Encoders

optical Encoder, digital outputs
2 channels, 50 lines per revolution

For combination with
DC-Micromotors
Brushless DC-Motors

Series PA2 – 50

		PA2 – 50	
Lines per revolution	N	50	
Frequency range [1]	f	up to 35	kHz
Signal output, square wave		2	channels
Supply voltage (ripple < 100 mV_{p-p})	U_{DD}	2,7 … 3,3	V DC
Current consumption, typical (U_{DD} = 3 V DC)	I_{DD}	8,5	mA
Output current, per channel	I_{OUT}	– 1 ... 8	mA
Pulse width	P_0	180 ± 50	°e
Phase shift, channel A to B	Φ	90 ± 45	°e
Logic state width	S	90 ± 50	°e
Cycle	C	360 ± 36	°e
Signal rise/fall time, max. (C_{LOAD} = 25 pF)	tr/tf	0,3 / 0,1	µs
Inertia of code disc	J	0,02	gcm^2
Operating temperature range		– 30 ... + 85	°C

[1] speed (rpm) = f (Hz) x 60/N

For combination with motor		
Dimensional drawing A	**L1** [mm]	
0615...S - K1655	19,2	
Dimensional drawing B	**L1** [mm]	
0620...B - K1719	24,0	
Dimensional drawing C	**L1** [mm]	
0816...SR - K2565	24,0	

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 transmits and receives LED light reflected off a low inertia reflective disc providing two channels with 90° phase shift.

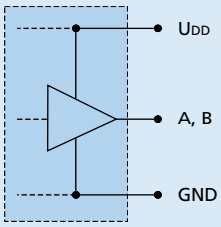
The supply voltage for the encoder and the Micromotor as well as the output signals are interfaced with a flexible printed circuit (FPC).

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

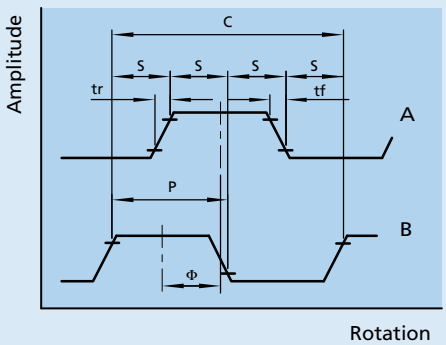
An optional interface board with suitable connector is also available on request.

Circuit diagram / Output signals

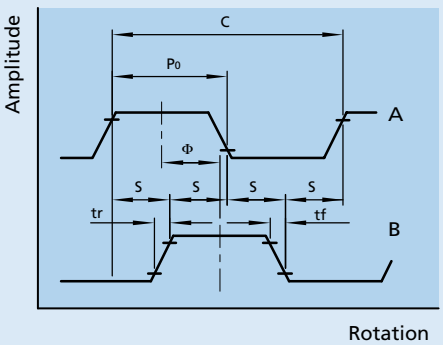
Output circuit



Output signals
with clockwise rotation as seen from the shaft end



0615 ... S / 0620 ... B
Channel B Leads channel A



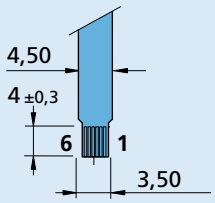
0816 ... S

Connector information / Variants

No.	Function
1	Motor + *
2	U_{DD}
3	Channel A
4	Channel B
5	GND
6	Motor – *

* **Note:** Brushless motors have separate motor leads.

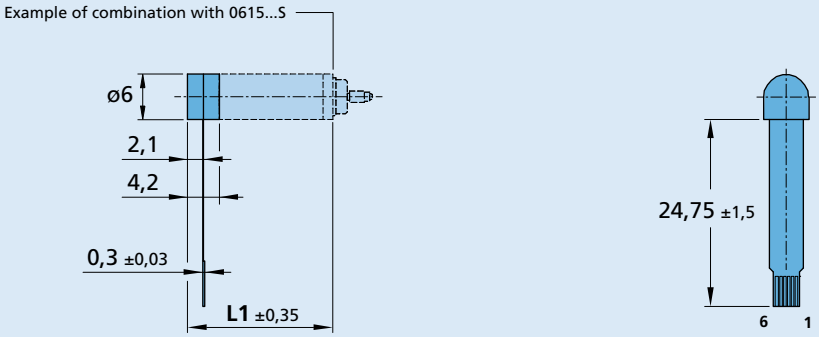
Connection Encoder



Recommended connector
Molex 52745
grid 0,5 mm
FPC / FFC, 6-conductors

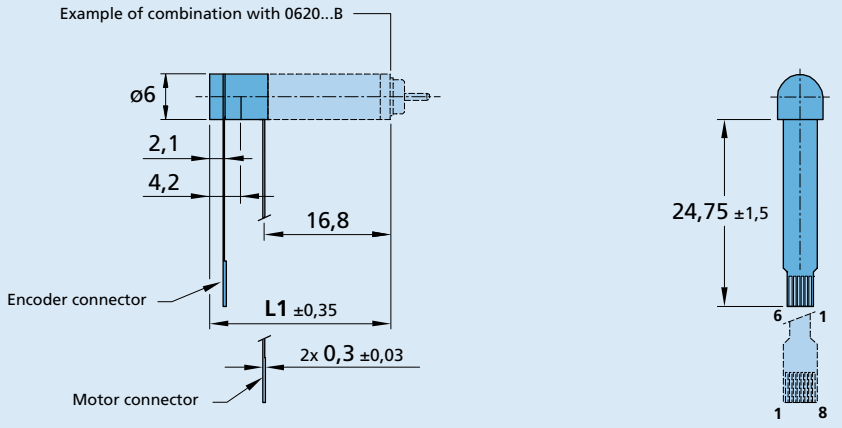
Full product description
Examples:
0615N003S-K1655 PA2-50
0620K012B-K1719 PA2-50

Dimensional drawing A



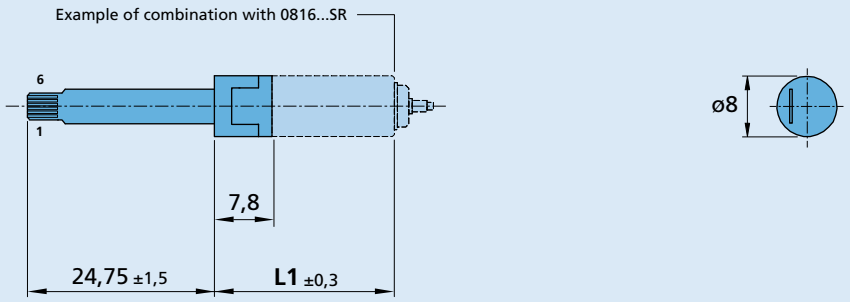
PA2 – 50

Dimensional drawing B



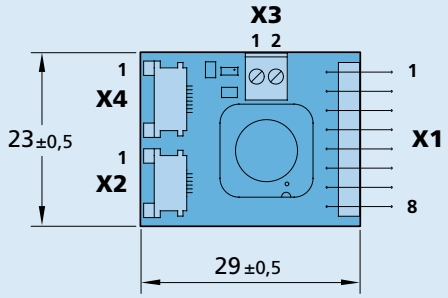
PA2 – 50

Dimensional drawing C



PA2 – 50

Interface board MCDC 3002 S



Interface Board PA2-50 / PA2-100
Part. No.: 6501.00144

Connection

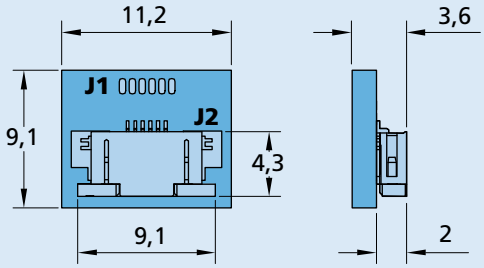
Pin	Connection X1
1	4. In
2	Channel A
3	Channel B
4	U_{DD} = 5V
5	SGND
6	Motor +
7	Motor -
8	5 .In

Pin	Connection X2
1	Motor +
2	U_{DD} = 3,3V
3	Channel A
4	Channel B
5	SGND
6	Motor -

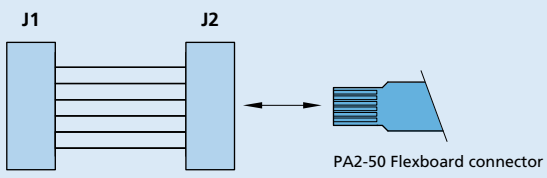
Pin	Connection X3
1	5. In
2	4. In

Pin	Connection X4
1	Motor +
2	Motor +
3	U_{DD} = 3,3V
4	Channel A
5	Channel B
6	SGND
7	Motor -
8	Motor -

Optional interface board



Interface board PA2-50
Part No.: D100315100



Connector
J1 - Solder Pads
J2 - Molex 52475-0690