



MHK515-MODB | SERIES

MODBUS/TCP ABSOLUTE MULTI-TURN ENCODERS



MHK515-MODB, THE STANDARD Ø 58 MM ENCODER WITH MODBUS/TCP TRANSMISSION

- Compact and robust design
- Ø 15 mm hollow shaft version (reduction sleeve available)
- Precision bearing with seal
- High performance in temperature range 0 °C to 60 °C
- Encoder disc made of durable unbreakable material
- Mechanical count of the number of revolutions per gear
- Resolution: 13-bit = 8,192 ppr (max. 16-bit)
- Number of revolutions: 12-bit = 4,096 revolutions
- Surge and reverse polarity protection
- Integrated SMC technology
- M12 connectors

SPECIFICATIONS

MECHANICAL SPECIFICATIONS

Material (stainless steel option)	Cover: Aluminum	Shock resistance (EN 60068-2-27)	≤ 100 g (half sine, 6 ms)
	Base: Aluminum		
	Shaft: Stainless steel	Shock resistance (EN 60028-2-29)	≤ 10 g (half sine, 16 ms)
Maximum loads	Axial: 40 N	Vibrations (EN 60068-2-6)	≤ 10 g (10 Hz...1,000 Hz)
	Radial: 110 N	Weight (aluminum version)	600 g
Shaft inertia	≤ 30 g.cm ²	Operating temperature	0...60 °C
		Storage temperature	-40...+85 °C
Torque	≤ 3 N.cm	Relative humidity	98% non-condensing
Speed (max. continuous)	6,000 rpm	Degree of protection	Cover: IP65, Base: IP64

ELECTRICAL SPECIFICATIONS

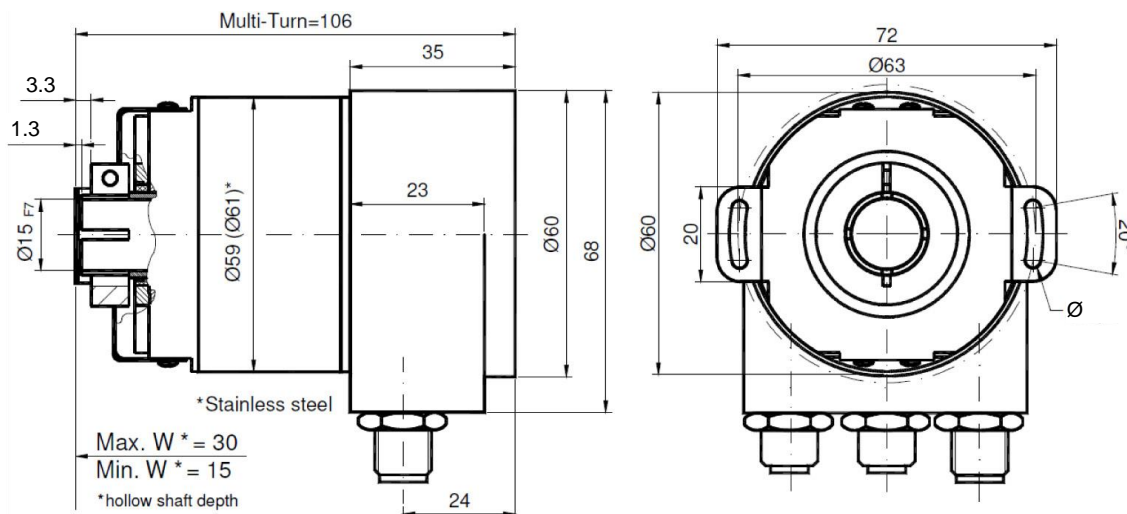
Transmission	10/100 Mbps	Internal cycle time	>1 ms (cyclic); 5 ms (change of state)
IP addressing	Via the master		>5 ms Modbus/TCP
Power supply	10 – 30 VDC	Accuracy	+ 1/2 LSB
Consumption	100 mA max. (24 VDC)	EMC	600 g
Power	4 W max.	Electrical lifetime	> 10 ⁵ h
Frequency on the LSB	800 kHz max. (valid code)		

PROTOCOLS

Modbus/TCP	Data transmitted via TCP frames. For more information see manual or www.modbus.org .
IP	Universal IP addressing significantly simplifies implementation of communication processes.
TCP	The TCP protocol ensures error-free data transmission.
http	With version A1, a web browser can be used for reading, configuring, and diagnosing the encoder.
smtp	With version A1, encoder messages can be transmitted by email via the SMTP protocol.

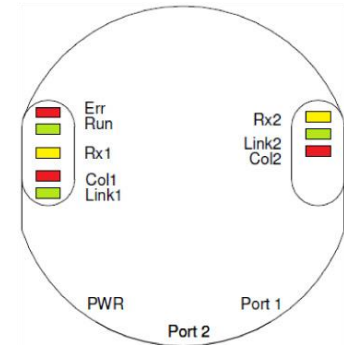
DIMENSIONS

MHK515-MODB — M12 connectors



DIAGNOSTICS VIA LEDS

LED	Color	Description of LED on
Rx1	Yellow	Inbound and outbound traffic – port 1
Link 1*	Green	Connected to another Ethernet component – port 1
Collision 1*	Red	Ethernet collision - port 1
Rx2+	Yellow	Inbound and outbound traffic – port 2
Link 2*	Green	Connected to another Ethernet component – port 2
Collision 2*	Red	Ethernet collision - port 2
Error*	Red	-
Run*	Green	-

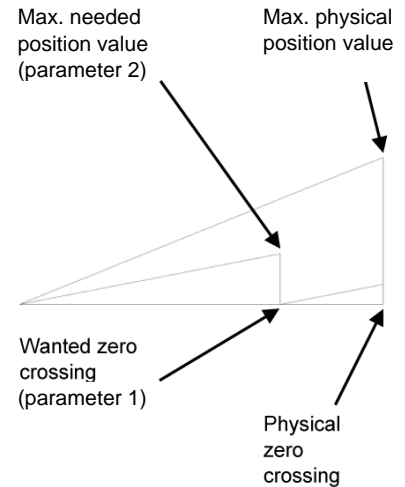


* Not available

PROGRAMMABLE SETTINGS

The encoder is capable of providing three different types of data: position, speed, and time stamp. The following parameters can be set:

Used scope of physical resolution (parameter 1)	Specifies the part of the physical resolution used. For example, if 16,384 is set for an encoder with a resolution of 8,192 pulses per revolution, the encoder will count 8,192 steps per revolution (if “total scaled value” is set to the same value as “used scope of physical resolution”) and start again at 0 after 2 revolutions. If this value is not set to a multiple of the physical resolution, the encoder value will change to zero when the physical zero point is crossed.
Total scaled value (parameter 2)	Specifies the scaled resolution used beyond the range defined by “used scope of physical resolution”. If, for example, the encoder is set as described above and “total scaled value” is set to 10, the encoder will count 10 steps over the physical steps of the “used scope physical resolution”, i.e. 5 steps per revolution.
Direction of code change	Used to set whether the code increases or decreases with a clockwise turn
Preset: Reset to value (X)	The preset value represents the desired position value at any position on the axis. This parameter is used to set the desired value at the desired location.
Offset value	This parameter is used to directly change the offset value calculated and defined by the preset function.



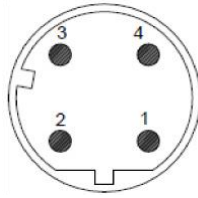
INTERFACE

Ethernet Modbus/TCP

4-pin female, D-coded

Pin	Signal
1	Tx+
2	Rx+
3	Tx-
4	Rx-

Encoder view

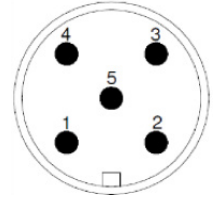


Power supply

5-pin male, A-coded

Pin	Signal
1	VS (10-30 VDC)
2	VS (10-30 VDC)
3	0 V
4	0 V
5	PE

Encoder view



REFERENCE

(Special versions available on request, e.g. special flange/electronics/connections, etc.)

MHK5	EM	00	B	12	13	B	150	0	PRM
Absolute multi-turn encoder	Modbus/TCP	Version	Code: Binary	Number of revolutions: 2 ¹² (4,096)	Resolution in the revolution: 2 ¹³ (8,192)	Standard hollow shaft	Shaft diameter: 15 mm	Without mechanical option	M12 connector

Made in France

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