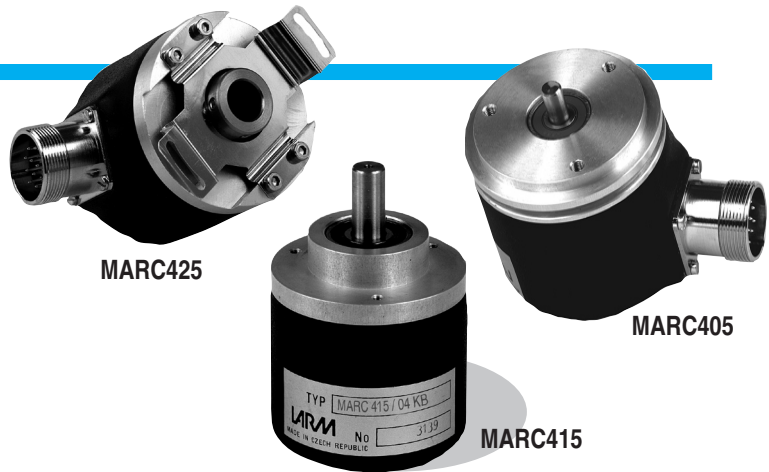


Magnetic absolute encoders MARC405, 415 and 425

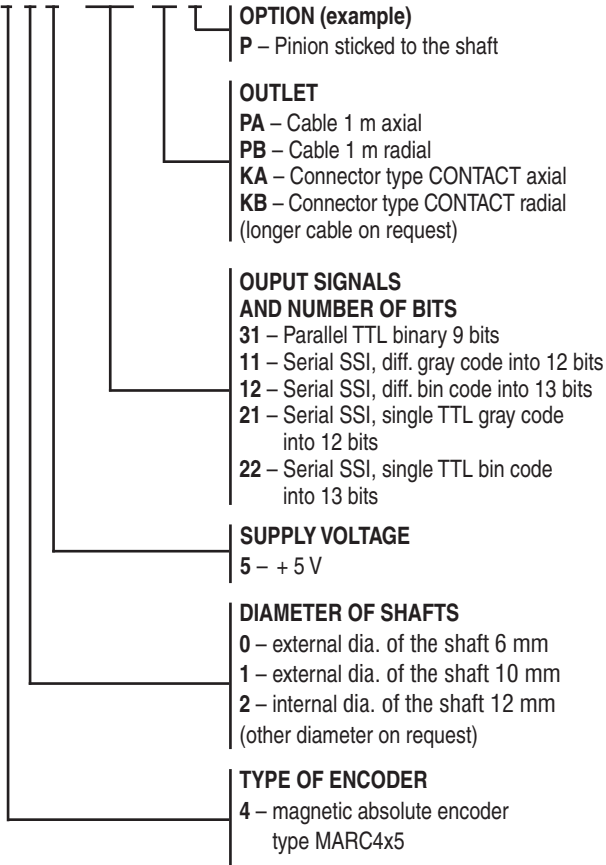
MARC405 – synchro flange, external diameter of the shaft 6 mm
MARC415 – clamping flange, external diameter of the shaft 10 mm
MARC425 – stator coupling, blind hollow shaft internal diameter 12 mm

The magnetic single turn absolute rotary encoders type MARC405, 415 and 425 working on magnetic Hall Effect principle. The encoder converts rotary motion to electrical signals. Electrical signals provide information of bilateral position of two mechanical parts, angle turn or rotary motion. A typical use is in conjunction with digital control system or drivers for control of the electric motors.



Type identification

MARC4x x /xxxx xx x



Technical data

ELECTRICAL DATE / TYPE	MARC405, 415, 425
Positions per rotation	into 13 bits (into 8192 pos.)
Supply voltage max. U_N (V)	+ 5 ± 5%
Supply current max. I_N (mA)	50

Mechanical data and working conditions

Rotational speed max.	10000 min. ⁻¹
Angular acceleration max.	40000 rad.s ⁻²
Moment of inertia of mechanical parts max.	10 g.cm ² ± 10 %
Vibration according to FCČSN345791	10g _n (10 to 2000 Hz)
Shock max.	50g _n (100 ms)
Shaft loads MARC405 / MARC415, 425	
– axial max.	20/40 N
– radial max.	50/60 N
Working temperature	– 25° to + 80° C
Humidity relative / absolute	max. 95 % / max. 40g.m ⁻³
Atmosphere (without aggressive substances)	73,3 to 126,6 kPa
Type of protection	IP65
Weight MARC405 / MARC415, 425	ca. 0,25 / 0,35 kg
Length cable max.	50 m

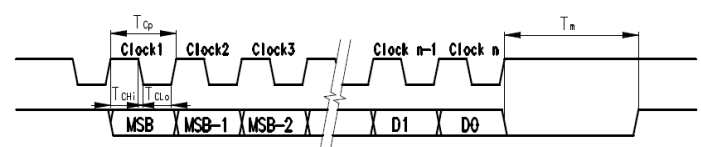
Output signals

MARC405 / MARC415 / MARC425

- 31 – Parallel TTL binary code for encoders with resolution into 9 bits (512 positions).
- 11 – Serial SSI, differential CLOCK/DATA signals (RS422), gray code into 12 bits (4096 pos.).
- 12 – Serial SSI, differential CLOCK/DATA signals (RS422), bin code into 13 bits (8192 pos.).
- 21 – Serial SSI, single TTL CLOCK/DATA signals, gray code into 12 bits (4096 pos.).
- 22 – Serial SSI, single TTL CLOCK/DATA signals, bin code into 13 bits (8192 pos.).

SSI communication

Parameter	Symbol	Min	Max	Unit
Clock period	T_{Cp}	250	$2 \times T_m$	μs
Clock High	T_{CHi}	25	T_m	μs
Clock Low	T_{CLo}	25	T_m	μs
Monoflop time	T_m	16	20,5	μs



Description of connection elements MARC405, 415 and 425

Pin connector type CONTACT	Colors of connection cable	Significance MARC405, 415 and 425
1	Grey	SSI – CLOCK-
2	Pink	SSI – DATA-
3	Blue	INC – Signal Z ⁽¹⁾
4	Violet	SSI – DATA+
5	Yellow	INC – Signal A ⁽¹⁾
6	White	SSI – CLOCK+
7	–	NC
8	Green	INC – Signal B ⁽¹⁾
9	Shield	Shield
10	Black	GND
11	Brown	GND
12	Red	V _{cc} + 5 V

(1) Only on request

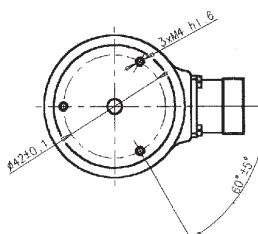
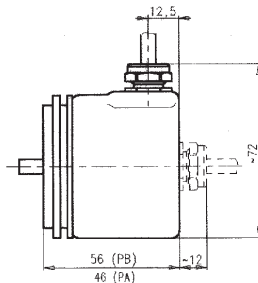
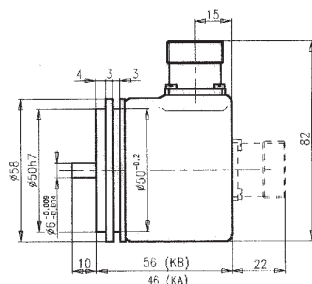
Assembly

The encoder MARC405 is installed into appropriate equipment using 3xM4 screws or a groove. The position of the shaft is explicitly determined by a fitted diameter of 50h7. The encoder MARC415 is installed using 3xM3 screws and the position of the shaft is explicitly determined by a diameter of 36f8. It is recommended to use appropriate homokinetic connections (see the catalogue sheet „Accessories“). The encoder MIRC425 with stationary coupling is installed on the shaft of appropriate equipment and tightened by two imbus screws M4. Afterwards the encoder is turned to the required position and the stationary coupling is fixed by two or four (optional) screws M3. The connection has to be designed so as to

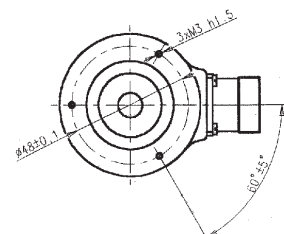
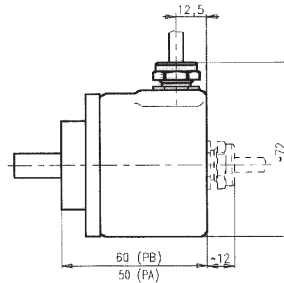
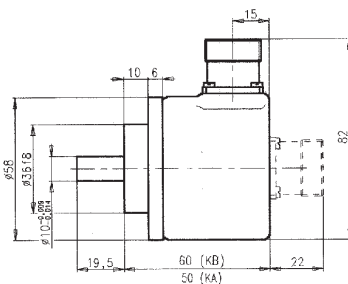
avoid exceeding the maximum admissible radial or axial load applied to the shaft and it is necessary to keep the connection aligned. The cable of the MARC4xx encoder must be fastened so as to avoid stress on the encoder by its own weight. In wet environments with running or splashing water it is recommended not to position the MARC4xx encoders with the shaft pointing upwards. When temperature is less than -5°C cable must be fixed.

Dimensioned drawing

MARC405



MARC415



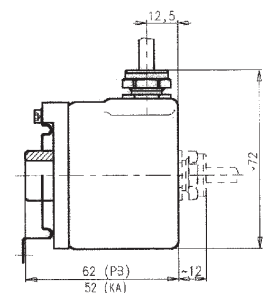
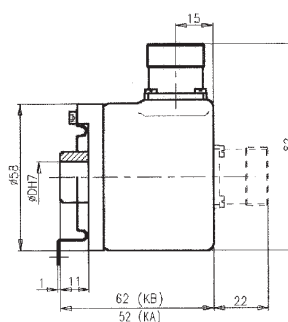
How to order?

Please indicate encoder type, number of impulses per rotation, outlet, number of pieces, delivery term and other non-standard features. Connecting cable and homokinetic diaphragm couplings can be ordered as well [see Accessories catalogue list].

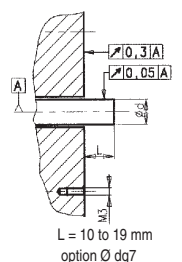
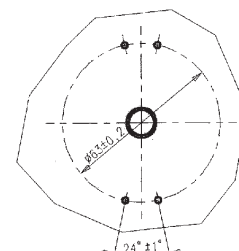
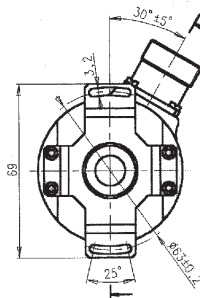
Example

25 pcs MARC425/11KB. Delivery term – two weeks.

MARC425



Connection requirements



L = 10 to 19 mm
option Ø dg7