



- Single and multiturn absolute encoders with SSI - Synchronous Serial Interface
- Binary or Gray code
- High resolution
- Ø 58 mm
- Aluminium housing

The **SSI protocol - Synchronous Serial Interface** - is a high-performance serial communication protocol commonly used in industrial applications.

SSI absolute encoders leverage this protocol to transmit position data to PLCs and other control systems with exceptional precision and reliability.

Offering simple implementation, minimal configuration, and limited wiring, the SSI protocol is robust against noise and electromagnetic interference.

MEM SSI encoders deliver outstanding performance with

- up to 28-bit resolution,
- high data transmission rates
- strong resistance to electrical disturbances
- binary or Gray code available.

Available in both single-turn and multi-turn versions, these encoders feature a rugged aluminum housing for durability in harsh environments.



MEM620



MEM540



MEM520



MEM440



MEM450

ELECTRICAL & OPERATING SPECIFICATIONS

Resolution/step	5 ÷ 13 bit (32÷8192 info/rev.)
Steps/revolution	2÷15 bit (4÷32768)
Code	Binary or Gray
Data memory	>21 years*
Output signals	SSI (RS422)
Supply voltage	5 ÷ 30 Vdc (MEM only) or 5 ÷ 28 Vdc (MEM/MEM-V) Protection against polarity reversal
Power consumption	1.2 W
SSI Clock max. frequency	1 MHz
Accuracy	±1/2 LSB
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-4
Connections	axial or radial cable 1 m lg or axial/radial 12-pin M23 connector or axial/radial M12 connector (pig tail)

* Rotating the shaft during power off shortens the encoder memory retention time

MECHANICAL & ENVIRONMENTAL SPECIFICATIONS

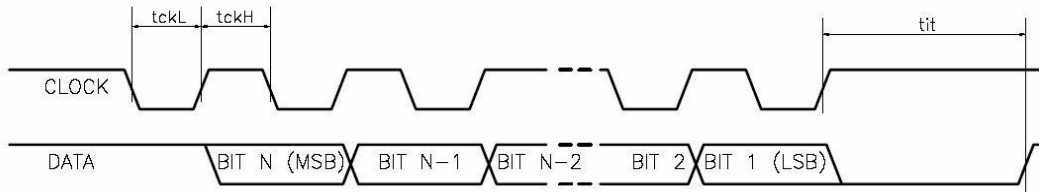
	MEM620/540/520	MEM440/450
Materials: housing	aluminium	
shaft	stainless steel	
Weight	400 g ca.	450 g ca.
Shaft/Hollow shaft diameter	6, 8, 10	8, 10, 12, 14, 15
Revolutions/minute	6000*	
Starting torque	≤0,8 Ncm	
Inertia	≤25 g cm ²	
Max. load	80 N axial/100 N radial	
Shock resistance (11 ms)	100 m/sec ²	
Vibrations resistance (10÷2000Hz)	50 G	
Protection degree	IP65 – Optional IP66 (version K)*	
Operating temperature	-30 ÷ 70°C	
Stocking temperature	-30 ÷ 85°C	

* Max speed with O-ring mounted on the shaft: 3000 rev./min.

► ORDERING INFORMATION

Please, select:	Example
Type	MEM620 Square flange MEM540 Round flange, centering mask 36mm MEM520 Round flange, centering mask 50mm MEM440 Blind hollow shaft MEM450 Blind hollow shaft & elastic support
Connections/ O-ring	- connector C Cable outlet - lg 1 m K O-ring
Resolution/step	5÷13 bit
Steps/revolution	- single turn 2÷15 bit
Code	B Binary G Gray
Supply voltage	5÷28 Vdc 5÷30 Vdc (series MEM only)
Connections position	A axial /R radial
Shaft Ø / Hollow shaft Ø	6 – 8 – 10 mm 8 – 10 – 12- 14 – 15 mm
Output signals	SSI
Special versions	X107 outlet lg. 0.3 m wth 8-pin M12 connector (pig tail)
► Encoder MEM540-13-15B-5/30-R-8-SSI	
Multiturn, 13bit/step, 15 bit, binary code, 5/30 Vdc supply voltage, M23 radial connector outlet, shaft Ø 8 mm, round flange with centering mask Ø 36 mm	

► SSI INTERFACE SIGNALS



The output code is increasing with shaft rotating clockwise (shaft side sight).

MSB: Most Significant Bit
LSB: Less Significant Bit
tckL: 0.5 µs min.
tckH: 0.5 µs min.
tit: when the tit time lag expires the encoder considers the interrogation ended
Encoder MEM = tit: 30 µs typical
Encoder MEM-V= tit 16 µs typical

PNP COUNT RESET INPUT
Applying a high logic level to this input (5÷30 Vdc) resets the position data

UP/DOWN INPUT
Applying a low logic level to this input (0 V) sets the output code decreasing with the shaft rotating clockwise.

The **SSI protocol** ensures data synchronization through a clock signal shared between the master and the slave (controller and encoder), determining the exact moment when each data bit is transmitted.

The **monoflop time (tit)** is the time gap required for the control device to synchronize correctly with the signal and acquire the absolute position data. It guarantees reliable synchronization and acquisition of absolute position data between the SSI encoder and the control device.

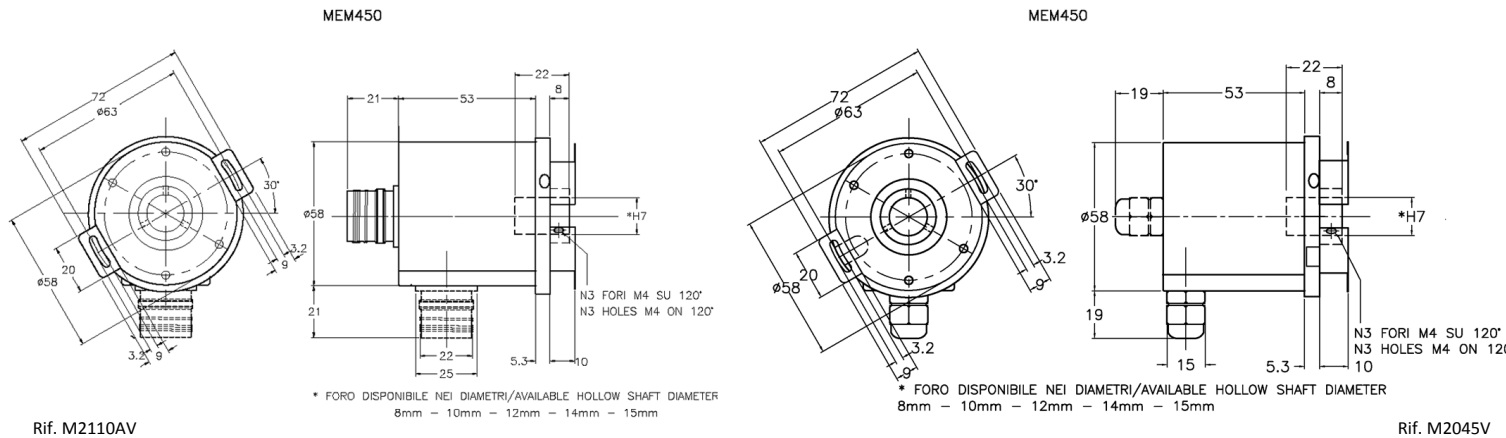
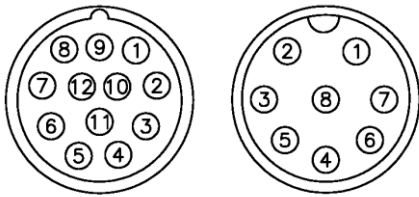
The correct selection of the monoflop time is crucial for ensuring precise and reliable system operation.

The **MEM encoder monoflop time of 30 µs** allows compatibility with most controllers on the market. For controllers that support a shorter time, the **MEM-V version** is available with a typical monoflop time of 16 µs.

► OUTPUT SIGNALS

Signals	Cable Colours	12-pin M23 connector	8-pin M12 connector
CLOCK-	BROWN	PIN 1	PIN 4
CLOCK+	WHITE	PIN 2	PIN 3
DATA+	GREEN	PIN 3	PIN 5
DATA-	YELLOW	PIN4	PIN 6
RESET	PINK	PIN 5	PIN 7
UP/DOWN	GREY	PIN 6	PIN 8
0 V	BLUE	PIN 12	PIN 1
+ VDC	RED	PIN 11	PIN 2

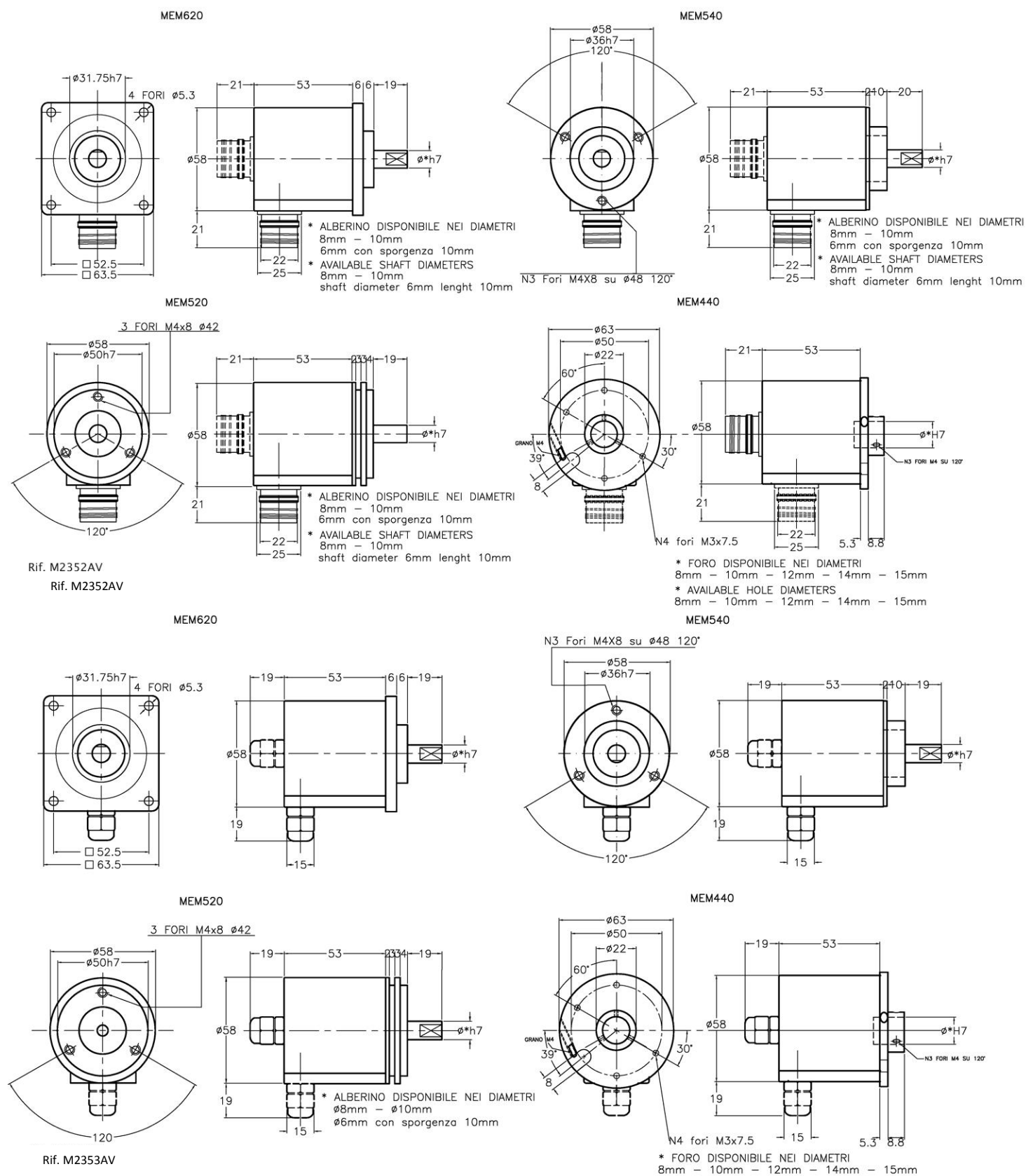
12-PIN M23 CONNECTOR 8-PIN M12 CONNECTOR



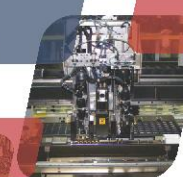
Rif. M2110AV

Rif. M2045V

► DIMENSIONS



SSI
SYNCHRONOUS SERIAL INTERFACE



SINGLE & MULTITURN ABSOLUTE ENCODERS

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