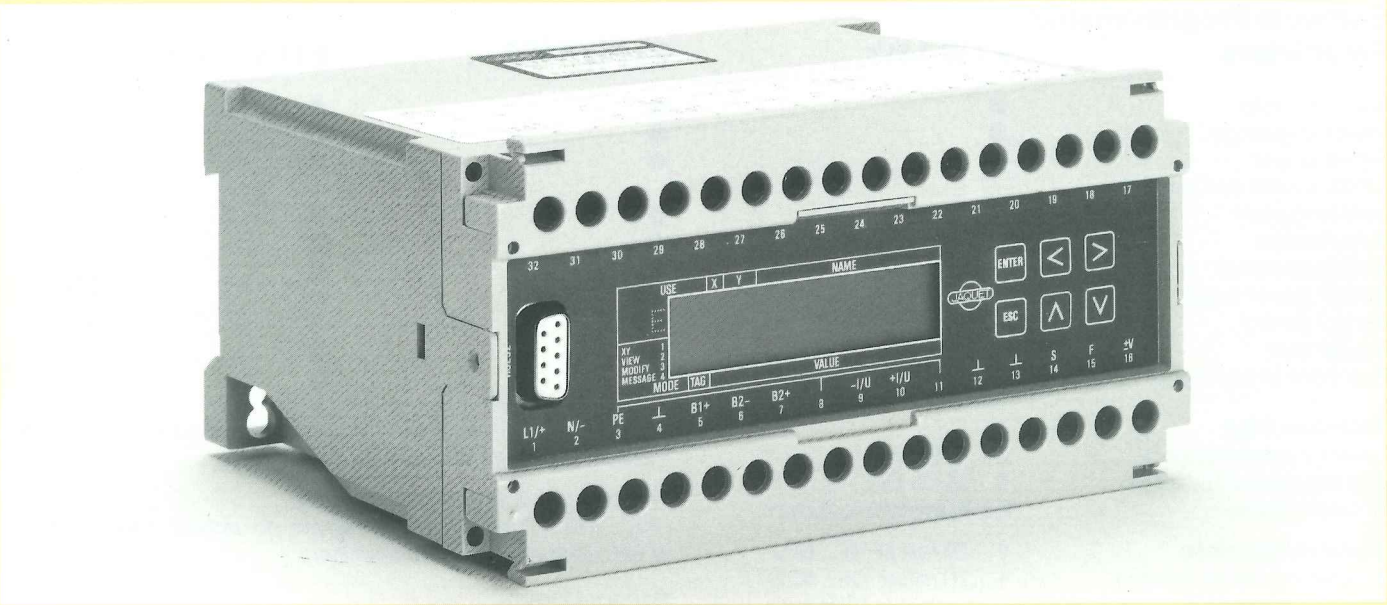
Swiss Made

JAQUET

Speed Measurement and Switching Instruments

FT 1400

Frequency Measuring Method
Accuracy Class 0,2 %



The microprocessor-controlled converter and switching instruments of the type series FT1400 are suitable for monitoring measured variables as a function of time, such as rotational speed, speed, clock rate etc. which can be converted to a proportional frequency by suitable speed sensors.

The **FT 1400** family includes the following instruments:
- **Frequency/current converter FTW 1413...**
- **Combined tachometer converter/ frequency relay** **FTFW 1422...** with 2 setpoints
  FTFW 1424... with 4 setpoints

It is the full compatible successor of the FT 1300 family with the following additional features:
- Incoporated microterminal with a 2 line LCD display and 6 keys to enter and display all parameters.
- Serial interface EIA RS 232 C for data in- and output.
- Measuring range and limits may be entered and displayed in rpm (m/min., l/min. etc.) after the input of a machine factor.
- Choice of current or voltage output with rising or falling caracteristic.
- Better resolution (12 bit) of the output signal.
- Fast response for overspeed shutdown.
- Increased powerline noise and RF interference protection.
- Compact: Up to 4 setpoints in one instrument.
- The upper and lower switching point of each limit are individually programmable.
- With integrated monitoring of 2- and 3-wire sensors.
- Permanent display of the measured value and of the relay positions.
- 2 binary inputs for programmable control functions resp. triggering of the startup bridging.
- Programmable trigger level.

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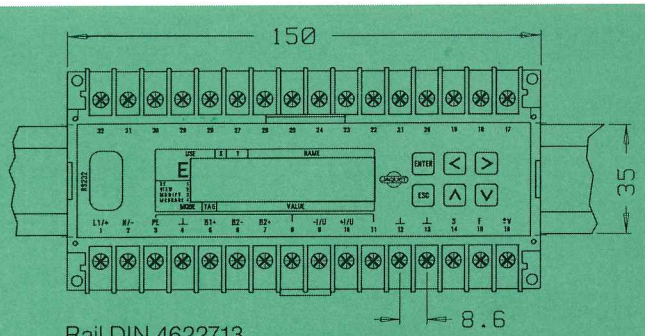
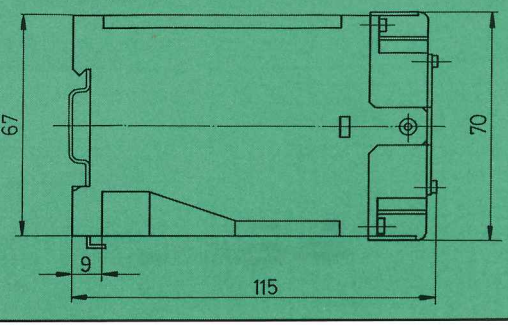
Model Overview – Ordering Information	Ordering code	Power supply	Functions: Current output	Functions: Data output	Functions: Setpoints
Frequency/current converter	**FTW 1413 ...**		●	●	
Combi tachometer frequency/ current converter – frequency relay	**FTFW 1422 ...**		●	●	**2**
	FTFW 1424 ...		●	●	**4**

* **UC 2:** 93...264 VAC or 90...375 VDC / Supply voltage failure bridged up to 50 ms without malfunction at lowest supply voltage.
* **UC 3:** 18...58 VAC or 18...60 VDC / Supply voltage failure bridged up to 5 ms.



Rail DIN 4622713
resp. EN 50022

Dimensions



Software Programmable Parameters

Parameters	FTW 1413...	FTFW 1422...	FTFW 1424...
Machine factor	●	●	●
Measuring range	●	●	●
Signal output	●	●	●
Limits: Upper and lower switching point		●	●
Relay fuction		●	●
Startup bridging		●	●
Sensor power supply	●	●	●
Sensor control	●	●	●
Trigger level	●	●	●
Functions binary inputs 1 & 2	●	●	●

Technical Data

Lowest measuring range	0...0,9990 Hz
Highest measuring range	0...50,00 kHz
Accuracy class	0,2 % referred to 20 mA
Signal output range	0...20 mA or *0...10 V
programmable for rising or falling characteristic	4...20 mA or *2...10 V *Option
Maximum load	<= 500 Ohm >= 7 kOhm
Maximum load voltage	10 V
Maximum open-circuit voltage	20 V
Resolution	12 bit corresponding to 1:4096
Maximum linearity error	0,1 %

Setpoints: Range/Hysteresis
see above: lowest and highest range individually programmable lower and upper switching point for each limit.

Changing contact, programmable energize or deenergize	one for each limit, potential free max. 250 V, 1 A, 50 W

Dataoutput
Serial interface EIA RS 232, 9 pole sub D plug

Measuring resp. response time
1 period of the input frequency + 5 ms.
The min. measuring time is programmable:
5/10/20/50/100/200/500 ms, 1/2/5 s

Microterminal
LCD Display, 2 lines with 16 characters of 5 mm height each, 6 keys for the input of parameters on a matrix diagram.

Temperature drift
Output Signal: typ 150 ppm/°K, max. 300 ppm/°K
Setpoints: max. 50 ppm/°K

Sensor Input (frequency input)
Input voltage 50 mVeff...80 Veff
Frequency range (-3dB): 0,02 Hz...50 kHz
Input impedance: 100 kOhm
Free of potential, selectable for passive or active sensors, programmable trigger level between 0... +6 V

Programmable sensor power supply
+5... +12 V, 70 mA, incorporated pull-up and pull-down resistance of 820 Ohm for two-wire transmitters.

Sensor Control
for 2 and 3 wire sensors. A lower and an upper value for the current consumption are selectable in the range from 0...70 mA.
Sensors with a consumption below Imin. resp. above Imax. will be signalled defective.

Binary Inputs
Binary input 1 for selectable controlling functions like reset of the relays in holding position or external switching between two programmable setpoints: TTL level (+5 V): active low, potential not separated from the frequency input.
Binary input 2 controls, separated from potential, the start up bridging by means of an external power supply: Logic 0 = 0... +5 V, logic 1 = +15... +33 V, max. 4 mA.

Environmental
KVE in accordance with DIN 40040
Operating temperature: 0... +55° C
Storage temperature: -25... +65° C
Relative humidity 75 % average over year, up to 95 % for 30 days max.

Option
U = Voltage output 0/2...10 V instead of a current output.

Enclosure
Plastic DIN rail housing for optional mounting on rails in accordance with DIN 46277/3 resp. EN 50022 or on mounting plate in accordance with DIN 43660 and 46121, protection system IP 50 according to DIN 40050. Terminals with self-lifting connection plates for 2 x 2,5 mm^2 wire or 2 x 1,5 mm^2 flex.
Protection class for terminals: IP 20 with cover.
With incorporated microterminal.

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