JAQUET
TECHNOLOGY GROUP

JAQUET LTD
Thannerstrasse 15
CH-4009 Basle
Tel. +41 61 306 88 22
Fax +41 61 306 88 18

Operating instructions No. 455 E

Electromagnetic transmitters
FTG 103/FTG 104
Magnet wheels FTP 511/...

1. General

The Type FTG 103, FTG 104 electromagnetic transmitter in conjunction with a magnet wheel of the type series FTP 511/... is designed for the practically load-free measurement of speed without physical contact in continuous operation. The transmitter units are designed particularly for measuring the speeds of high-speed machinery over the range 0...6000 to 0...30'000 rpm, for example, turbines, blowers etc. The dimensions of the equipment are selected to enable it ot be fitted without modification to the exhaust gas turbo chargers made by ABB and others.

2. Electromagnetic transmitter

The electromagnetic transmitter consists principally of an induction coil and iron core which is encapsulated with synthetic resin in a brass housing. The transmitter is therefore impervious to atmospheric effects; the permissible temperature range is -50°C to +135°C (+125°C for plug), cable SH2 -90°C to +200°C.
The rear of the housing is provided with a 3-pole plug Type MS3102A-10SL-3P and a coupling type MS3106A-10SL-3S with 2 m Teflon cable. The speed transmitter should be installed with a spacing between magnet wheel and transmitter in accordance with the mounting details and according to the diagram and the mounting instructions of the machine manufacturer.
For safety reasons it is recommended that the transmitter be attached to that shaft end which rotates in the anti-clockwise direction as seen from the cover of the housing. A suitably dimensioned collar, fitted between lock nut and transmitter flange, is recommended as an additional safeguard against touching between magnet wheel and transmitter. The transmitter output voltage is determined by the spacing between magnet wheel and transmitter and by the speed of the machine. The converter connected to the transmitter changes the transmitter frequency into a proportional dc current and is arranged for a finite response-sensitivity. As a result of this response limit the instrument pointer remains on zero at low speeds and does not indicate the correct speed until the minimum limiting voltage reaches the converter input.
For all practical purposes this dead zone is small and amounts to no more than 5 % of full-scale deflection. The dead zone will be the smaller, the smaller the distance between magnet wheel and transmitter.
In the graph overleaf the transmitter voltage is plotted as a function of the speed for various spacings between magnet wheel and transmitter. The dc resistance of the transmitter is approx. 300 ohms, its impedance measured at 1000 Hz being approx. 5700 ohms.

The transmitter frequency is calculated in accordance with the following formula:

$$f = \frac{n \times p}{60}$$

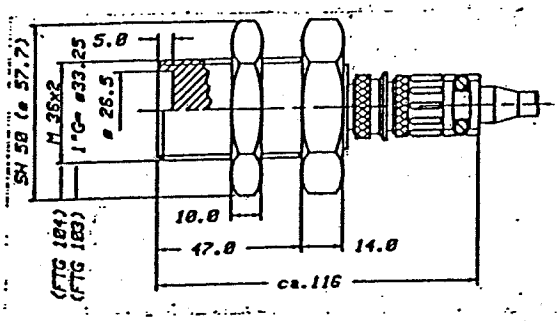
f = transmitter frequency (Hz)
n = speed (rpm)
p = number of poles on pole wheel

The transmitter and the indicating instrument should be connected to the converter with a two-core screened cable of no more than 20 m length.
The shield is not connected with the housing.

IN CHARGE OF SPEED

Typenliste / Range / Liste des types	FTG 103	FTG 104
Gewinde / thread / filetage (A)	G1"x2,3	M36x2
Kabeltyp / cable type / cable type	SH2	SH2
Spulenwiderstand/Coil resistance/ Résistance de bobine	300 Ohm±15%	300 Ohm±15%
Gewicht / Weight / Poids		
ohne Kabel und Stecker/Without cable and plug/ sans cable et fiche	430g	480g
mit Kabel und Stecker /with cable and plug / avec cable et fiche	620g	670g
Umgebungstemperatur/ambient temperature		
Sensor/transmetter/capteur	-50...+135°C	-50...+135°C
Stecker/plug/fiche	+125°C	+125°C
Zugehörige Polräder/pole wheels/roue polaire	FTP 511/..	FTP 511/..
Zugehörige Wandler Typenreihe/ Use with converter type serie/ Convertisseur fréquence-courant série de type	FT900 resp. FT1300,FT1400,FT1700	

Massbild/Dimensions/Croquis d'encombrement

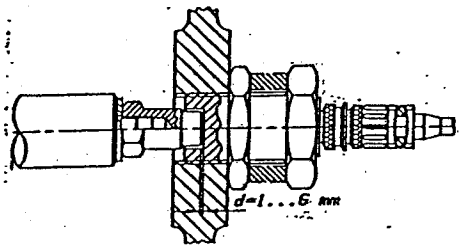


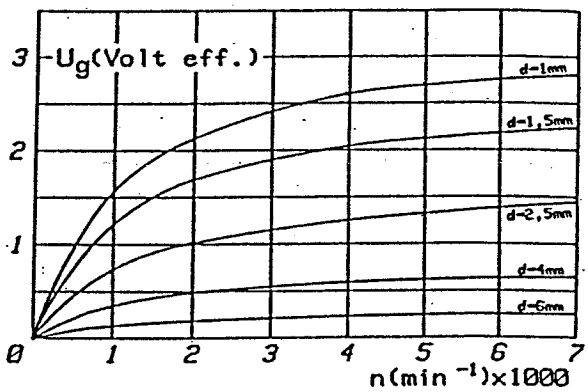
Geberspannung (Effektivwert) in Funktion der Drehzahl mit Polrad-Geber-Abstand d als Parameter

Transmitter voltage (r.m.s value) as function of speed and spacing d between magnet wheel and transmitter as parameter.

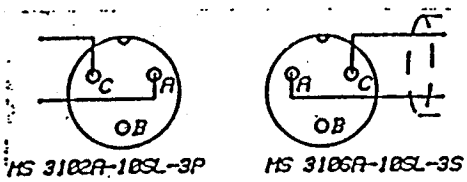
Tension du transmetteur (valeur efficace) en fonction du nombre de tours, le parametre étant la distance d entre le transmetteur et la roue polaire.

Montage/Mouting/Montage





Anschluss/Connecting/Connexion



MS 3102A-10SL-3P MS 3106A-10SL-3S

Polräder
Typenreihe FTP 511

Werkstoffe
Anticorodal, schwarz eloxiert,
Typ FTP 511/B10: rostfreier Stahl

Anordnung und Zahl der Pole
stirnseitig, 4

Anbau
koaxial mit Turboladerwelle verschraubt

Drehzahlbereiche
kleinster 0...9 000 U/min
grösster 0...60 000 U/min

Pole wheels
Type series FTP 511

Materials
black anodised anticorodal,
type FTP 511/B10: stainless steel

Position and number of poles
front side, 4

Mounting
coaxial, screwed on the turbo-charger shaft

Speed ranges
minimum 0...9000 RPM
maximum 0...60000 RPM

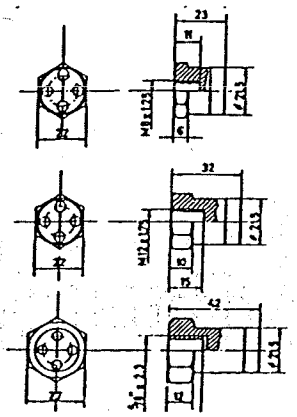
Roues polaires
Série de types FTP 511

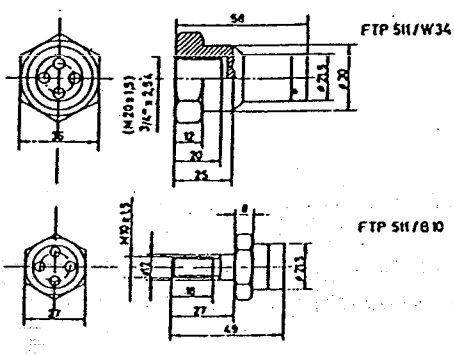
Matière
Anticorodal, anodisé noir,
type FTP 511/B10: acier inoxydable

Nombre de poles sur la partie frontale: 4

Montage
coaxial, vissé sur l'extrémité de l'arbre de la machine

Domaine de mesure:
min. 0... 9000 t/min.
max. 0...60000 t/min.





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