

Signal converter

Frequency divider	FT 1D-1D	HTL, TTL / RS422
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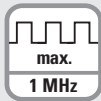


The frequency divider FT 1D-1D is intended for the error-free division of frequencies or pulses from conventional encoders, sensors or other incremental measuring systems. Four readily accessible DIL switches allow programming division ratios from 1:1 up to 1:4096 and the desired representation of the direction of rotation. A separately adjustable divider is available for the zero pulse.

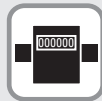
The module can be easily and conveniently mounted in a cabinet on a standard DIN rail.



Power supply



Limit frequency



DIN-rail mounting

Features

- Level conversion from HTL single ended, RS422 to HTL differential and vice-versa.
- Limit frequency 1 MHz
- Division of double-track (A, B, 90°) pulses with adjustable ratio from 1 : 1 to 1 : 4096.
- Division of the Z pulse with adjustable ratio from 1 : 1 to 1 : 256.
- Push-pull outputs for direct PLC control.
- External input for zeroing the A/B/Z divider (defined start / stop).
- Independent second Z divider adjustable.
- Z pulse division ratio adjustable.

Benefit

- Frequency reduction for slow controls.
- External scaling for controls.
- Active signal adaptation for High/Low level.
- Adjustable zero pulse for specific applications

Order no.		
Frequency divider	8.FT.1D-1D	<i>Scope of delivery</i> - Frequency divider - Manual

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Technical data

Electrical characteristics		
Power supply	9 ... 30 V DC (residual ripple ≤ 10 % at 24 V DC)	
Power consumption	at 9 V (encoder supply without load)	at 30 V
	approx. 40 mA	approx. 30 mA
Type of connection	screw terminal, 1.5 mm ²	
Encoder supply	output voltage	+5.5 V DC / ±5 %
	output current	max. 130 mA
	type of connection	screw terminal, 1.5 mm ²
Conformity and standards		
EMC guideline 2014/30/EU	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4	
RoHS guideline 2011/65/EU	EN 50581	
RoHS (III) 2015/863	EN IEC 63000	

Mechanical characteristics		
Material	housing	plastic
Mounting	35 mm DIN rail (acc. to EN 60715)	
Dimensions (W x H x D)	22.5 x 102 x 102 mm [0.89 x 4.02 x 4.02"]	
Protection	IP20	
Weight	approx. 100 g [3.53 oz]	
Working temperature	0°C ... +60°C [+32°F ... +140°F] non condensing	
Storage temperature	-25°C ... +70°C [-13°F ... +158°F] non condensing	
Failure rate (MTBF in years)	109,3 a continuous operation at 60°C [140°F]	

Incremental input X4		
Signal level	TTL / RS422 HTL	differential voltage > 1 V LOW: 0 ... 4 V / HIGH: 10 ... 30 V
HTL internal resistance	Ri ≈ 4.7 kOhm	
Tracks	TTL / RS422, symmetrical HTL, asymmetrical	A, /A, B, /B, 0, /0 (RS422, HTL differential) A, B, 0
Frequency	HTL differential HTL single ended TTL	max. 1 MHz (HTL differential signal > 2 V) max. 350 kHz, Level 1: Low 0 ... 10 V, High 14 ... 30 V Level 2: Low 0 ... 5 V, High 9 ... 30 V max. 350 kHz, Low 0 ... 0.7 V, High 2.2 ... 5 V
Type of connection	HTL, TTL / RS422	screw terminals, 1.5 mm ²

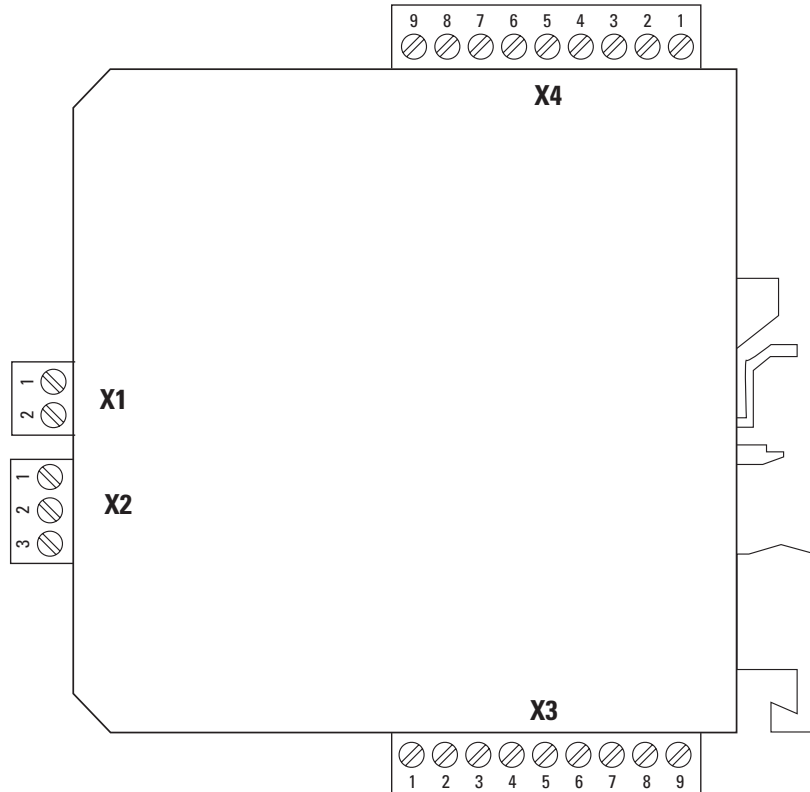
Incremental output X3		
Level	8 ... 29 V at HTL (depending on the supply voltage)	
Tracks	TTL / RS422, symmetrical HTL, asymmetrical	A, /A, B, /B, 0, /0 (5 V DC) A, B, 0
Output current	max. 20 mA / Push-Pull	
Type of connection	screw terminals, 1.5 mm ²	

Control input X2		
Level	HTL, PNP Low 0 ... 5 V, High 9 ... 30 V	
Tracks	frequency response time	max. 20 kHz 50 us
Input current	max. 3 mA	
Type of connection	screw terminals, 1.5 mm ²	

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Terminal assignment



Interface	Function	Screw terminals, 2-pin		
Connection X1	Power supply	Signal:	0 V	+V
		Pin:	1	2

Interface	Function	Screw terminals, 3-pin			
Connection X2	Control input	Signal:	GND	Contr. 1	Contr. 2
		Pin:	1	2	3

Interface	Function	Screw terminals, 9-pin									
Connection X3	Incremental output	Signal:	ERR	GND	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	GND
		Pin:	1	2	3	4	5	6	7	8	9

Interface	Function	Screw terminals, 9-pin									
Connection X4	Incremental input	Signal:	GND	$\bar{0}$	0	\bar{B}	B	\bar{A}	A	GND	+5 V out
		Pin:	1	2	3	4	5	6	7	8	9

- +V : Power supply
- 0 V : Encoder power supply ground GND (0 V)
- Contr. 1 / 2 : Control inputs
- GND : Frequency divider power supply ground (0V)
- Error : Error output
- A, \bar{A} : Incremental output channel A (Cosine)
- B, \bar{B} : Incremental output channel B (Sine)
- 0, $\bar{0}$: Reference signal

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Dimensions

Dimensions in mm [inch]

