

Features

The FT 1400 is the full compatible successor of the FT 1300 family with the following additional features:

- Accuracy Class 0.2%
- Frequency Measuring Method
- Incorporated 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 etc. after the input of a machine factor.
- Choice of current or voltage output with rising or falling characteristic.
- 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 setpoint of each is 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.



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 resp. relays
FTW 1424... with 4 setpoints resp. relays

Software programmable Parameters

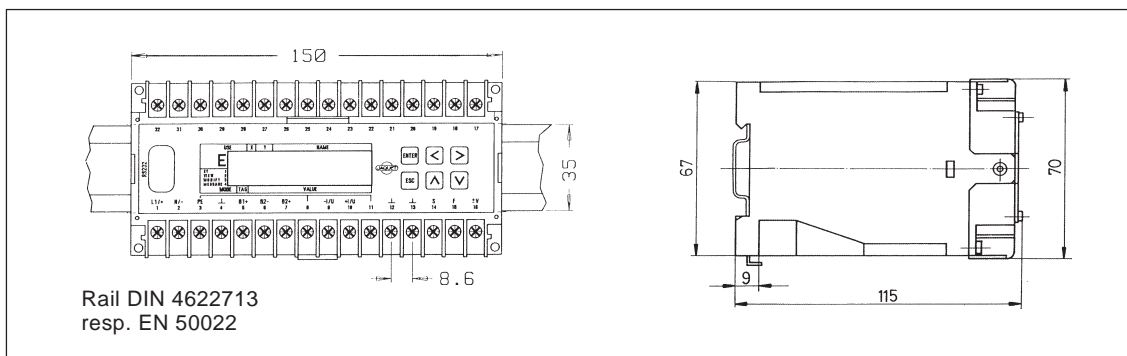
Table 1: Parameters	FTFW 1413...	FTFW 1422...	FTFW 1424...
Machine factor	✓	✓	✓
Measuring range	✓	✓	✓
Signal output	✓	✓	✓
<u>Limits:</u>			
Upper and lower switching point	—	✓	✓
Relay function	—	✓	✓
Startup bridging	—	✓	✓
Sensor power supply	✓	✓	✓
Sensor control	✓	✓	✓
Trigger level	✓	✓	✓
Functions binary 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 programmable for rising or falling characteristic	0...20 mA optional 0...10 V 4...20 mA optional 2...10 V <u>Load:</u> ≤500 Ω when current output, ≥7 kΩ when voltage output. <u>Maximum load voltage:</u> 10 V <u>Maximum open-circuit voltage:</u> 20 V <u>Resolution:</u> 12 bit corresponding to 1:4096. <u>Maximum linearity error:</u> 0.1%
Setpoints Range/Hysteresis	<u>See above:</u> lowest and highest range individually programmable lower and upper switching point for each limit. <u>Changing contact:</u> one for each limit, potential free, programmable change over contact, max. 250 V, 1 A, 50 W.
Data output	Serial interface EIA RS 232, 9 pole sub D plug.
Measuring resp. response time	1 period of the input frequency + 7.5 ms resp. 10.5 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 Setpoints	Typ. 150 ppm/° K, max. 300 ppm/° K Max. 50 ppm
Sensor input (frequency input) Input voltage Frequency range (-3 dB) Input impedance	50 mV _{eff} ...80 V _{eff} 0.02 Hz...50 kHz 100 kΩ, free of potential; selectable for passive or active sensors, programmable trigger level between 0...+3.5 V.
Programmable sensor power supply	+5...+12 V, 70 mA, incorporated pull-up and pull-down resistance of 820 Ω 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 0.5...70 mA. Sensors with a consumption below I _{min} . resp. above I _{max} . will be signalled defective.
Binary Inputs	
Binary input 1	for 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.
EMC	Emissions and immunity are in accordance with the EMC-Directive 89/336/EE.
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.
Weight	Approx. 550 g

Dimensions



Ordering Information

Ordering Information FT 1400			
Type	Frequency/current converter Combi tachometer: Frequency/current converter – frequency relay	W 1413 FW 142	
Setpoints (FW types only)	2 Setpoints 4 Setpoints		2 4
Power supply	93...264 V AC or 93...375 V DC* 18...58 V AC or 18...60 V DC**		UC 2 UC 3
Option voltage output (Instead of current output)			U
FT <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			

* Supply voltage failure bridged up to 50 ms without malfunction at lowest supply voltage.

** Supply voltage failure bridged up to 5 ms.