

Technical Sheet

Limit switch Series FCN-KST

Main features

Thanks to its long experience in rotary limit switches manufacturing, Ravioli has now manufactured a product combining the FCN mechanical precision and the accurate electronics of KST Kostal Generation 2 absolute sensor.

The FCN limit switch, connected to the machine through its shaft, let the sensor motion be reduced to a single turn; the sensor is also protected against atmospheric agents as well as shocks, and it is featured with an easy internal connection.

KST Kostal Generation 2 sensor is mechanically interfaced with Ravioli FCN limit switch; it can identify angular positions as well as the motion direction. High resolution, reliability and repetitivity are assured even in heavy conditions.



Technical features

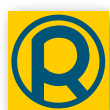
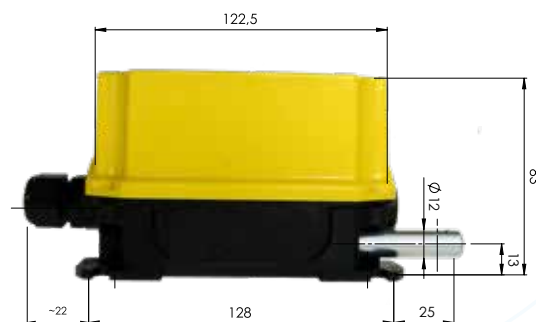
Limit switch

Compliance	EEC Directives 2006/42/CE 2014/35/UE
Compliance	Rules CEI EN 60947-1 60204- 1 60529
Lower casing	reinforced nylon
Cover	high mechanical and thermal resistant thermoplastic
Operating temperature	-20° + 60°
Cable entry	1 cable clamp M16 X 1,5
Protection degree	IP 55
Max. rotation speed	500 turns/min.
Weight	approx. 400 gr.
Homologation	CE

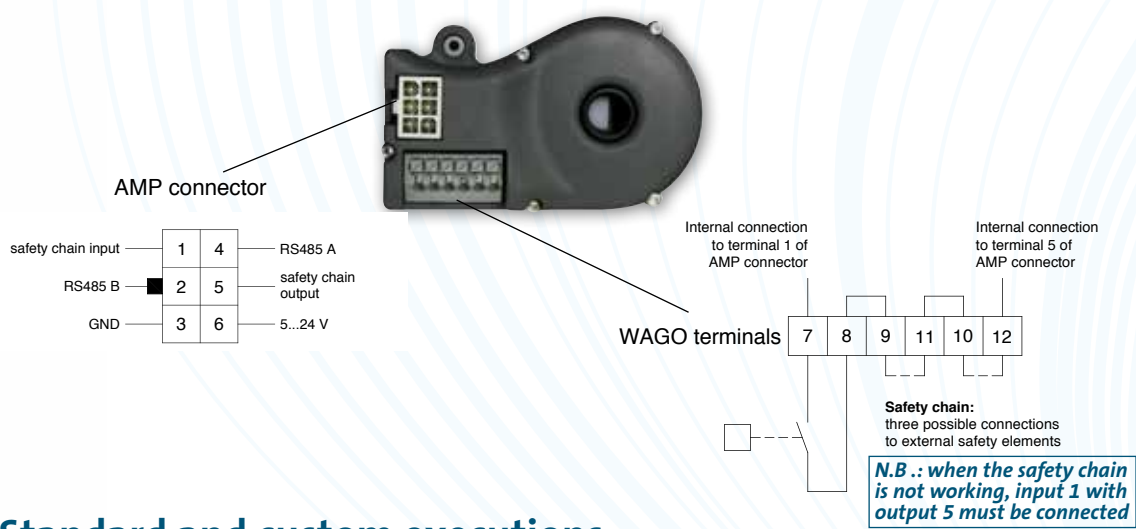
Sensor

Operating voltage	5...24 V
Operating current	50mA
Operating temperature	-20°...+70°C
Interface	RS485; asynchronous; half duplex
Transfer rate	9.600 / 19.200 / 38.400 / 57.600 bps
Angle detection range	Single 360° turn
Resolution	0,0879°/ step (12 bit = 4096 steps over 360°)
Maximum deviation	+/- 0,2° +/- 4 bits in 8192 / 360°
Protection Degree	IP 20
Interference reception	EN 61326-1
Interference emission	Group 1 Class B EN 61326-1 / EN 55011:2016
Maximum rotational speed	160°/s

Dimensions



Sensor electrical connection



Standard and custom executions

1: 7,5-15-25-35-50-100-140-200-275-400

Possible customizations:

shafts length, double-shaft models, frontal or sideways cable gland exits, custom labels, covers in different colours.

Installation and maintenance requirements

INSTALLATION AND WIRING

The limit switches must be installed by qualified personnel, in compliance with the current safety norms. Before wiring, the machine power supply must compulsorily be interrupted. Correct installation calls for working temperatures from -20°C to +60°C. The limit switch must not be used in any area which turn out to be potentially explosive, corrosive or with high sodium chloride contents. Acid, oil and solvent may cause the device deterioration; therefore it is recommended not to use either oil or fat to lubricate any part of the limit switch. The wiring installation must be completed and tested according to the current norms, in conformity with the electrical wiring diagram of the machine. After the installation, it is compulsory to check if

Operations for limit switch installation:

- remove the cover by loosening the retaining screws
- connect the limit switch shaft to the external drive element by using a flexible joint, the male connection or the cog wheels, in order to avoid any misalignment between the shafts
- fix firmly the limit switches by using the baseplate or the flange to prevent it from anomalous vibrations.

Wiring Operations:

- introduce the multipolar cable into the special cable entry
- strip the cable for electrical connection, cable the connector and connect it to the sensor
- lock the cable in the cable entry
- replace the cover and make sure that the gasket is correctly positioned in its housing.

MAINTENANCE

Maintenance Operations:

- check if both the screws on the cover and the inner clamps are correctly tightened
- check if the multipolar cable is secured in the cable entry
- check wiring conditions
- check the integrity of the gasket inside the cover
- check that the drive system is functioning correctly and the shafts are in alignment
- check that the limit switches are safely fixed
- check the integrity of the box

Safety

Safety level	Level C Cat. 2 according to EN 13849-1
Safety level of software	Class B according to EN 60730-1 / EN 60335-1
MTTF value	109,9 years
DC	>= 90.0%
CCF	68 according to EN ISO 849-1 Annex F

RAVIOLI S.p.a. declines any responsibility for damage deriving from incorrect installation or improper use of the product.

