

**NEW**

# Encoders

## Optical Encoders

**Features:**  
 100 Lines per revolution  
 2 Channels  
 Digital output

### PA2-100

Signal output, square wave		2	channels
Supply voltage	V <sub>CC</sub>	2,7 ... 3,3	V DC
Current consumption, typical (V <sub>CC</sub> = 3 V DC)	I <sub>CC</sub>	8	mA
Pulse width	P	180 ± 45	°e
Phase shift, channel A to B	Φ	90 ± 45	°e
Logic state width	S	90 ± 45	°e
Cycle	C	360 ± 30	°e
Signal rise/fall time, typical (C <sub>LOAD</sub> = 50 pF)	tr/tf	0,1 / 0,1	µs
Frequency range <sup>1)</sup>	f	up to 35	kHz
Inertia of code disc	J	0,02	gcm <sup>2</sup>
Operating temperature range		-25 ... +85	°C

<sup>1)</sup> Velocity (rpm) = f (Hz) x 60/N

### Ordering information

Encoder	number of channels	lines per revolution	for combination with:
PA2-100	2	100	DC-Micromotors series 1016 ... G, 1024 ... S 1224 ... SR

Note: Lines per revolution refers to pre-quadrature resolution and equals the cycles per revolution

### Features

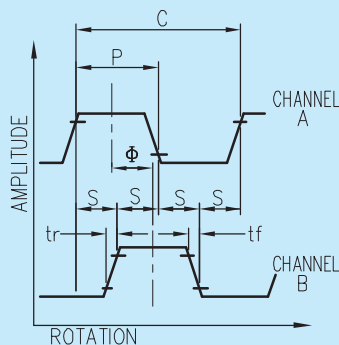
These incremental shaft encoders in combination with the DC-Micromotors and Brushless DC-Servomotors are designed for both indication and control of both shaft velocity and direction of rotation as well as for positioning.

An all-in-one emitter and detector chip (AEDR 8400) transmits and receives LED light reflected off a low inertia reflective disc providing two channels with 90° phase shift.

The supply voltage for the encoder and the DC-Micromotor and Brushless DC-Servomotor as well as the output signals are interfaced with a flexible printed circuit (FPC) for connection to an 8-pin 0,5 mm pitch Molex ZIF connector.

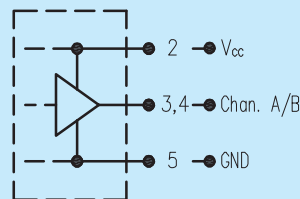
Details for the DC-Micromotors and Brushless DC-Servomotors and suitable reduction gearheads are on separate catalog pages.

### Output signals / Circuit diagram / Connector information

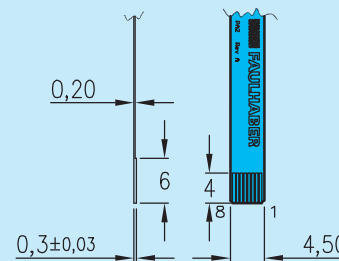


#### Output Signals

with clockwise rotation as seen from the shaft end



#### Output circuit



#### Side View Contact Side

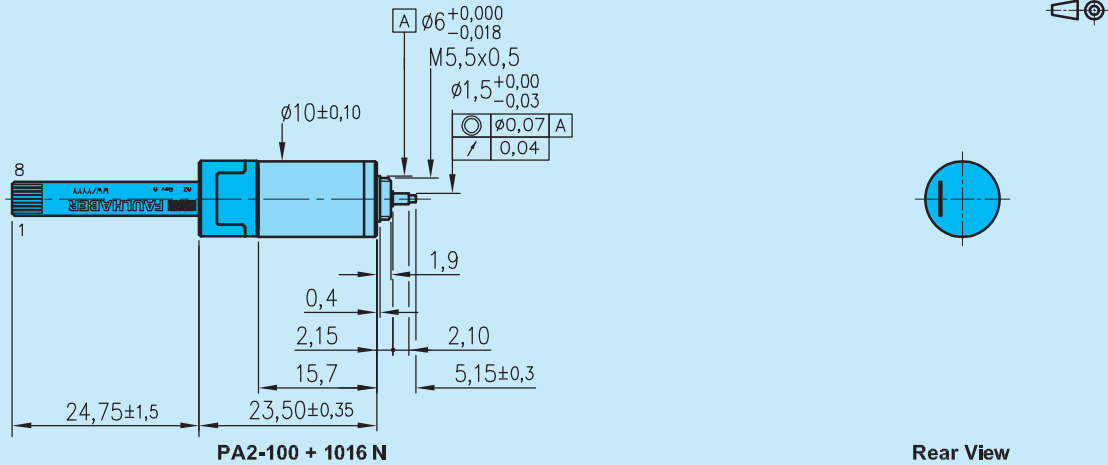
#### Connection

PIN	FUNCTION
1	MOT +
2	MOT +
3	Vcc
4	Chan A
5	Chan B
6	Gnd
7	MOT -
8	MOT -

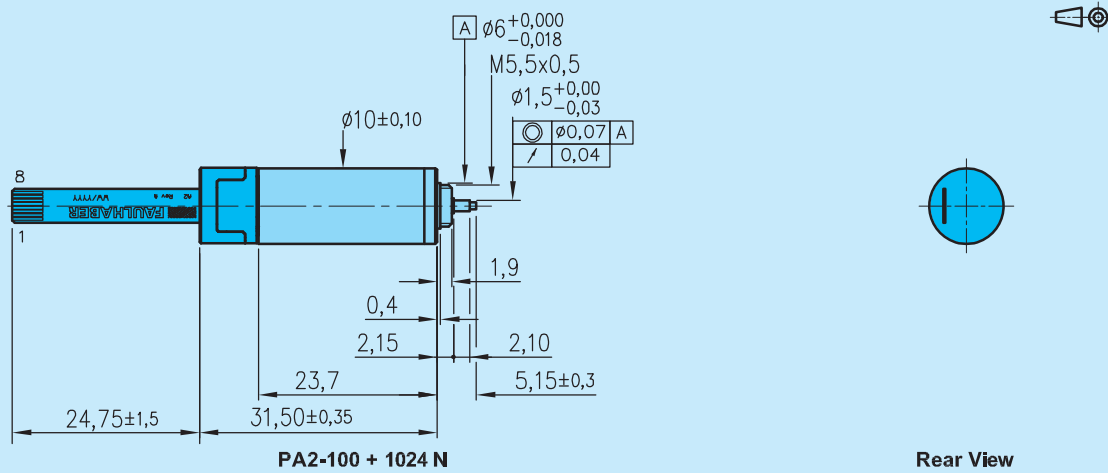
**Suggested Connector:**  
 Molex 52745 series  
 Pitch 0.5mm  
 FPC/FFC, 8 circuits

## PA2-100

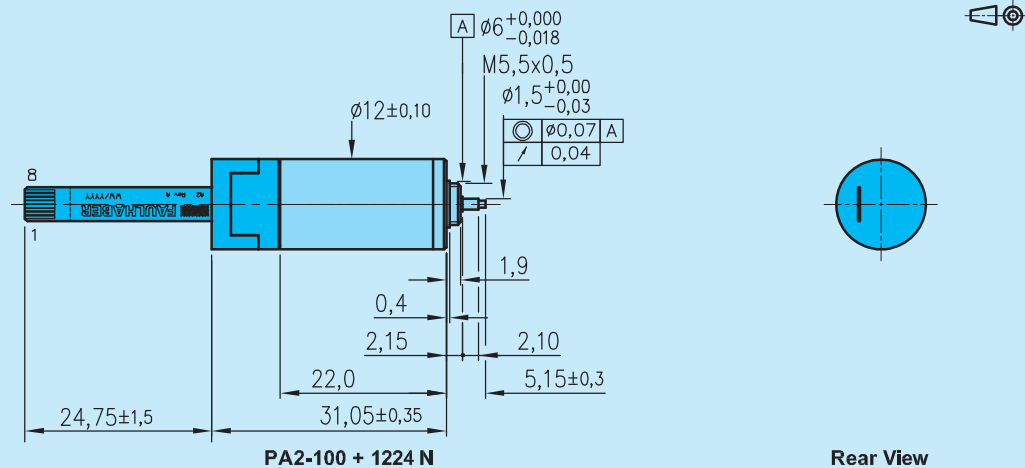
DC Micromotor 1016 N ... G - K1752 with encoder PA2-100



DC Micromotor 1024 N ... S - K1752 with encoder PA2-100



DC Micromotor 1224 N ... SR - K1752 with encoder PA2-100



## How to Order a PA2-100

Part number	Voltage	Description	Stocked items
1016E003GK1752+PA2-100	3	1016 motor with PA2-100 encoder and a pinion for 12/3 gearhead	yes
1016E006GK1752+PA2-100	6	1016 motor with PA2-100 encoder and a pinion for 12/3 gearhead	yes
1016E012GK1752+PA2-100	12	1016 motor with PA2-100 encoder and a pinion for 12/3 gearhead	yes
1016M003GK1752+PA2-100	3	1016 motor with PA2-100 encoder and a pinion for 10/1 gearhead	yes
1016M006GK1752+PA2-100	6	1016 motor with PA2-100 encoder and a pinion for 10/1 gearhead	yes
1016M012GK1752+PA2-100	12	1016 motor with PA2-100 encoder and a pinion for 10/1 gearhead	yes
1024A003SK1752+PA2-100	3	1024 motor with PA2-100 encoder and a pinion for 12/4 gearhead	no
1024A006SK1752+PA2-100	6	1024 motor with PA2-100 encoder and a pinion for 12/4 gearhead	no
1024A012SK1752+PA2-100	12	1024 motor with PA2-100 encoder and a pinion for 12/4 gearhead	no
1024E003SK1752+PA2-100	3	1024 motor with PA2-100 encoder and a pinion for 12/3, 12/5 gearhead	yes
1024E006SK1752+PA2-100	6	1024 motor with PA2-100 encoder and a pinion for 12/3, 12/5 gearhead	yes
1024E012SK1752+PA2-100	12	1024 motor with PA2-100 encoder and a pinion for 12/3, 12/5 gearhead	yes
1024M003SK1752+PA2-100	3	1024 motor with PA2-100 encoder and a pinion for 10/1 gearhead	yes
1024M006SK1752+PA2-100	6	1024 motor with PA2-100 encoder and a pinion for 10/1 gearhead	yes
1024M0012SK1752+PA2-100	12	1024 motor with PA2-100 encoder and a pinion for 10/1 gearhead	yes
1024N003SK1752+PA2-100	3	1024 motor with PA2-100 encoder	no
1024N006SK1752+PA2-100	6	1024 motor with PA2-100 encoder	no
1024N012SK1752+PA2-100	12	1024 motor with PA2-100 encoder	no
1224A006SRK1752+PA2-100	6	1224 motor with PA2-100 encoder and a pinion for 12/4 gearhead	yes
1224A012SRK1752+PA2-100	12	1224 motor with PA2-100 encoder and a pinion for 12/4 gearhead	yes
1224A015SRK1752+PA2-100	15	1224 motor with PA2-100 encoder and a pinion for 12/4 gearhead	yes
1224E006SRK1752+PA2-100	6	1224 motor with PA2-100 encoder and a pinion for 12/3, 12/5 gearhead	yes
1224E012SRK1752+PA2-100	12	1224 motor with PA2-100 encoder and a pinion for 12/3, 12/5 gearhead	yes
1224E015SRK1752+PA2-100	15	1224 motor with PA2-100 encoder and a pinion for 12/3, 12/5 gearhead	yes
1224M006SRK1752+PA2-100	6	1224 motor with PA2-100 encoder and a pinion for 10/1 gearhead	yes
1224M012SRK1752+PA2-100	12	1224 motor with PA2-100 encoder and a pinion for 10/1 gearhead	yes
1224M015SRK1752+PA2-100	15	1224 motor with PA2-100 encoder and a pinion for 10/1 gearhead	yes
1224N006SRK1752+PA2-100	6	1224 motor with PA2-100 encoder	yes
1224N012SRK1752+PA2-100	12	1224 motor with PA2-100 encoder	yes
1224N015SRK1752+PA2-100	15	1224 motor with PA2-100 encoder	yes