



elap RM22

MAGNETIC ENCODERS

OPERATING PRINCIPLE

One single diametraly polarised magnet activates the Hall sensors integrated in the ASIC. Absolute-Binary Parallel or Synchro Serial, Incremental-Quadrature or Sin/Cos signals are available on the encoder outputs. Electronics is incorporated in aluminium housing with high IP ratings. Stainless steel magnet carrier is mounted on 6 mm shaft diameter.

Features

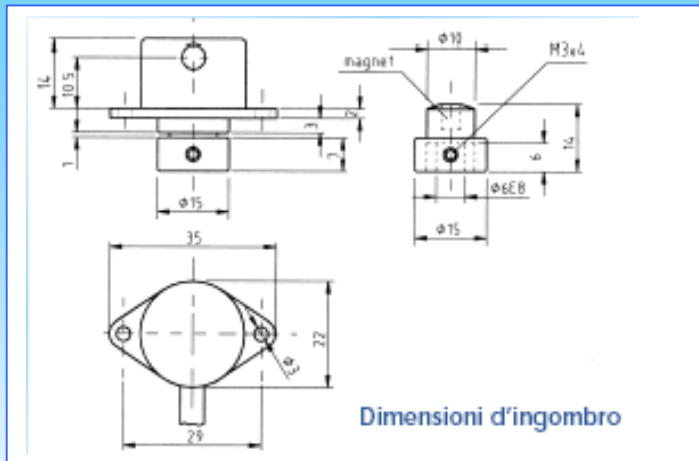
- heavy duty
- shock resistant
- easy mounting
- contactless encoding
- high IP rating
- different outputs
- modular, without ballbearings

Applications

- industrial automation
- motor comutation
- automotive

RM22 Models

- RM22-P** Absolute 9 bit binary encoder parallel output
- RM22-S** Absolute 9 bit binary encoder serial output
- RM22-I** Incremental, 128 Impulses per turn
- RM22-A** Analog Sine - Cosine output



MAIN SPECIFICATIONS:

- Max. rotating speed 30000 RPM
- Encoder weight 36 g (without cable)
- Operating temperature 0°C to +70°C
- Hollow shaft diameter 6 mm
- Vibration 50 g, (10 to 2000 Hz)
- Shock 200 g, 11ms
- Protection factor IP 65

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RM22-S Binary Synchro-Serial Outputs

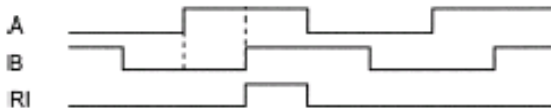
Power supply: 5V DC / 20 mA
 Resolution: max. 9bit (512 state / rev.)
 Hysteresis: 0.5 bit at 9 bit resolution
 Accuracy: +/- 1bit at 9 bit resolution
 Repeatability: < 0.1bit
 Data outputs: Serial data (RS422)
 Data inputs: Clock (RS422)
 Cable length: up to 100 m (at 1MHz)

Timing diagram



t_r : 20-40µs
 Frequenza clock: ≤ 1 MHz

Timing diagram



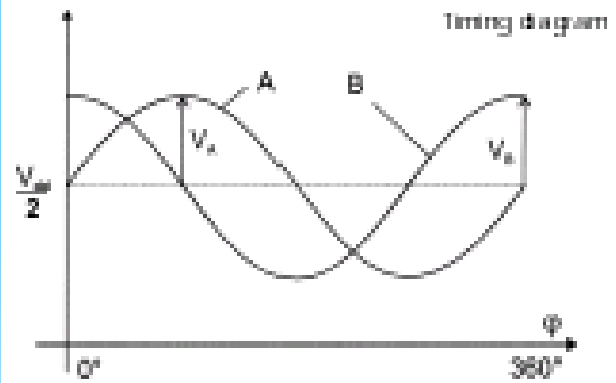
RM22-I Incremental Outputs

Power supply: 5V DC / 30 mA
 Output TTL signals: A, B, RI, , , (RS 422)
 Max. cable length: 50 m

RM22-A Analogue Sinusoidal Outputs

Power supply: $V_{dd}=5$ VDC / 30 mA
 Outputs: Buffered Sine & Cosine signals
 Signals amplitude $1V_{pp} \pm 0,1$ mV
 Signals offset $V_{dd} / 2 \pm 5$ mV
 Signal characteristic:
 $V_A - V_B$ 5mV
 $V_{0A} - V_{0B}$ 5mV
 $A-B$ $0,1^\circ$
 V_A = Sine amplitude
 V_B = Cosine amplitude
 V_{A0} = Sine offset
 V_{B0} = Cosine offset

Max output frequency: 500 Hz
 Max cable length: 3m

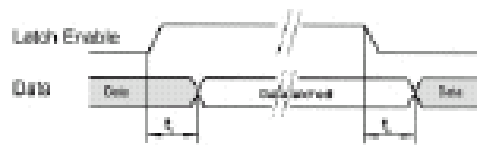


RM22-P Binary Parallel Outputs

Power supply: 5V DC / 20 mA
 Output voltage: $V_H > 4V$ per $-I_H < 3mA$
 $V_L < 1V$ per $I_L < 3mA$

Resolution: max. 9bit (512 state / rev.)
 Hysteresis: 0.5 bit at 9 bit resolution
 Accuracy: +/- 1bit at 9 bit resolution
 Repeatability: < 0.1bit
 Output signals: D0 (LSB) ÷ D8 (MSB)
 Data inputs: LE - latch enable input signal, active high
 Cable length: 30m (max.)

Timing diagram



t_r = tempo di ritardo: < 1 µs



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