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MIS176S8Q5H466

Int.Step 12-72VDC, RS485, AbsC-L

ServoStep MIS is a series of integrated stepper motors with servo control (closed-loop) and up to 3000 RPM.
It consists of NEMA 17..23..34..43 size motors with holding torques from 0.18 Nm up to 25 Nm.
All motors are programmable and have 8 I/O points (each can be DI or DO or AI).

Options include:
- incremental (semi-absolute) encoder*). absolute multiturn encoder
- brake module*)
- radial or axial*) connectors
- CANopen
- Ethernet interface w/built-in switch for easy daisy-chaining and all protocols (Profinet. EtherNet/IP. EtherCAT. Sercos. ModbusTCP/UDP. Powerlink).
- Wireless versions are also possible: WLAN or BlueTooth.
- Special shaft versions include double shaft and hollow shaft. contact JVL to learn which combinations are possible.
- Higher IP versions are also available. *) Depending of other options

General information

Description	Int.Step 12-72VDC, RS485, AbsC-L, 4xM12. 17pF:8xDIO/AI+RS422+RS485 8pF:RS485 5pF:485, High Resolution: 409.600 step/rev. ±0.01 RPM, Programmable (incl. current, position & velocity), C-L + Absolute multi-turn encoder. 4096 CPR ± 5242 Revs, Ø6.35x20 mm D-shape Shaft: IP42Motor: IP42, 43.1x106 mm Holding Torque: 0.78 NmMax. 145.38 WRadial Connector12-72 VDC		
Manufacture	JVL	**Motor type**	Integrated Stepper - Rotating
Motor resolution	409600	**Encoder type**	H4: H2 incr+absSingleturn and H3 serial/absMultiturn
Speed [Rpm]	3000.00	**Power Peak [W]**	145.38
Flange size	NEMA 17 - 42x42mm	**Shaft size - Front [mm]**	6.35 mm
Running torque [Nm]	0.78	**Rated Winding current [A]**	4.0
Holding torque [Nm]	0.78	**Connectivity: Without module**	RS485
Integrated PLC	Yes	**PLC no. of DI/DO/AI**	8
Closed loop	Yes	**STO connector**	No
Integrated gear	No	**Gear ratio**	
Brake	External brake option	**Protection House/Shaft**	
Shaft Double	No	**Main supply [V]**	12-72

MIS176S8Q5H466 Int.Step 12-72VDC, RS485, AbsC-L

General information

Main supply UL [V]	12-60	**Voltage type - Main**	DC
Control voltage (CVI/O+) [VDC]	7-28	**Control Voltage for UL recognized**	7–30 VDC 150 mA + max 500 mA for user outputs
Weight net [kg]	0.80	**MTBF 100% [Year]**	13
Weight gross [kg]	0.92	**MTBF 30% [Year]**	15
Software	MacTalk		
CE Marked	Yes		
Approval - ROHS-3	Yes		
Approval UL	Yes. Recognized	**UL Installation**	Read more in usermanual about UL precautions

Ambient Temperature range [°C]:		**Max. Amb. Temperature range - Torque derating:**	
Maximum Installation Altitude [m]:		**- Power Derating every 1000m over 1000m [%]:**	

Motion Information:			
Velocity Precision [+/-ppm]		**Velocity Resolution [Rpm]**	
Acceleration / Deceleration Range [Rpm/s]		**Acceleration / Deceleration Range [Rpm/s]**	
Electronic Gearing Ratio [Range / Resolution]		**Country Of Origin**	DK
Tariff no	85015100	**Tariff no US**	

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MIS176S8Q5H466 Int.Step 12-72VDC, RS485, AbsC-L

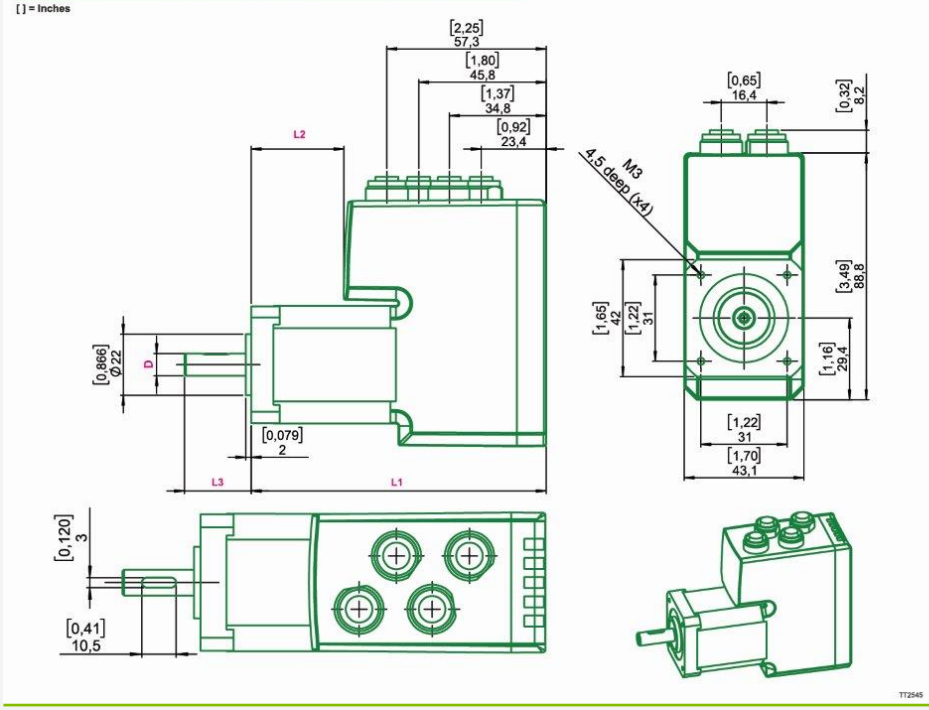
Mechanical information

Paint type

Motor Type	Length (L1) ±2.0 [0.0787]	Length (L2) ±2.0 [0.0787]	Shaft length and form (L3) +0 / -0.013mm[0.000512]	Shaft dia. (D) +0 / -0.013mm[0.000512]
MIS171S16..	73.5 [2.89]	0.8 [0.03]	20.0 [0.79] Round	5.0 [0.19]
MIS173S8..	85.2 [3.35]	12.5 [0.49]	20.0 [0.79] D-cut	6.35 [0.25]
MIS173S16..	85.2 [3.35]	12.5 [0.49]	20.0 [0.79] Round	5.0 [0.19]
MIS176S8..	106 [4.17]	33.3 [1.31]	20.0 [0.79] D-cut	6.35 [0.25]
MIS176S35..	106 [4.17]	33.3 [1.31]	24.0 [0.94] Keyway	8.0 [0.31]
MIS176S75..	106 [4.17]	33.3 [1.31]	24.0 [0.94] D-cut	6.35 [0.25]

[ ] = Inches

This drawing covers only motor type MIS17xS with radial connectors



Motor length [mm]	106.0	**Motor width [mm]**	43.1
Motor height [mm]	88.8		
Protection house	IP42	**Protection shaft**	IP42
		Flange Rear	No
Flange Type Front		**Flange Type Rear**	
Motor diameter center front [mm]	22.0	**Motor diameter center rear [mm]**	
Bolt circle diameter front [mm]	43.8	**Bolt circle diameter front [mm]**	
Mounting holes front [mm]	M3	**Mounting holes rear [mm]**	
Flange Thickness [mm]		**Flange material**	Aluminium
		Shaft Double	No
Shaft Type Output	D-shape	**Shaft Type Rear**	
Shaft size - Front [mm]	6.35 mm	**Shaft size - Rear**	-
Shaft length Front [mm]	20.0	**Shaft length Rear [mm]**	
Shaft material	Stainless steel AISI303	**Shaft Key included**	Key NOT included
Shaft Key Dimension	-		
Integrated gear	No	**Gear ratio**	

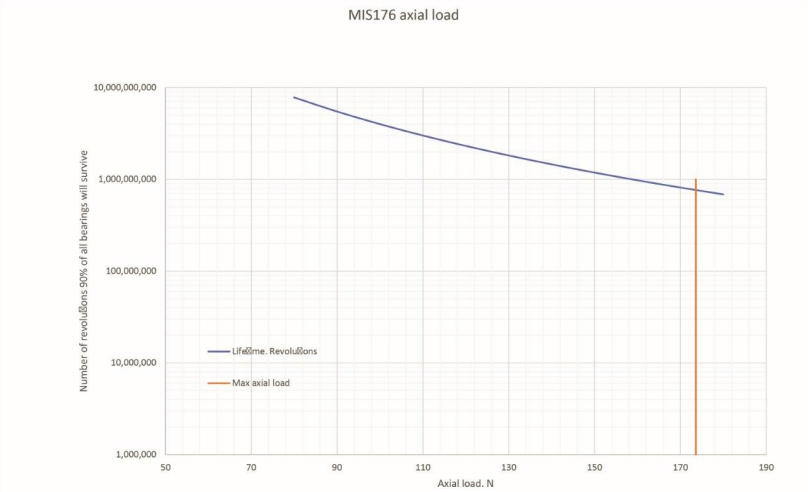
MIS176S8Q5H466 Int.Step 12-72VDC, RS485, AbsC-L

Mechanical information

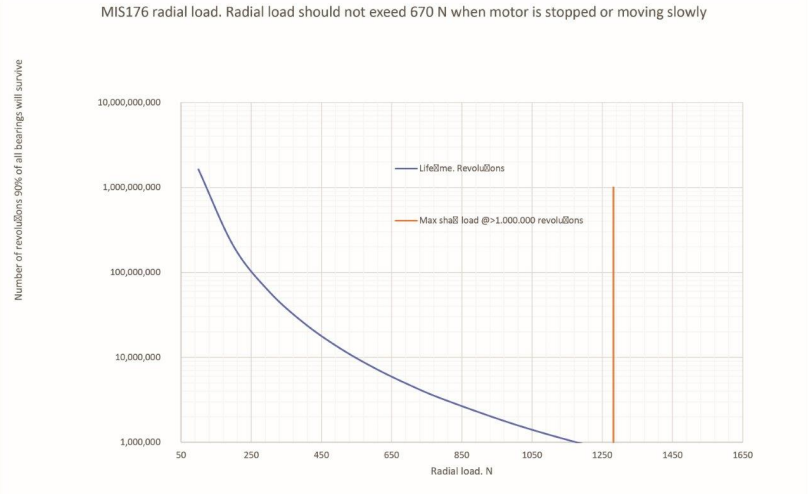
Gear efficiency [%]	< -	**Gear backlash [ArcMin]**	-
Brake	External brake option	**Brake - Go ON time [ms]**	-
Brake Holding torque [Nm]	-	**Brake - Go OFF time [ms]**	-
Rotor inertia [kgcm^2]	0.102	**Max inertia factor**	40
Precision Motor - Absolute [Deg -/+]	0.35	**Precision Motor - Max Load [Deg -/+]**	
Precision Motor - Repeatabillity [Deg -/+]	0.15	**Step angle [°/full step]**	1.8°
CAD 2D [PDF]	Download	**CAD 3D [STEP]**	Download
CAD 2D [DWG]	No	**CAD 3D [DWG]**	No
CAD 3D [EASM]	No	**CAD 3D [IGES]**	No
Datasheet - pdf		**CAD file page**	Link
User Manual	Download	**WEB page**	Link
Approval UL	Yes. Recognized	**UL Installation**	Read more in usermanual about UL precautions
STO connector	No	**Approval - ATEX**	No
Approval TÜV - STO	No	**Oil resistant**	
Temperature ambient [°C]	0...40 °C and 0...70 °C with derating of performance	**Temperature storage**	-40...70 °C
Humidity working	5...93% non-condensing	**Vibration**	5-25 Hz: +/-1.6mm, 25-500Hz: 4G, 1.0 oct./min
Shock	15G, 30ms. 6 x 1000 cycles in +/-X, +/-Y, +/-Z	**Withstand Voltage**	500 VDC between earth and supply ground
EMC in general	EMC Directive DIR2014/30/EU	**EMC Emission**	EN61800-3 / EN61000-6-3 / EN61000-6-4 all 2. enviroment
EMC Immunity	En IEC 61800-3 / EN61000-6-1 all 2. enviroment	**Safety in general**	LVD DIR2014/35/EU / EL61800 - USA and Canada only MIS34x products are pending
Safety wo STO	EN60950-1	**Safety w STO**	EN60950-1 / EN61508-1/-2 SIL3 / ISO13849-1/-2 / ISO62061 / EN61800-5-1/-2
Inviromental	IEC 60068-2-27, Test Ea. Shock test	**Inviromental 2**	IEC 60068-2-6, Test Fc. Vibration test
Inviromental 3	IEC 60068-2-2, Test Bd. covers temperaturerise/dry heat	**Inviromental 4**	IEC 60068-2-78, Perm. moisture/Damp heat, steady state
REACH SVHC document	REACH-SVHC Statement	**Low voltage Directive**	LVD conformity with EU standard: EN IEC 62368-1:2020/A11:2020
No Dual Use	Read more here		
Duty Cycle		**Max Duty Cycle [%]**	
Dutycycle UL	Read more in usermanual about UL precautions		
Front bearing type	698ZZ	**Rear bearing type**	698ZZ
Axial Load Max: Typical Term	Axial load Max Typical is a run of 14.400.000 revolutions at indicated load	**Axial Load Max: Long Term**	Axial load Max Long is a run of 1.440.000.000 revolutions at indicated load
Axial Load Max: Typical [N] (Bearing)	174	**Axial Load Max: Long [N] (Bearing)**	140

MIS176S8Q5H466 Int.Step 12-72VDC, RS485, AbsC-L

Mechanical information



Radial Load Max Typical Term:	Radial load Max Typical is a run of 14.400.000 revolutions at indicated load	**Radial Load Max Long Term:**	Radial load Max Long is a run of 1.440.000.000 revolutions at indicated load
Radial Load Max: Typical [N] (Bearing)		**Radial Load Max: Long [N] (Bearing)**	136



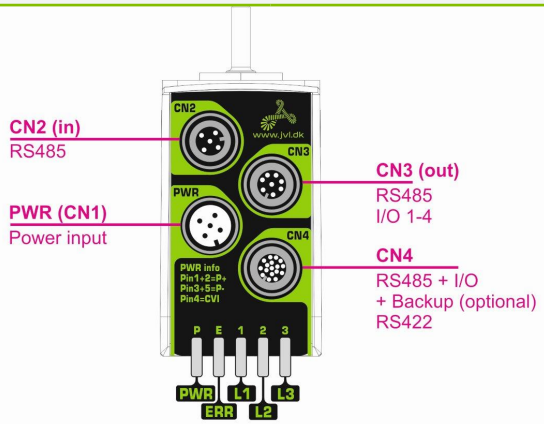
Radial load distance [mm]	10	**Axial play [mm]**	0.08
Axial play force [N]	4	**Shaft Seal**	

MIS176S8Q5H466 Int.Step 12-72VDC, RS485, AbsC-L

Connector information

Connector 1 label	PWR	**Connector 1**	M12 5-pin male A-coded
Connector 2 label	CN2	**Connector 2**	M12 5-pin female A-coded
Connector 3 label	CN3	**Connector 3**	M12 8-pin female A-coded
Connector 4 label	CN4	**Connector 4**	M12 17-pin female A-coded
Connector 1 RS485	No	**Connector 2 RS485**	Yes
Connector 3 RS485		**Connector 4 RS485**	Yes

Motor connectors



MIS17xS - Q5

RS485 serial communication in network and IO

Picture CN1

"PWR" (CN1) - Power input. M12 - 5pin male connector

Signal name	Description	Pin no.	JVL Cable WI1000-M12F5TxxN	Isolation group
P+	Main supply +7-72VDC. Connect with pin 2 *	1	Brown	1
P+	Main supply +7-72VDC. Connect with pin 1 *	2	White	1
P-	Main supply ground. Connect with pin 5 *	3	Blue	1
CVI	Control and user output supply +7-30VDC. **DO NOT connect >30V to this terminal!**	4	Black	1
P-	Main supply ground. Connect with pin 3 *	5	Grey	1

* Note: P+ and P- are each available at 2 terminals. Make sure that both terminals are connected in order to split the supply current in 2 terminals and thereby avoid an overload of the connector.

Picture CN2

"CN2" - RS485 IN/OUT. M12 - 5pin female connector.

Signal name	Description	Pin no.	JVL Cable WI1000-M12 M5TxxN	Isolation group (See note)
RS485: B0-	RS485 interface. Leave open if unused	1	Brown	1
RS485: A0+	RS485 interface. Leave open if unused	2	White	1
RS485: B0-	RS485 interface. Leave open if unused	3	Blue	1
RS485: A0+	RS485 interface. Leave open if unused	4	Black	1
GND	Ground intended to be used together with the other signals in this connector	5	Grey	1

MIS176S8Q5H466 Int.Step 12-72VDC, RS485, AbsC-L

Connector information

Picture CN3

"CN3" - RS485 + I/O connector - M12 - 8pin female connector.				
Signal name	**Description**	**Pin no.**	**JVL Cable WI1000-M12 M8TxxN**	**Isolation group (See note)**
IO1	I/O channel 1. Can be used as input or output	1	White	1
IO2	I/O channel 2. Can be used as input or output	2	Brown	1
IO3	I/O channel 3. Can be used as input or output	3	Green	1
GND	Ground intended to be used together with the other signals in this connector	4	Yellow	1
RS485: B0-	RS485 interface. Leave open if unused	5	Grey	1
RS485: A0+	RS485 interface. Leave open if unused	6	Pink	1
IO4	I/O channel 4. Can be used as input or output	7	Blue	1
CVO	Supply output. Connected internally to the **CVI** terminal in the PWR connector. Max 700 mA. **DO NOT connect >30V to this terminal!** USB interface. Supply input 5VDC nominal	8	Red	1

Picture CN4

"CN4" - RS485 + I/O + Backup (option) **connector - M12 - 17pin female connector**				
Signal name	**Description**	**Pin no.**	**JVL Cable WI1009M12 M17TxxN**	**Isolation group (see note)**
IO1	I/O channel 1. Can be used as input or output	1	Brown	1
GND	Ground intended to be used together with the other signals in this connector	2	Blue	1
IO2	I/O channel 2. Can be used as input or output	3	White	1
IO3	I/O channel 3. Can be used as input or output	4	Green	1
RS422: B1-	RS422 I/O terminal B-	5	Pink	1
IO4	I/O channel 4. Can be used as input or output	6	Yellow	1
RS422: A1-	RS422 I/O terminal A-	7	Black	1
RS422: B1+	RS422 I/O terminal B+	8	Grey	1
CVO	Supply output. Connected internally to the **CVI** terminal in the PWR connector. **DO NOT connect >30V to this terminal!**	9	Red	1
RS422: A1+	RS422 I/O terminal A+	10	Violet	1
IO5	I/O channel 5. Can be used as input or output	11	Grey/pink	1
IO6	I/O channel 6. Can be used as input or output	12	Red/blue	1
IO7	I/O channel 7. Can be used as input or output	13	White/Green	1
IO8	I/O channel 8. Can be used as input or output	14	Brown/Green	1
RS485: B0-	RS485 interface. Leave open if unused	15	White/Yellow	1
EXTBACKUP	Only for motors with the -H3 or -H4 option (abs. multiturn encoder). This terminal can be connected to an external supply. **Connect to ground (GND) if not used.**	16	Yellow/brown	1
RS485: A0+	RS485 interface. Leave open if unused	17	White/grey	1
* Note: Isolation group indicate which terminals/circuits that a galvanic connected to each other. In other words group 1, 2, 3 and 4 are all fully independently isolated from each other. Group 1 correspond to the housing of the motor which may also be connected to earth via the DC or AC input supply.				

Connector STO No

Picture STO Con -

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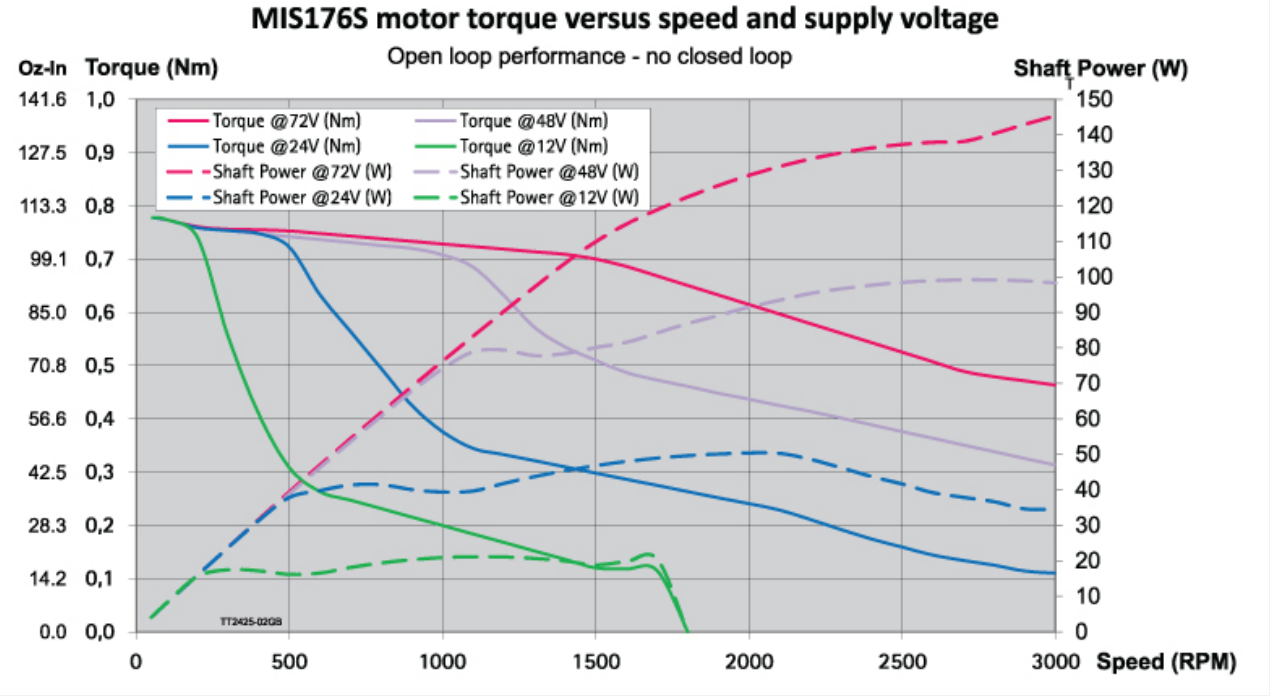
Torque, force and Power information

Supply Volt 1 [V]	12	**Power Peak 1 [W]**	21.14
Supply Volt 2 [V]	24	**Power Peak 2 [W]**	50.38
Supply Volt 3 [V]	48	**Power Peak 3 [W]**	99.16
Supply Volt 4 [V]	72	**Power Peak 4 [W]**	145.38
Holding torque [Nm]	0.78	**Running torque [Nm]**	0.78
Detent torque [Nm]	0.029		



MIS176S8Q5H466 Int.Step 12-72VDC, RS485, AbsC-L

Electrical information

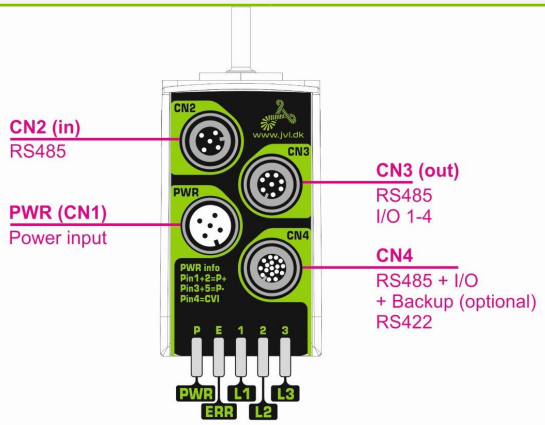
Main supply [V]	12-72	**Main supply Min-Max [V]**	7-90
Main supply UL [V]	12-60	**Main supply Max UL [V]**	7-60
Rated motor current [A]	3.1	**Control voltage (CVI/O+) [VDC]**	7-28
Control Voltage (CVI) Min-Max [VDC]	7-30	**Control Voltage for UL recognized**	7–30 VDC 150 mA + max 500 mA for user outputs
CVI current wo Ethernet and output (12/24VDC) [mA]	165/95	**Current Ethernet option (12/24VDC) [mA]**	-
Current brake option [mA]	-	**Current for 1 Dig. output - max [mA]**	350
Max current CVI [A]			
Encoder type	H4: H2 incr+absSingleturn and H3 serial/absMultiturn	**Encoder Resolution (H2)**	H2 - 4096 Singleturn AbsEnc - Semi multiturn
Encoder Resolution (H3)	H3 - 1024 Multiturn AbsEnc	**Encoder revolutions**	+/-5242
PLC no. of DI/DO/AI	8	**Analogue voltage**	0-5VDC 12bit
Dig. Input impedans	30 Kohm	**Counter frequency max**	12MHz
Standard used		**Standard used 2**	
Resistance [Ohm]		**Induction [mH]**	

MIS176S8Q5H466 Int.Step 12-72VDC, RS485, AbsC-L

Communication information

Software	MacTalk	**Connector 2 RS485**	Yes
Connectivity: Without module	RS485	**Connector 3 RS485**	
		Connector 4 RS485	Yes

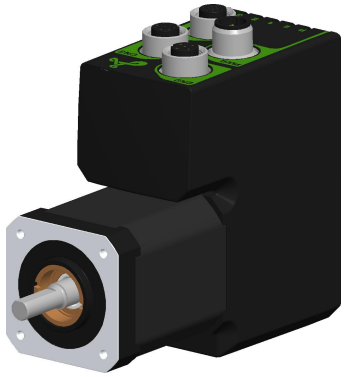
Motor connectors

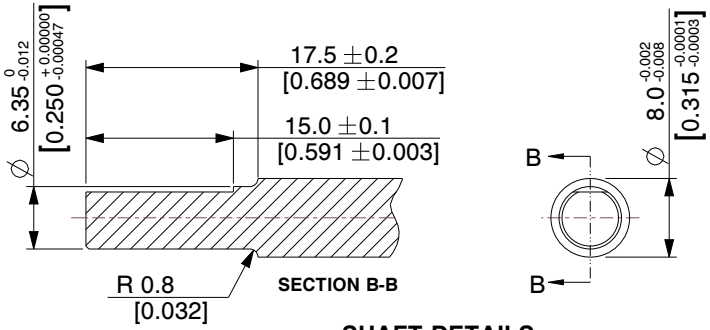


MIS17xS - Q5

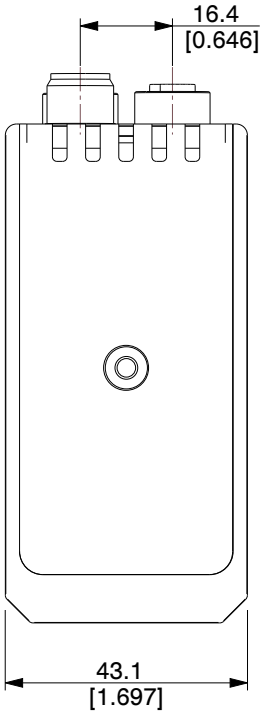
RS485 serial communication in network and IO

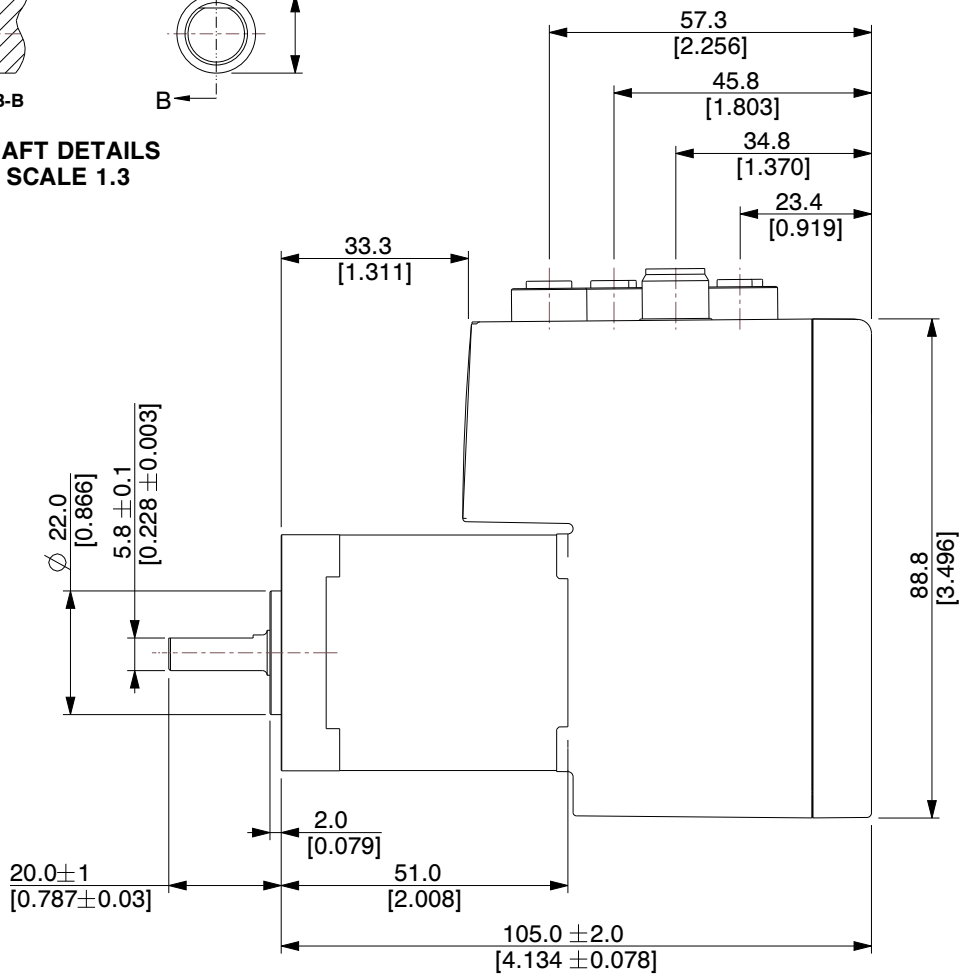
e-PLC Files	**Ethernet, PLC demo files**

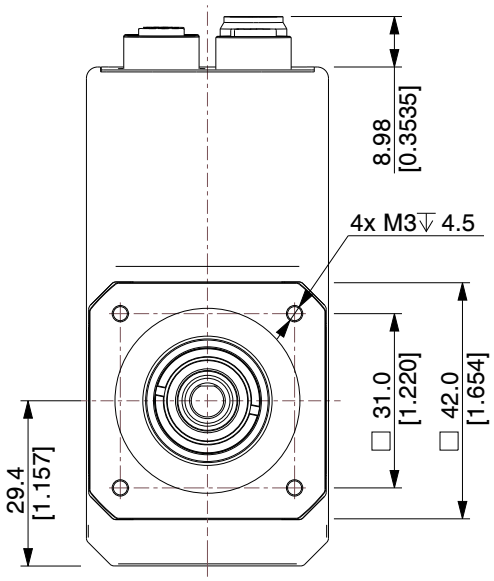




SHAFT DETAILS
SCALE 1.3







NOTES:
1. Operation Modes : Passive, Position, Gear, Velocity.
2. Encoder Type: Internal, magnetic, absolute multiturn Closed loop ready.
   Resolution per rev.: Displayed: 409600 counts - internal: 4096 counts.

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PART NUMBER:
MIS176S8Q5H466

PART DESCRIPTION:
Integrated Stepper Motor

A4	SCALE	NTS
	UNIT	MM [Inch]