

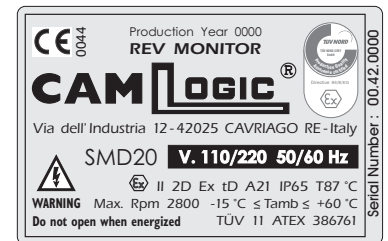
## Installation and Maintenance Rules for: Digital revolution monitor SMD 20

### SMD 20 - SMD 20/F - SMD 20/ST

#### STANDARD FEATURES

The revolution monitor SMD 20 is made in compliance with the regulations in force in the European Union and specifically with:

- Die-cast aluminum casing UNI5076. IP65 protection. SMD20, in regards to the classification of zones according to the danger of combustible dust explosion (EC Directive 94/9 EC), can be used in zone 21 or zone 22.
- Stainless steel shaft on ball bearings, watertight with permanent lubrication, with FPM 75 Corteco ring for dust seal.
- Versions for assembly by direct connection, flange connection, support bracket.
- Electrical construction in compliance with EC Directives 73/23, 93/68 on low-voltage electrical material, EC Directives 89/336, 92/31 on electromagnetic compatibility with Test Report No. 04-09-97-C87 issued by Laboratorio Universitario di Compatibilità Elettromagnetica "Leopoldo Nobili" via Paterlini 10, Reggio Emilia, Italy.
- Noise level measured in open field: zero.
- Envisaged power supplies: 110/220 V 50/60 Hz - 24/48 V 50/60 Hz - 24 V DC.
- Use contact capacity: 5 A at 250 V AC.
- Field of use: 1 - 2800 rpm.



#### SAFETY RULES

All the appropriate safety precautions must be taken when electrically operated equipment is used, in order to reduce the risk of fire outbreaks, electric shock and injuries to persons.

- Keep the work zone clean and orderly. Accidents are more likely to occur in untidy areas and environments.
- Before beginning work, make sure that the revolution monitor is in a perfect condition. Damaged or broken parts must be repaired or replaced by competent personnel authorized by the Manufacturer.
- All verifications, inspections, cleaning and maintenance operations, part changes and replacements must be carried out with the revolution monitor disconnected and the plug removed from the power socket.
- It is absolutely forbidden for children, unauthorized and/or inexperienced persons to touch or use the digital revolution monitor.
- Make sure that the electricity system complies with the laws in force. Make sure that the earthing is efficiently connected when the instrument is installed. Check to be sure that the power socket is suitable, that it complies with the laws in force and that it has a built in automatic protection circuit-breaker.
- The revolution monitor must never be stopped by detaching the plug from the power socket. Moreover, never use the cable to pull the plug from the socket.
- Periodically check to be sure that the cable is in a perfect condition and replace it if damage is discovered. This operation must only be carried out by competent and authorized persons. Only use extension cables of the permitted type and marked.
- Protect the cable against high temperatures, lubricants and sharp edges. Do not twist or knot the cable.
- Do not allow children or unauthorized persons to touch the cable when the instrument is plugged in.

#### INSTALLATION

Before installation, inspect the outer structure of the revolution monitor. If the units is remained stored for long period, check the free rotation of the shaft manually. If this check reveals anything irregular, the revolution monitor must be sent to CAMLOGIC Snc to be restored to efficiency. CAMLOGIC revolution monitor can be installed in any position. The constructional characteristics of the unit that monitors the revolutions can be installed so that the cable input is turned at 90° intervals, allowing the power cable to be fixed in the most favourable position (Fig.1).

The unit can be mounted by a direct connection (with M6 threading in the front part of the revolution monitor), with flange connection or on a bracket. The choice of one of these three options is determined by the structural characteristics of the machine to which the revolution monitor is connected. The type of connection can, however, be modified afterwards since both the flanged type and bracket are fixed to the body of the revolution monitor by the threaded holes of the direct connection and this means that no modification is necessary. Connection to the spinning shaft is normally carried out through the coupling supplied by the Manufacturer. In any case, the coupling must be dimensionally compatible with the characteristics of the revolution monitor shaft and must allow a modest float to compensate for any misalignments in the installation.

The joint furnished by the Manufacturer is not fit to power transmissions, it must be used only in the context of supply.

#### ELECTRICAL WIRING

The conductors forming the power supply and signal carrying cable must have an adequate cross-section so that the current density, in each conductor, is no higher than 4 A/mm<sup>2</sup>. One of these is used only for the earthing of the revolution monitor. The cross-section of the conductors must also be adequate in relation to the length of the cable used to avoid a drop in voltage along the cable over the values prescribed by the regulations on the subject. It is likewise recommended to use flexible cables with an adequate outside diameter for the fair-leads used (not supplied) to ensure a perfect seal of the cable clamp on the power supply and signal carrying cable.

Use exclusively cable entries certified according to standards EN 61241-0 EN 61241-1.

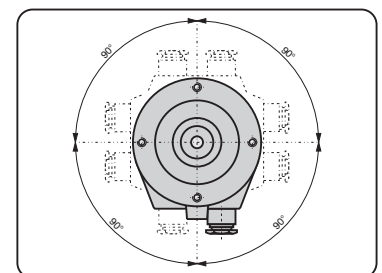


Fig.1

By the terminal box there is the wiring plate ( Fig.2 ) which has printed on it the wiring diagram for the power supply and use of the revolution monitor.

**CAUTION:** There is a screw in the terminal board compartment which is used for the earthing the revolution monitor. This screw must be connected to the yellow-green conductor ( only green for the USA ) of the power cable.

The ground connection of the revolution monitor, through the yellow-green conductor, is compulsory.

- The external earthing has to be carried out by the installer.
- The equipment has to be protected against impact and electrostatic.
- The user has to protect the equipment circuits with fuses against short circuit.
- The max. surface temperature considered is without dust and not safety distance.
- The user has to protect the rotating parts of the revolution monitor.
- Potential differences among instrument earthing and machine earthing must not exist because the joint creates isolation.

On the external revolution monitor casing side, placed side by side to the cable inlet, a second connection point is present for the external ground connection executable with a screw M5 and an eyelet cable terminal.

Always check that the mains voltage and frequency correspond those given up on the plate of the revolution monitor before powering up.

For connections to the terminal board use fork cable terminals; for the ground connection use an eyelet cable terminal.

## OPERATION

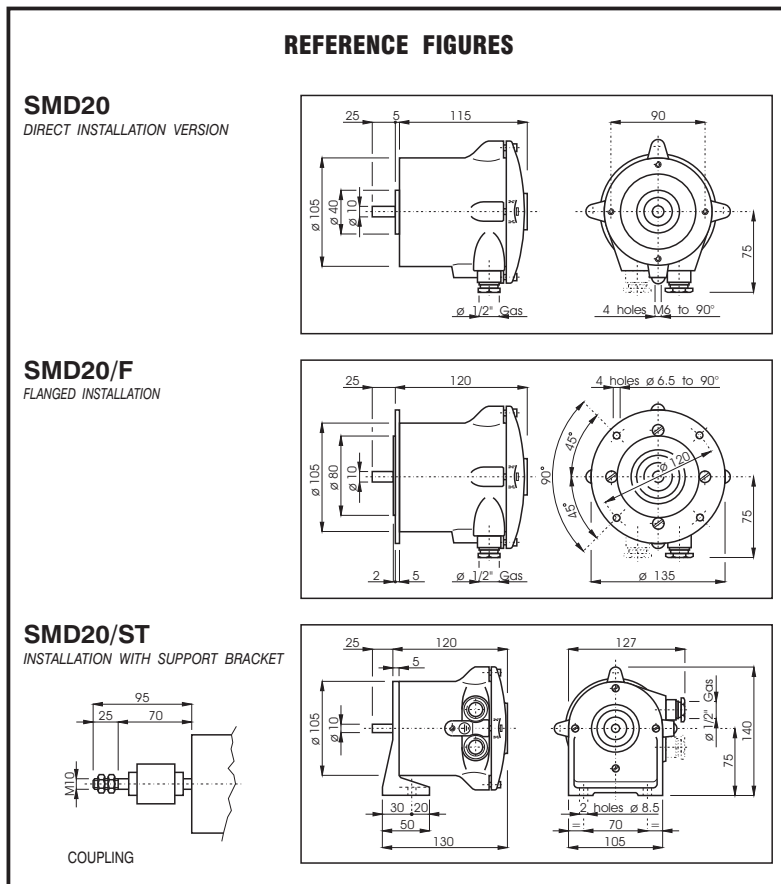
After having been powered, the revolution monitor starts by lighting the led and energizing the relay for ten seconds. This allows the controlled machine to reach operating rate and to keep the relay energized if the number of revolutions to check has been correctly entered. The relay switch contact is commutated ( led on ) for detected revolutions of the value entered ( Set-point ) on the selectors ( Fig.2 ) or higher. If the revolutions are less than the Set-point, the relay is released with contact commutation to the hold position and led off. The detected number of revolutions is updated every two seconds, corresponding to the maximum energizing delay time of the relay when the Set-point is reached. When the revolutions drop below the entered value, the relay de-energizing delay is two seconds at most.

The revolution monitor is produced in two versions:

- to control from 1 to 999 rpm with a complete field of use.
- to control from 10 to 9990 rpm with field of use limited to max. 2800 rpm.

The Set-point is set on the selectors ( Fig.2 ) in different ways, depending on the version:

- *hundreds - tens - unit* -  
for the 1 - 999 rpm version
- *thousands - hundreds - tens* -  
for the 10 - 9990 rpm version



## CE DECLARATION OF CONFORMITY

The manufacturer **CAMLOGIC Snc** declares, under its own responsibility, that the product **SMD 20/..** answers to the requisites of the international scheme IECEx in consideration of the standards : EN 61241-0 EN 61241-1.

Marking : Ⓜ II 2D Ex tD A21 IP65 T87 °C

The permitted range ambient temperature is  $-15\text{ °C} \leq T_{amb} \leq +60\text{ °C}$ .

Notified corporate body that releases the examination TÜV NORD. Certificate number TÜV 11 ATEX 386761.

Corporate body entrusted of the periodic overseeing TÜV NORD ALLEGATO IV.

*Instructions Manual No. 01527 07.05 - Rev. 00* All the information contained in this manual is confidential and no part of it may be disclosed without written authorization from **CAMLOGIC Snc**.

This manual, even after the sale of the revolution monitor, is lent and remains the property of the Manufacturer.

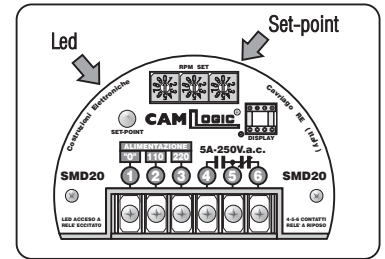


Fig.2