C	✓	0...10 V + ohm	± 0,3	Fig.8
TTUA-D-NTC10-03	H + NTC 10k4A1, 10kOhm/25°C	✓	0...10 V + ohm	± 0,25	Fig.8
TTUA-D-NTC20	H + NTC 20k6A1, 20kOhm/25°C	✓	0...10 V + ohm	± 0,2	Fig.8
TTUA-D-NI1000-01	H + Ni1000, 1000 Ohm/0°C	✓	0...10 V + ohm	± 0,5	Fig.8
TTUA-D-NI1000-02	H + Ni1000, 1000 Ohm/0°C	✓	0...10 V + ohm	± 0,5	Fig.8
TTUA-M	H + T	-	Modbus	± 0,2	Fig.9
TTUA-D-M	H + T	✓	Modbus	± 0,2	Fig.9

## IT

### Versioni con uscita Modbus

Il trasmettitore implementa un protocollo di comunicazione di tipo Modbus Slave e può comunicare a distanza con un'unità Modbus Master.

Tutti i parametri e variabili sono accessibili come holding register e le operazioni di lettura e scrittura devono essere fatte con opportuni function code (FC=03, 06, 16). Scegliere opportunamente il timeout tra una lettura e l'altra, considerando la baudrate.

Il timeout minimo di un secondo è sufficiente per le baudrate 38400, 19200 e 9600. Per le altre baudrate aumentare il timeout (2 s per baudrate 4800).

Impostazioni da fabbrica:

Baud rate = 19200 bit/s;  
Parità = pari,  
Indirizzo apparecchio = 1.

Per modificare questi valori, vedere tabelle Baud rate, Parità e Indirizzo. La linea RS485-MODBUS ha un bus principale lungo il quale sono connessi direttamente gli apparecchi (max 32 apparecchi).

Usare cavi con una coppia intrecciata + 1 filo per la massa + schermo. Usare la coppia intrecciata per collegare A+ e B- ed il filo singolo per il GND che deve essere collegato ad ogni apparecchio.

Collegare lo schermo alla terra su un punto unico del cavo possibilmente vicino al Master.

Il tipo di cavo deve rispettare le caratteristiche previste per la trasmissione di dati su protocollo MODBUS RS485.

Le due estremità del bus devono essere collegate con una resistenza di terminazione da 120 ohm.

Per inserire la resistenza da 120 ohm sul trasmettitore (JP3), vedere Fig. 10.

La lunghezza massima del bus dipende dalla baud rate e dal cavo.

Per una baud rate di 9600, la lunghezza massima del cavo può raggiungere 1000 m con un cavo AVG26.

Le derivazioni qual'ora dovessero essere utilizzate devono essere corte, non devono oltrepassare 20 m. Con un multi-port tap usato per n derivazioni, ogni derivazione deve avere una lunghezza massima di 40 m diviso per n.

Per aumentare il numero di apparecchi collegati alla linea o per aumentare la lunghezza dei cavi, è necessario collegare un ripetitore di segnale. Aggiungere un ripetitore di segnale per ogni gruppo di 32 apparecchi collegati.

## EN

### Versions with Modbus output

The regulator implements the Modbus Slave protocol and can communicate remotely with a Modbus Master unit.

All parameters and variables are accessible as holding registers and R/W operations are implemented with function codes (FC=03, 06, 16). Select a suitable timeout between readings, in relation to the baudrate. A minimum timeout of one second is suitable for 19200 and 9600 baud. For other baudrates, increase the timeout value (2 s for 4800 baud).

Factory settings:

Baud rate = 19200 bit/s;  
Parity = even,  
Address of unit = 1.

To modify these values, see schedules Baud rate, Parity and Address. The RS485-MODBUS line has a principal bus to which the various devices are connected (max 32 devices).

Use cables with a braided pair + 1 ground wire + shield.

Use the braided pair to connect A+ and B- and the single wire for GND which must be connected to each device.

Connect the shield to ground at a single point, preferably near the master.

The cable must be of the MODBUS RS485 data transmission type.

The ends of the cable must be connected with a 120 ohm termination resistance.

To fit the 120 ohm to the transmitter (JP3), see Fig. 10.

The maximum length of the bus depends on the baudrate and the cable itself.

For a baudrate of 9600, the cable (AVG26 type) can be up to 1000 m long.

Any branch lines must be short, not more than 20 m long. If you use a multi-port tap for n branches, each branch can be up to 40 m divided by n.

To increase the number of devices on the line or increase the length of the cables, you must install a signal repeater.

Add a signal repeater for every group of 32 connected devices.

## DE

### Versionen mit Modbus Ausgang

Der Regler umfasst ein Kommunikationsprotokoll vom Typ Slave-Modbus und kann auf Distanz mit einer Master-Modbus-Einheit kommunizieren.

Alle Parameter und Variablen sind als Holding-Register zugänglich und die Lese- und Schreibvorgänge müssen mit passenden function codes (FC=03, 06, 16) ausgeführt werden.

Die Zeitüberschreitung zwischen einem Lesevorgang und dem nächsten günstig wählen und die Baudrate beachten.

Die Mindest-Baudrate von einer Sekunde ist ausreichend für die Baudraten 19200 und 9600. Für die anderen Baudraten die Zeitüberschreitung erhöhen (2 Sek. für Baudrate 4800).

Werkseinstellungen:

Baud rate = 19200 bit/s;  
Parität = gerade,  
Geräteadresse = 1.

Um diese Werte zu ändern, siehe Tabellen Baudrate, Parität und Adresse.

Die Linie RS485-MODBUS hat einen Hauptbus, an den die Geräte (max. 32 Apparate) direkt angeschlossen sind.

Twisted-Pair-Kabel verwenden, um A+ und B- anzuschließen und ein einzelnes Kabel für GND, die mit jedem Gerät verbunden werden muss.

Den Bildschirm an der Erdung an einem einzigen Punkt des Kabels, möglichst nah am Master, anschließen.

Der Kabeltyp muss die von der Datenübertragung über MODBUS-RS485-Protokoll vorgesehenen Anforderungen erfüllen.

Die beiden Busenden müssen an einen Abschlusswiderstand von 120 Ohm angeschlossen werden.

Um den Widerstand von 120 Ohm auf dem Messumformer (JP3) einzufügen, siehe Fig. 10.

Die maximale Länge des Bus hängt von der Baudrate und vom Kabel ab. Für eine Baudrate von 9600, kann die maximale Länge des Kabels 1000 m mit einem AVG26-Kabel betragen.

Die eventuell verwendeten Abzweigungen müssen kurz sein und dürfen 20 m nicht überschreiten. Mit einem Multi-Port-Tap für n Abzweigungen, darf jede Abzweigung eine maximale Länge von 40 m mal n haben.

Um die Anzahl der an die Leitung angeschlossenen Apparate zu erhöhen oder um die Länge der Kabel zu erhöhen, muss ein Signalverstärker angeschlossen werden.

Fügen Sie einen Signalverstärker für jede Gruppe von 32 angeschlossene Apparate.

## FR

### Versions avec sortie Modbus

Le régulateur est doté d'un protocole de communication de type Modbus Esclave et peut communiquer à distance avec une unité Modbus Master.

Tous les paramètres et toutes les variables sont accessibles comme holding register et les opérations de lecture (R) et d'écriture (W) doivent être réalisées à l'aide de codes de fonction adéquats (FC=03, 06, 16).

Choisir opportunément le délai entre une lecture et l'autre, en tenant compte du taux de transfert.

Le délai minimal d'une seconde est suffisant pour les taux de transfert de 19200 et 9600. Pour les autres taux de transfert, il faut augmenter le délai (2 s pour un taux de transfert de 4800).

Réglage d'usine:

Baud rate = 19200 bit/s;  
Parité = paire,  
Adresse transmetteur = 1.

Pour modifier ces valeurs, voir tableaux Baud rate, Parité et Adresse. La ligne RS485-MODBUS a un bus principal le long duquel sont connectés directement les appareils (maxi 32 appareils).

Utiliser des câbles avec une paire tressée + 1 fil pour la masse + blindage.

Utiliser la paire tressée pour connecter A+ et B- et le fil seul pour la masse (GND) qui doit être connectée à chaque appareil.

Connecter le blindage à la terre sur un point unique du câble si possible près du Master.

Le type de câble doit respecter les caractéristiques prévues pour la transmission de données sur protocole MODBUS RS485.

Les deux extrémités du bus doivent être connectées sur une résistance de terminaison de 120 ohms.

Pour insérer la résistance de 120 ohms sur le transmetteur (JP3), voir Fig. 10.

La longueur maximale du bus dépend du taux de transfert et du câble. Pour un taux de transfert de 9600, la longueur maximale du câble peut atteindre 1000 m avec un câble AVG26.

Au cas où des dérivations devraient être utilisées, elles devront être courtes et ne pas dépasser 20 m. Avec une prise multi-port utilisée pour n dérivations, chaque dérivation doit avoir une longueur maximale de 40 m divisée par n.

Pour augmenter le nombre d'appareils connectés à la ligne ou pour augmenter la longueur des câbles, il est nécessaire de connecter un répéteur de signal.

Ajouter un répéteur de signal pour chaque groupe de 32 appareils connectés.



Indirizzo Address Adresse Adresse	Descrizione Description Beschreibung Description	Nota Note Anmerkung Note	Min	Max	R/W
4000	Umidità / Humidity / Feuchtigkeit / Humidité	*	0	1000	R
4001	Temperatura / Temperature / Temperatur / Température	*	0°C [320°F]	500°C [1220°F]	R
4002	CO <sub>2</sub>	*	0	2000	R
4024	Correzione Umidità / Humidity correction / Feuchtigkeit / Correction humidité	**	-100	+100	R/W
4025	Correzione Temperatura / Temperature correction / Temperatur / Correction température	**	-90	+90	R/W
4026	Correzione CO <sub>2</sub> / CO <sub>2</sub> correction / CO <sub>2</sub> Korrektur / Correction CO <sub>2</sub>	**	-200	+200	R/W

Nota \*: I valori di temperatura e umidità sono visualizzati moltiplicati per 10 (esempio: valore letto sul trasmettitore = 21.3°C → valore letto in Modbus = 213).

Note \*: the visualised value for temperature and humidity are multiplied per 10 (example: value read by transmitter = 21.3°C → value read by Modbus = 213)

Anmerkung \*: der Angezeigte Wert entspricht dem Voltwert multipliziert mit 10 (Beispiel: gelesene Wert des Trasmitters = 21.3°C → gelesene Wert im Modbus = 213)

Note \*: la valeur visualisée pour la température et l'humidité correspond à la valeur indiquée multipliée par 10 (exemple: valeur lue par le transmetteur = 21.3°C → valeur lue par le Modbus = 213)

Nota \*\*: Il parametro è sommato al valore rilevato dal sensore

Note \*\*: The parameter is added to the sensor value

Anmerkung \*\*: Der Parameter wird auf den aufnehmende Sensor Wert addiert

Note \*\*: Le paramètre est additionnée à la valeur du senseur

In caso di sonda guasta, la temperatura visualizzata corrisponde a quella indicata in tabella:

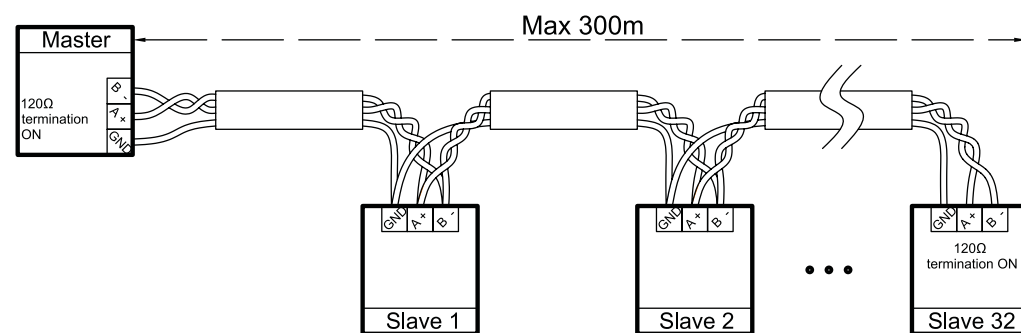
If sensor is broken, the temperature visualized corresponds to values indicated on the table below:

Im Falle das die Sonde defekt ist, entspricht die angezeigte Temperatur der nachstehenden Tabelle:

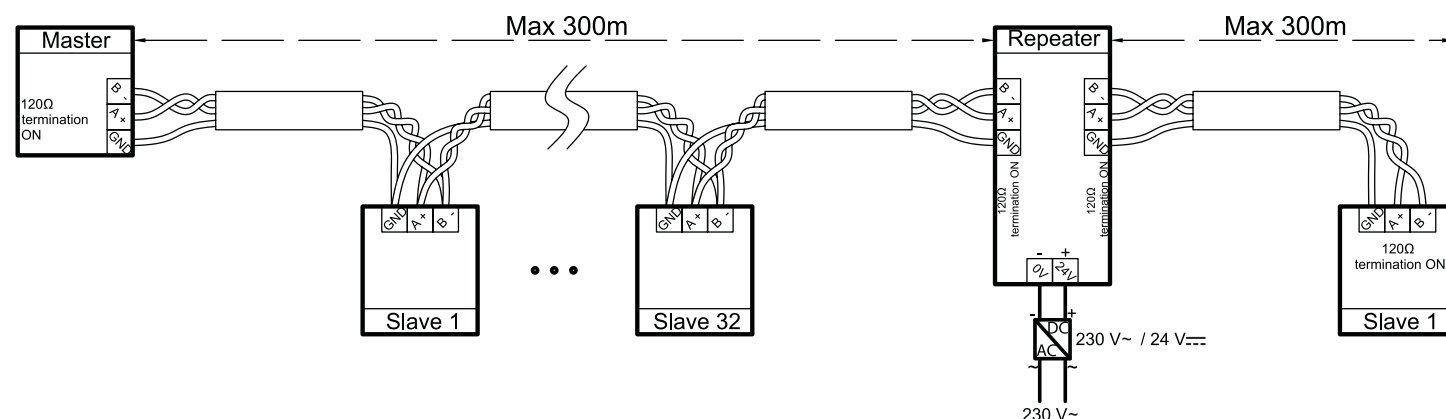
Au cas où la sonde est défectueuse, la température visualisée correspond à celle qui est indiquée dans le tableau ci-dessous:


Sonda rotta Broken sensor Fehlerhafte Sonde Sonde en erreur	Valore letto Modbus Value read Modbus Gelesener Wert Modbus Valeur lue Modbus	Valore corrispondente Correspondent value Entsprechender Wert Valeur correspondante
Umidità / Humidity / Feuchtigkeit / Humidité	0	0
Temperatura / Temperature / Temperatur / Température	-20 °C [284 °F]	-2.0°C [28.4 °F]
CO <sub>2</sub>	0	0


### Collegamento senza ripetitore / Connection without repeater / Anschluss ohne Verstärker / Connexion sans répéteur:

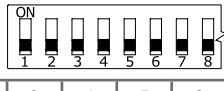


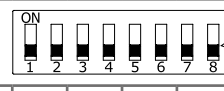
### Collegamento con ripetitore / Connection with repeater / Anschluss mit Verstärker / Connexion avec répéteur:

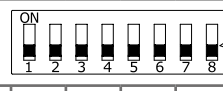


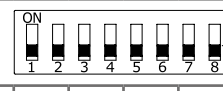
Baud rate		
	11	12
38400	ON	ON
19200	OFF	OFF
9600	ON	OFF
4800	OFF	ON

Parità Parity Parität Parité		
	9	10
Pari / Even / Gerade / Paire (1 stop bit)	OFF	OFF
Nessuna / None / Keine / Sans (2 stop bit)	ON	OFF
Dispari / Odd / Ungerade / Impaire (1 stop bit)	OFF	ON
Nessuna / None / Keine / Sans (2 stop bit)	ON	ON

Indirizzo Address Adresse Adresse								
	1	2	3	4	5	6	7	8
1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
22	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
26	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
27	ON	ON	OFF	ON	ON	OFF	OFF	OFF
28	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
29	ON	OFF	ON	ON	ON	OFF	OFF	OFF
30	OFF	ON	ON	ON	ON	OFF	OFF	OFF
31	ON	ON	ON	ON	ON	OFF	OFF	OFF
32	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
33	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
34	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
35	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
36	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
37	ON	OFF	ON	OFF	OFF	ON	OFF	OFF
38	OFF	ON	ON	OFF	OFF	ON	OFF	OFF

Indirizzo Address Adresse Adresse								
	1	2	3	4	5	6	7	8
39	ON	ON	ON	OFF	OFF	ON	OFF	OFF
40	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
41	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
42	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
43	ON	ON	OFF	ON	OFF	ON	OFF	OFF
44	OFF	OFF	ON	ON	OFF	ON	OFF	OFF
45	ON	OFF	ON	ON	OFF	ON	OFF	OFF
46	OFF	ON	ON	ON	OFF	ON	OFF	OFF
47	ON	ON	ON	ON	OFF	ON	OFF	OFF
48	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
49	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
50	OFF	ON	OFF	OFF	ON	ON	OFF	OFF
51	ON	ON	OFF	OFF	ON	ON	OFF	OFF
52	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
53	ON	OFF	ON	OFF	ON	ON	OFF	OFF
54	OFF	ON	ON	OFF	ON	ON	OFF	OFF
55	ON	ON	ON	OFF	ON	ON	OFF	OFF
56	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
57	ON	OFF	OFF	ON	ON	ON	OFF	OFF
58	OFF	ON	OFF	ON	ON	ON	OFF	OFF
59	ON	ON	OFF	ON	ON	ON	OFF	OFF
60	OFF	OFF	ON	ON	ON	ON	OFF	OFF
61	ON	OFF	ON	ON	ON	ON	OFF	OFF
62	OFF	ON	ON	ON	ON	ON	OFF	OFF
63	ON	ON	ON	ON	ON	ON	OFF	OFF
64	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
65	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF
66	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF
67	ON	ON	OFF	OFF	OFF	OFF	ON	OFF
68	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
69	ON	OFF	ON	OFF	OFF	OFF	ON	OFF
70	OFF	ON	ON	OFF	OFF	OFF	ON	OFF
71	ON	ON	ON	OFF	OFF	OFF	ON	OFF
72	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF
73	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
74	OFF	ON	OFF	ON	OFF	OFF	ON	OFF
75	ON	ON	OFF	ON	OFF	OFF	ON	OFF
76	OFF	OFF	ON	ON	OFF	OFF	ON	OFF
77	ON	OFF	ON	ON	OFF	OFF	ON	OFF
78	OFF	ON	ON	ON	OFF	OFF	ON	OFF
79	ON	ON	ON	ON	OFF	OFF	ON	OFF
80	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
81	ON	OFF	OFF	OFF	ON	OFF	ON	OFF
82	OFF	ON	OFF	OFF	ON	OFF	ON	OFF
83	ON	ON	OFF	OFF	ON	OFF	ON	OFF
84	OFF	OFF	ON	OFF	ON	OFF	ON	OFF
85	ON	OFF	ON	OFF	ON	OFF	ON	OFF
86	OFF	ON	ON	OFF	ON	OFF	ON	OFF
87	ON	ON	ON	OFF	ON	OFF	ON	OFF
88	OFF	OFF	OFF	ON	ON	OFF	ON	OFF
89	ON	OFF	OFF	ON	ON	OFF	ON	OFF
90	OFF	ON	OFF	ON	ON	OFF	ON	OFF
91	ON	ON	OFF	ON	ON	OFF	ON	OFF
92	OFF	OFF	ON	ON	ON	OFF	ON	OFF
93	ON	OFF	ON	ON	ON	OFF	ON	OFF

Indirizzo Address Adresse Adresse								
	1	2	3	4	5	6	7	8
94	OFF	ON	ON	ON	ON	OFF	ON	OFF
95	ON	ON	ON	ON	ON	OFF	ON	OFF
96	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF
97	ON	OFF	OFF	OFF	OFF	ON	ON	OFF
98	OFF	ON	OFF	OFF	OFF	ON	ON	OFF
99	ON	ON	OFF	OFF	OFF	ON	ON	OFF
100	OFF	OFF	ON	OFF	OFF	ON	ON	OFF
101	ON	OFF	ON	OFF	OFF	ON	ON	OFF
102	OFF	ON	ON	OFF	OFF	ON	ON	OFF
103	ON	ON	ON	OFF	OFF	ON	ON	OFF
104	OFF	OFF	OFF	ON	OFF	ON	ON	OFF
105	ON	OFF	OFF	ON	OFF	ON	ON	OFF
106	OFF	ON	OFF	ON	OFF	ON	ON	OFF
107	ON	ON	OFF	ON	OFF	ON	ON	OFF
108	OFF	OFF	ON	ON	OFF	ON	ON	OFF
109	ON	OFF	ON	ON	OFF	ON	ON	OFF
110	OFF	ON	ON	ON	OFF	ON	ON	OFF
111	ON	ON	ON	ON	OFF	ON	ON	OFF
112	OFF	OFF	OFF	OFF	ON	ON	ON	OFF
113	ON	OFF	OFF	OFF	ON	ON	ON	OFF
114	OFF	ON	OFF	OFF	ON	ON	ON	OFF
115	ON	ON	OFF	OFF	ON	ON	ON	OFF
116	OFF	OFF	ON	OFF	ON	ON	ON	OFF
117	ON	OFF	ON	OFF	ON	ON	ON	OFF
118	OFF	ON	ON	OFF	ON	ON	ON	OFF
119	ON	ON	ON	OFF	ON	ON	ON	OFF
120	OFF	OFF	OFF	ON	ON	ON	ON	OFF
121	ON	OFF	OFF	ON	ON	ON	ON	OFF
122	OFF	ON	OFF	ON	ON	ON	ON	OFF
123	ON	ON	OFF	ON	ON	ON	ON	OFF
124	OFF	OFF	ON	ON	ON	ON	ON	OFF
125	ON	OFF	ON	ON	ON	ON	ON	OFF
126	OFF	ON	ON	ON	ON	ON	ON	OFF
127	ON	ON	ON	ON	ON	ON	ON	OFF
128	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
129	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
130	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
131	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
132	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
133	ON	OFF	ON	OFF	OFF	OFF	OFF	ON
134	OFF	ON	ON	OFF	OFF	OFF	OFF	ON
135	ON	ON	ON	OFF	OFF	OFF	OFF	ON
136	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
137	ON	OFF	OFF	ON	OFF	OFF	OFF	ON
138	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
139	ON	ON	OFF	ON	OFF	OFF	OFF	ON
140	OFF	OFF	ON	ON	OFF	OFF	OFF	ON
141	ON	OFF	ON	ON	OFF	OFF	OFF	ON
142	OFF	ON	ON	ON	OFF	OFF	OFF	ON
143	ON	ON	ON	ON	OFF	OFF	OFF	ON
144	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
145	ON	OFF	OFF	OFF	ON	OFF	OFF	ON
146	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
147	ON	ON	OFF	OFF	ON	OFF	OFF	ON
148	OFF	OFF	ON	OFF	ON	OFF	OFF	ON

Indirizzo Address Adresse Adresse								
	1	2	3	4	5	6	7	8
149	ON	OFF	ON	OFF	ON	OFF	OFF	ON
150	OFF	ON	ON	OFF	ON	OFF	OFF	ON
151	ON	ON	ON	OFF	ON	OFF	OFF	ON
152	OFF	OFF	OFF	ON	ON	OFF	OFF	ON
153	ON	OFF	OFF	ON	ON	OFF	OFF	ON
154	OFF	ON	OFF	ON	ON	OFF	OFF	ON
155	ON	ON	OFF	ON	ON	OFF	OFF	ON
156	OFF	OFF	ON	ON	ON	OFF	OFF	ON
157	ON	OFF	ON	ON	ON	OFF	OFF	ON
158	OFF	ON	ON	ON	ON	OFF	OFF	ON
159	ON	ON	ON	ON	ON	OFF	OFF	ON
160	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON
161	ON	OFF	OFF	OFF	OFF	ON	OFF	ON
162	OFF	ON	OFF	OFF	OFF	ON	OFF	ON
163	ON	ON	OFF	OFF	OFF	ON	OFF	ON
164	OFF	OFF	ON	OFF	OFF	ON	OFF	ON
165	ON	OFF	ON	OFF	OFF	ON	OFF	ON
166	OFF	ON	ON	OFF	OFF	ON	OFF	ON
167	ON	ON	ON	OFF	OFF	ON	OFF	ON
168	OFF	OFF	OFF	ON	OFF	ON	OFF	ON
169	ON	OFF	OFF	ON	OFF	ON	OFF	ON
170	OFF	ON	OFF	ON	OFF	ON	OFF	ON
171	ON	ON	OFF	ON	OFF	ON	OFF	ON
172	OFF	OFF	ON	ON	OFF	ON	OFF	ON
173	ON	OFF	ON	ON	OFF	ON	OFF	ON
174	OFF	ON	ON	ON	OFF	ON	OFF	ON
175	ON	ON	ON	ON	OFF	ON	OFF	ON
176	OFF	OFF	OFF	OFF	ON	ON	OFF	ON
177	ON	OFF	OFF	OFF	ON	ON	OFF	ON
178	OFF	ON	OFF	OFF	ON	ON	OFF	ON
179	ON	ON	OFF	OFF	ON	ON	OFF	ON
180	OFF	OFF	ON	OFF	ON	ON	OFF	ON
181	ON	OFF	ON	OFF	ON	ON	OFF	ON
182	OFF	ON	ON	OFF	ON	ON	OFF	ON
183	ON	ON						

## Display:

**IT** - All'accensione, il display indica per qualche secondo il messaggio "WAIT" lampeggiante, poi i valori dei vari sensori in alternanza ogni 5 secondi. Se la temperatura va fuori scala, compare il messaggio "LOWT" ( $T < 2^{\circ}\text{C}$  [ $T < 28.4^{\circ}\text{F}$ ]) o "HIGT" ( $T > 52^{\circ}\text{C}$  [ $T > 125.6^{\circ}\text{F}$ ]).

La temperatura può essere visualizzata in  $^{\circ}\text{C}$  o  $^{\circ}\text{F}$  tramite il Jumper JP6.

**EN** - At startup, the display indicates the flashing message "WAIT", and then alternates the values of sensors every 5 seconds. If temperature is out of scale, message "LOWT" ( $T < 2^{\circ}\text{C}$  [ $T < 28.4^{\circ}\text{F}$ ]) or "HIGT" ( $T > 52^{\circ}\text{C}$  [ $T > 125.6^{\circ}\text{F}$ ]) is indicated. Temperature can be visualized in  $^{\circ}\text{C}$  or  $^{\circ}\text{F}$  selecting position of jumper JP6.

**DE** - Beim Einschalten erscheint auf den Display für einige Sekunden die Nachricht "WAIT" blinkend, dann wechseln sich die Werte abwechselnd alle 5 Sekunden ab. Sobald die Temperatur den Bereich überschreitet erscheint die Meldung "LOWT" ( $T < 2^{\circ}\text{C}$  [ $T < 28.4^{\circ}\text{F}$ ]) oder "HIGT" ( $T > 52^{\circ}\text{C}$  [ $T > 125.6^{\circ}\text{F}$ ]). Die Temperatur kann durch den Jumper JP6 entweder in  $^{\circ}\text{C}$  oder in  $^{\circ}\text{F}$  angezeigt werden.

**FR** - A la mise sous tension, le display indique "WAIT" clignotant, puis les valeurs des senseurs en alternance toutes les 5 secondes. Si la température va au-delà de l'échelle, il apparaît "LOWT" ( $T < 2^{\circ}\text{C}$  [ $T < 28.4^{\circ}\text{F}$ ]) ou "HIGT" ( $T > 52^{\circ}\text{C}$  [ $T > 125.6^{\circ}\text{F}$ ]) sur le display.

La température peut être visualisée en  $^{\circ}\text{C}$  ou  $^{\circ}\text{F}$  en utilisant le cavalier JP6.

## Impostazione jumper / Jumper setting / Jumper Einstellung / Réglage des cavaliers:

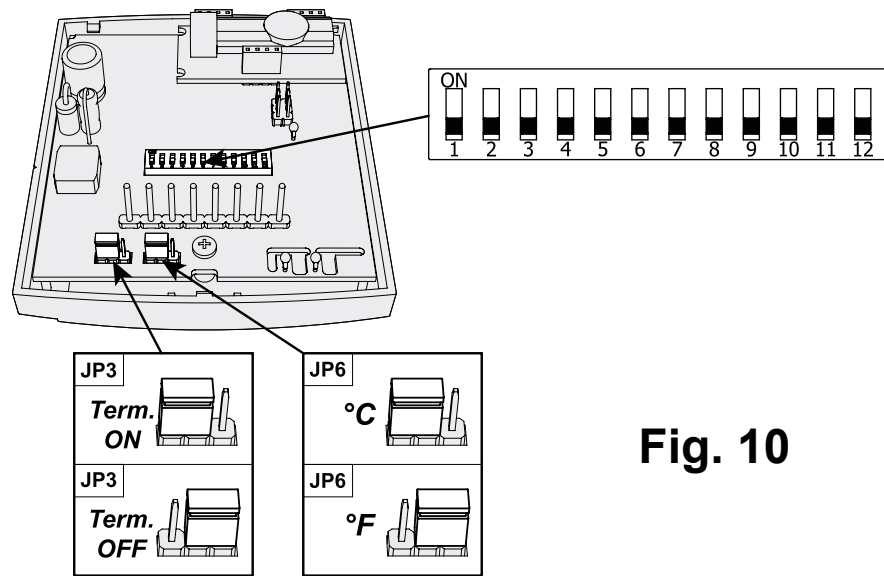
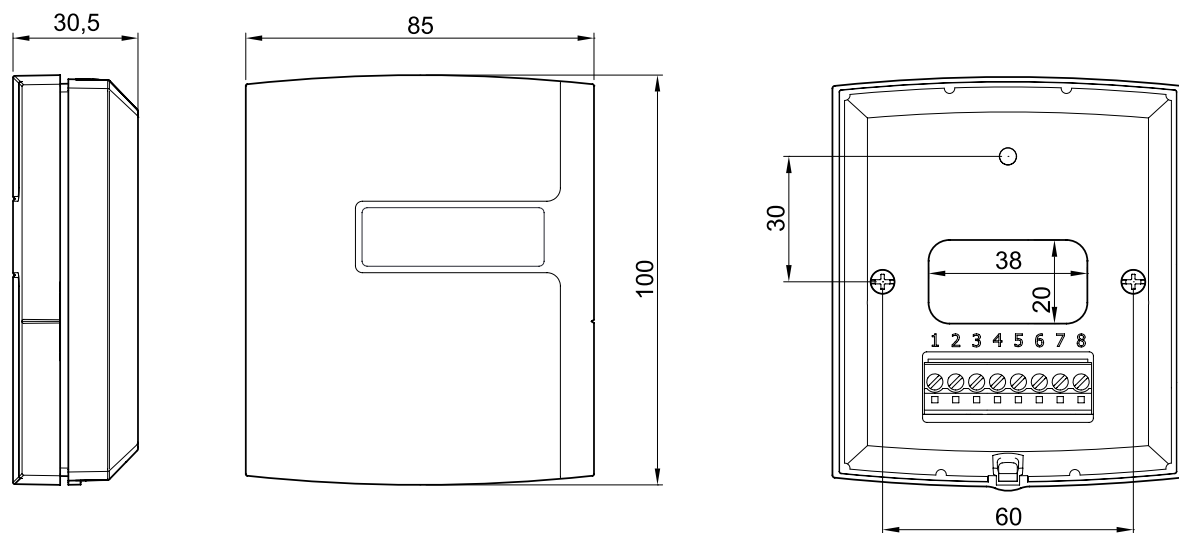
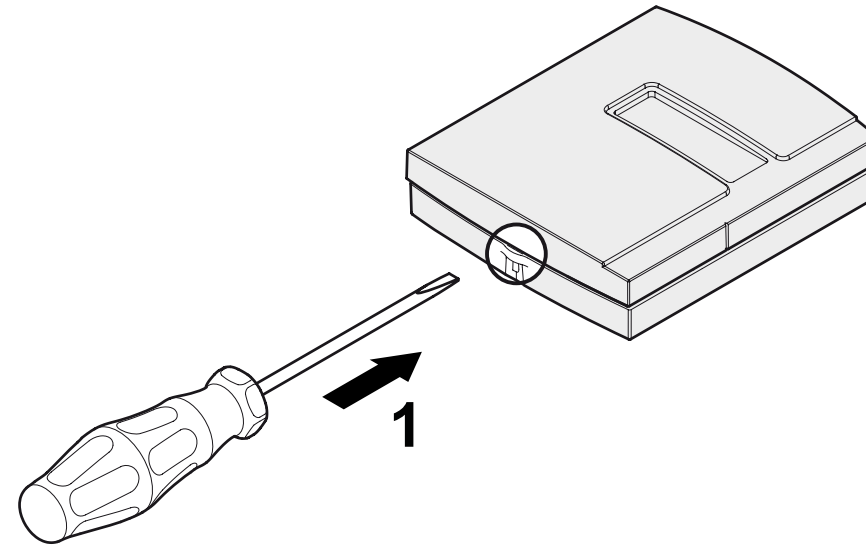


Fig. 10

## Dimensioni / Dimensions / Abmessungen / Dimensions:



## Montaggio / Mounting / Montage / Montage:

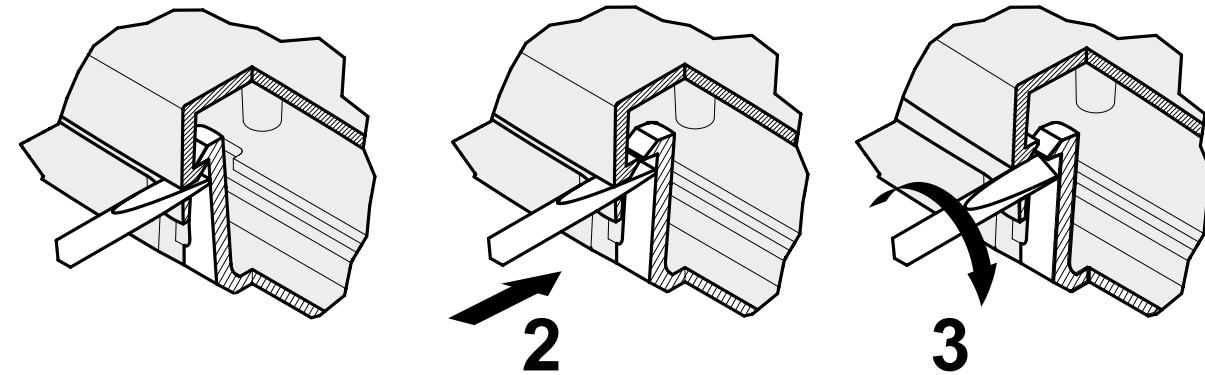


**IT** - Per rimuovere il coperchio, utilizzare un cacciavite a taglio da 3mm per sbloccare la linguetta di bloccaggio del fondale.

**EN** - To remove the front cover, use a 3mm flat-blade screwdriver to depress the locking tongue in the lower part of the casing.

**DE** - Um den Deckel zu entfernen müssen die einen Schlitz Schraubendreher zu 3mm verwenden um den Federkeil zu lösen

**FR** - pour enlever le couvercle, utiliser un tournevis à embout plat de 3mm pour débloquer la languette de blocage du socle.

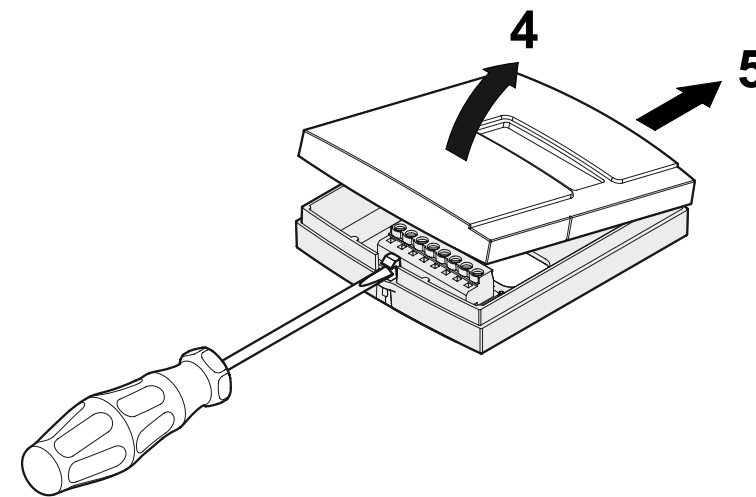


**IT** - Premere e ruotare il cacciavite e allo stesso tempo tirare il coperchio.

**EN** - Press and twist the screwdriver and at the same time pull the bottom part of the front outwards.

**DE** - Den Schraubzieher drücken und drehen und zugleich den Deckel hochziehen

**FR** - Appuyer et tourner le tournevis et tirer le couvercle en même temps

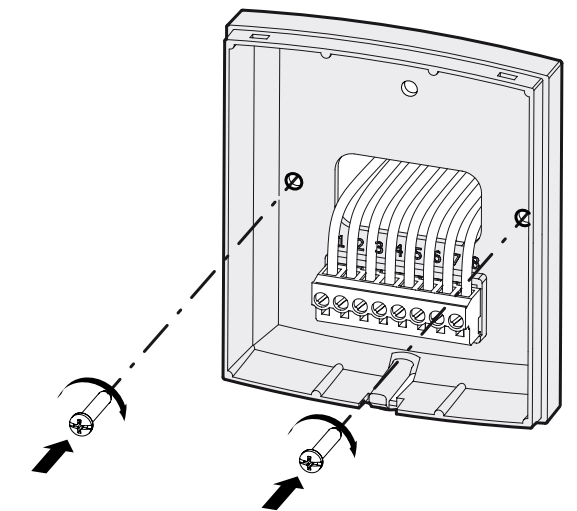


**IT** - Quando la parte inferiore del coperchio è libera, fare scivolare il coperchio come nel punto 5 per liberare le linguette nella parte alta del coperchio.

**EN** - When the bottom end of the front cover is free from the casing bottom part, slide the cover towards the top of the casing to free the hooks holding the upper edge of the front cover.

**DE** - Sobald sich der vordere Teil des Deckels nach oben löst diesen wie Punkt 5 veranschaulicht nach schieben.

**FR** - Lorsque la partie inférieure du couvercle est libre, faire glisser le couvercle comme au point 5 pour libérer les languettes dans la partie haute du couvercle.



**IT** - Eseguire i collegamenti come mostrato negli schemi. Fissare il fondale della scatola al muro.

**EN** - Do the connections according to electrical wiring diagrams. Fix the bottom part of the casing on the wall.

**DE** - Die Verbindungen ausführen wie auf dem Datenblatt veranschaulicht. Das Unterteil des Gehäuses an die Wand anbringen.

**FR** - Effectuer les raccordements électriques comme indiqués sur les schémas. Fixer le socle du boîtier au mur.