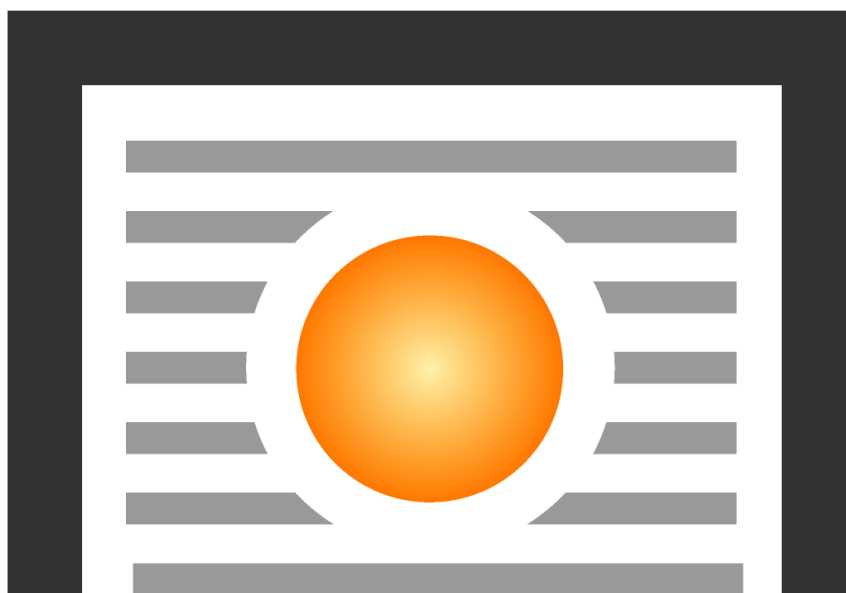


Emission Control Probe Tribo-Check® with Relay



User Manual



SAFE • VENT®

TABLE OF CONTENT

STANDARD FEATURES	4
GENERAL DESCRIPTION	4
PREREQUISITE	4
TRIBO-CHECH® TC PROBE OPERATION PRINCIPLE	4
SENSITIVITY TO THE ‘TE’ EFFECT	4
OPERATION	4
TECHNICAL FEATURES	5
INSTALLATION RULES AND SECURITY	5
THRESHHOLD, LAYOUT, WIRING DIAGRAM	6
POSIONING AND OPERATING	7
HOLE FOR CALIBATION	7
FASTENING	7
MAINTENANCE	7
PROBE CALIBRATION	7
WARRENTY	8
WARRENTY EXCLUSION	8
ADDITIONAL INSTALLATION RULES	8
ATEX MARKING DETAILS	9



**Emission Control Probe Tribo-Check®
with Relay**

STANDARD FEATURES

CODE	DESCRIPTION
BS40	TC standard probe fastening bush Standard TC probe fixing flange. Muff male thread 1-1/4
AT	Tropicalisation of the Printed Circuit Application of a protective paint on the printed circuit

GENERAL DESCRIPTION

PREREQUISITE

The need to signal in advance possible leakages of the dedusting system avoiding high costs of environmental reclamation and of plants stop-overs brought, since a long time, to the use of electronic equipments dedicated to a better environmental safeguard. With the use of these devices it is possible to signal any failure that can produce dangerous emissions in the atmosphere which are symptom of breakdown in the dedusting plant. Especially, it is possible to control any breaks of the filtering surfaces, broken bags or cartridges.

The use of TC probes allows therefore to identify the dust particles which are present in the gases that go through the filter due to any breaks or failures of the bags or cartridges where the quantities of dusts to remark are considerable 100÷400 For a correct functioning of the TC probe, the cartridges or the bags must be mounted in a vertical position. The TC probe is seldom used for the continuous monitoring of the dustiness degree present in the discharge duct of the gases in the atmosphere. The above-mentioned use entails a more complicated calibration and a deep knowledge of the device.

TRIBO-CHECH® TC PROBE OPERATION PRINCIPLE

The probe's operation principle is founded on the TRIBO ELECTRIC 'T-E' effect. This physical phenomenon is caused by the friction of particles suspended in the air against the surface of a probe which is placed in the measurement area. Particular electronic circuits which are located inside the probe allow to transform the static electricity generated by the T-E phenomenon into the electric signal proportional to the quantity of particles that generated it.

SENSITIVITY TO THE 'TE' EFFECT

The sensitivity to the TRIBO-ELECTRIC effect of the probe varies according to the type of dusts to be monitored. On the basis of acquired experiences, it has been established that this sensitivity, namely the possibility that the probe generates an electric signal consequently to the collision of the particles suspended in the gases to be monitored, starts with minimum dust concentrations from 3÷8 mg/m³ to 200 mg/m³ in an acceptable linear way. The signal generated by the TC probe depends on the type of material analyzed, the speed of the gas in the duct, the probe's length and the density of the particles in the duct.

OPERATION

The TC probe notes the passage of particles which are present in the gases by turning this physical phenomenon into an electric signal proportional to the dustiness degree. By comparing the signal generated by TC with a threshold set by the rotary switch located inside the head of the probe (SW 21), it is possible to activate an alarm. A relay output contact is available to manage the alarm. This contact is open in case of supply voltage not present and dust emission over the set threshold.

TECHNICAL FEATURES

Supply Voltage	16 ÷ 24 VDC / 100 mA
Output signal	Relay contact N.O. 1A / 40 V Max
GAS temperature	120°C with BS40 (Standard) 200°C with BS200 (On Request) 400°C with BS400 (On Request)
Operating temperature	- 10 °C ÷ + 50 °C
Relative humidity	80%
Dimensions / Protection degree	IP65
Particle Size	>= 0.3 µm



Device in Class III.



A wrong supply voltage connection might cause irreparable damages to the device.

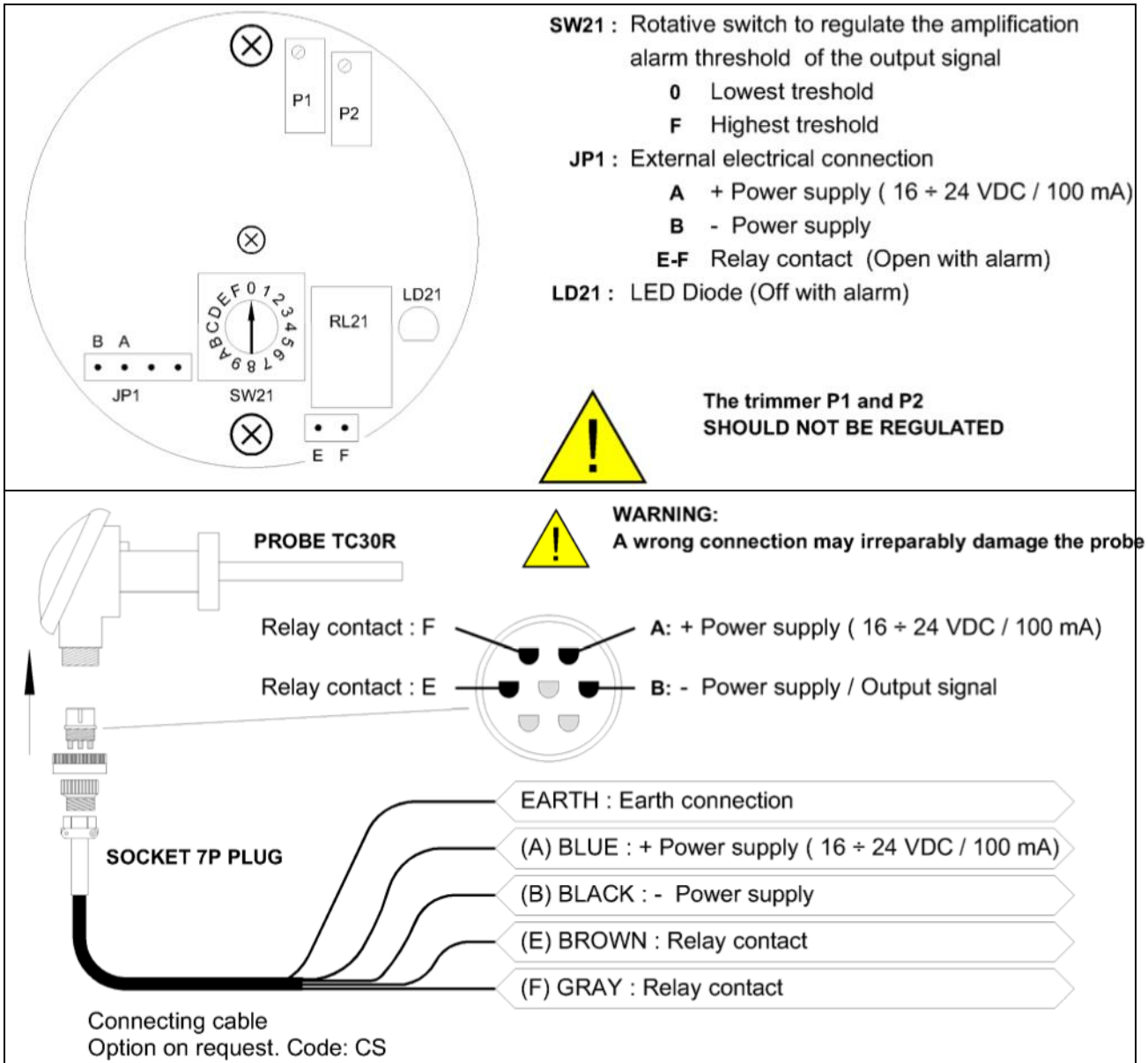


We reserve the right to make any change without notice.

INSTALLATION RULES AND SECURITY

- For connections to PLC or to other devices please use the provided units with galvanically isolated entry.
- NEVER REMOVE the PL connector with power supply ON. TC probe could be irreparably damaged.
- For the electrical connections use ant flame shielded cable 3 x 0,75 mm²
- Remove the TC probe in case of electric weldings on the support structure of it and during the maintenance.
- Protect the 'head' of the probe against the direct exposure to sun light.
- Every kind of operation on TC probe must be done without dust in the air and with supply voltage Off
- A remarkable quantity of rain or water in the sampled gases could distort the reading of the signal. Equipment not security.
- For supply voltages and voltages applicable to the relay contacts, follow the current rules
- The lack of application of existing rules and standards of installation and safety exonerate the manufacturer of responsibility.
- Equipment not security.

THRESHHOLD, LAYOUT, WIRING DIAGRAM

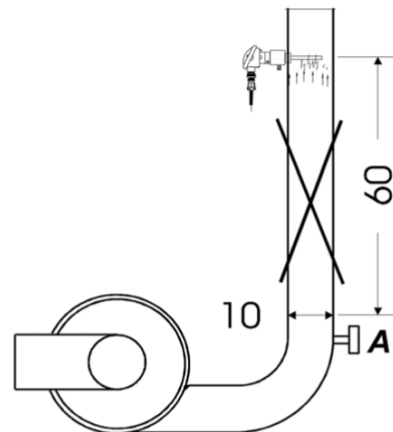


POSITIONING AND OPERATING

The installation of the TC probe is done by fixing the BS40 flange to the duct to be monitored. The BS40 flange, in AISI304 material, should be fixed in a part of the duct where isokinetic conditions happen. The above condition, as a general rule, is placed at a distance of 6÷10 times from the diameter of the duct from the nearer bend from the side of the origin of the gases. In this area, the components of turbulence in the gases present inside the duct are practically unimportant. This condition is essential for the correct functioning of the monitoring and the reliability of the registered data. It is suitable to install the probe with a slight bent downwards (head of the probe slightly upward compared to the end of the metallic pole) so that possible drops of condensation that can appear on the sensitive part of the probe can slip into the duct.

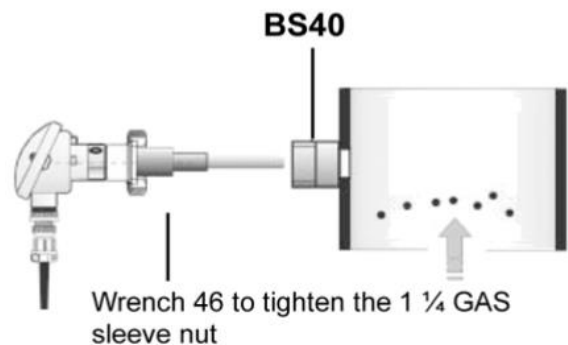
HOLE FOR CALIBRATION

For the next calibration for the simulation of the TC probe, it is necessary to provide for a hole with its plug in order to allow the introduction of dust. This hole should be positioned in vertical line duct under the TC probe at a certain distance to assure isokinetic conditions in the point of measurement (see next picture A).



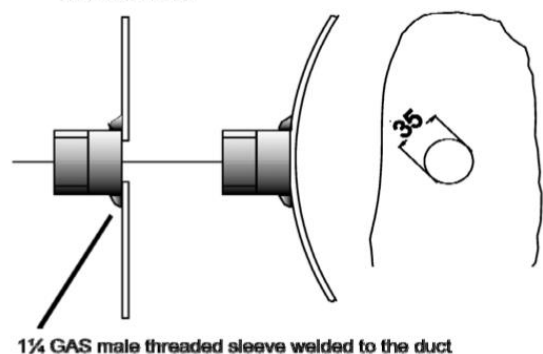
FASTENING

The standard BS40 flange is a muff male thread of 1¼ GAS with 35 mm hole. BS40 is fixed to the duct by means of a welding on the same axis where the 35mm hole has been made. See the picture. When the fixing operation of the probe is finished, introduce the TC probe. The probe is fixed by closing the 1¼ GAS nut. In case of high temperatures, consider longer flanges (see the picture)



MAINTENANCE

The TC probe does not require a particular maintenance. Could be necessary polish up with a rag soaked of detergent (alcohol, gasoline etc.) the sensitive part of the probe (inside pole) without particular precautions. The necessity to clean the probe should be checked after any months of operation, checking that possible deposits have provoked alterations to the operation of the probe.



PROBE CALIBRATION

The purpose of the calibration is to set in right way the probe to have the indication when the dust emission is over the maximum limit allowed. The measurement field of the emission, for this type of probe, is 3÷200 mg/m³ and depend on the kind of dust, the speed of the fluid and the length of the sensing rod in the duct (the sensing rod should be at least half of the diameter of the duct). The calibration of the probe consists to

set the threshold for the activation of the relay RL21 by changing the position of the switch SW21 with some simple tests:

1. Set SW21 on '8'. It means with a threshold at the half of the range available. Insert in the duct a quantity of dust corresponding to the maximum value allowed.
2. If the relay switch it is necessary to increase the threshold and repeat the test up to the point when the relay does not switch. When this point is reached decrease at least 1 point the position of SW21 (ex. if the threshold of no switch is with SW21 in position 'C', then SW21 will be set on 'B' or 'A').
3. If after the test at the point 1, the relay does not switch, it means that the threshold is too high and it will be decrease by SW21. Reduce the threshold and repeat the test at the point 1, but with this new position of SW21.

WARRENTY

The warranty lasts 4 years. The company will replace any defective electronic component, exclusively at our laboratory, unless otherwise agreed, upon the Company's prior consent.

WARRENTY EXCLUSION

The warranty is not valid in case of:

- 1) Tampering or unauthorized repairs.
- 2) Wrong use of the device, not in compliance with technical data.
- 3) Wrong electrical wiring.
- 4) Inobservance of the installation rules.
- 5) Use of the device, not in compliance with CE rules.
- 6) Atmospheric events (Lightning, electrostatic discharge), Overvoltage.

ADDITIONAL INSTALLATION RULES

One time in a month or more frequently if necessary verify if there is dust on the enclosure of the device and remove it if it is present by using wet cloth.

The ATEX certification decade in case of every type of modifications of the original device that are not done by company

All the electrical wiring must be done according to the European rule EN 60079-14

In case of faulty that does not depend only to the fuse, switch off immediately the supply voltage and contact the supplier. The reparation of the device must be done only in our laboratory and the device must be sent with the enclosure to our factory. In case of application of cable glands by the final user, The company does not assume any responsibility. Use only cable glands IP65 ATEX certified with same or superior certification of the device and type ISO R/68. The fixing holes must be done with the right diameter indicated for that cable gland.

With the purpose to avoid the entry of dust inside the equipment through the pneumatic connections for the reading of the dP, insert on such lines an opportune systems for dusts blocking.

ATEX MARKING DETAILS



EUROPEAN UNION Conformity brand



Useful in ATEX classified zone with potentially explosive atmosphere.

II	Group II. Surface plant
3D	Category - Dust
Ex tc	Level of protection by enclosure
IIIC	Explosive conductive powders
IP65	Protection degree
T100°C	Maximum surface temperature
-10<Ta<+50 °C	Ambient temperature