

Motor unit MTR-DCI

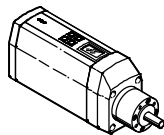


FESTO

Brief overview

MTR-DCI

– English



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[8076567]

Translation of the original instructions

Documentation on the product



For all available product documentation
→ www.festo.com/pk

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English 3

1 User instructions

The MTR-DCI motor unit is an intelligent servo motor consisting of DC motor, planetary gear, encoder and integrated control electronics.

The higher-order PLC/IPC is connected via the controller interface:

- MTR-DCI-...-IO digital inputs/outputs
- MTR-DCI-...-PB: PROFIBUS-DP
- MTR-DCI-...-CO: CANopen
- MTR-DCI-...-DN: DeviceNet

Commissioning and parameterization are carried out:

- with the FCT software package and the MTR-DCI plugin via the RS232 interface
- or for MTR-DCI-...H2 optionally with the control panel (display and four operating buttons).



Note

This brief overview is a part of the operating package P.BP-MTR-DCI. It serves only as initial information and does **not** replace the complete documentation, which is contained as a PDF file on the CD ROM supplied.

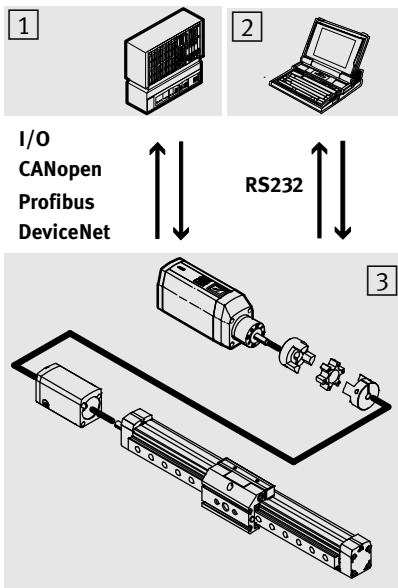
- It is essential that you observe the information and the safety instructions in the complete manual for the motor unit.
- Please consult your local Festo Service or write to the following e-mail address if you have any technical problems: service_international@festo.com

Contents of CD ROM 1)	Language	File name 2)	
Description of motor unit type MTR-DCI-...-IO – Installation and commissioning – I/O control interface – etc.	Deutsch	539615	d1
	English	539616	g1
	Spanish	539617	e1
	French	539618	f1
	Italian	539619	i1
	Swedish	539620	s1
Description of motor unit type MTR-DCI-...-PB – Installation and commissioning – PROFIBUS control interface – etc.	Deutsch	539623	d1
	English	539624	g1
	Spanish	539625	e1
	French	539626	f1
	Italian	539627	i1
	Swedish	539628	s1
Description of motor unit type MTR-DCI-...-CO – Installation and commissioning – CANopen control interface – etc.	Deutsch	539629	d1
	English	539630	g1
	Spanish	539631	e1
	French	539632	f1
	Italian	539633	i1
	Swedish	539634	s1
Description of motor unit type MTR-DCI-...-DN – Installation and commissioning – DeviceNet control interface – etc.	Deutsch	553530	d1
	English	553531	g1
	Spanish	553532	e1
	French	553533	f1
	Italian	553534	i1
	Swedish	553535	s1
<p>1) Depending on version status.</p> <p>2) File name = <part number> + <language code>. Also available in paper version under this part number.</p>			



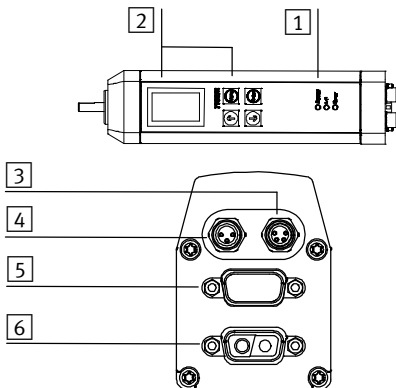
Further information can be found in the help system of the FCT configuration software and in the operating instructions for the accessories (e. g. reference switch, axis).

- 1 Higher-order controller
- 2 Software level:
Festo Configuration Tool (FCT)
- 3 Drive level:
 - Motor unit
 - Coupling + housing
 - Axis



2 Displays and connections

- 1 Status displays (LEDs)
- 2 Control panel (only MTR-DCI-...-H2)
- 3 Parametrizing (RS232)
- 4 Reference switch
- 5 Controller (PLC/IPC)
- 6 Voltage supply



Control panel (only MTR-DCI-...-H2)

Button	Function
	MENU ESC EMERG.STOP
	OK SAVE START/STOP
	← →
	EDIT

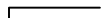











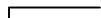

Connection on the MTR-DCI		Description
3	Parametrization	<ul style="list-style-type: none"> – M8x1, 4-pin – Socket RS232 interface for parameterizing, commissioning and diagnosing
4	Reference switch	<ul style="list-style-type: none"> – M8x1, 3-pin¹⁾ – Socket Input for N.O. reference switch (normally open); PNP.
5	Controller interface (PLC/IPC)	MTR-DCI-...-IO: <ul style="list-style-type: none"> – Sub-D 9-pin – Plug I/O interface
		MTR-DCI-...-PB: <ul style="list-style-type: none"> – Sub-D 9-pin – Socket PROFIBUS-DP interface and logic voltage for MTR-DCI-32
		MTR-DCI-...-CO: <ul style="list-style-type: none"> – Sub-D 9-pin – Plug CANopen interface and logic voltage for MTR-DCI-32
		MTR-DCI-...-DN: <ul style="list-style-type: none"> – Sub-D 9-pin – Plug DeviceNet interface and logic voltage for MTR-DCI-32
6	Power supply	<ul style="list-style-type: none"> – Sub-D, 2-pin – Plug Load and logic voltage connection for MTR-DCI-IO and MTR-DCI-42/52/62-...-CO/DN/PB ²⁾
<p>1) with screw locking (external thread), e. g. reference switch SMT-8M-...-M8D. Extension cable for reference switch: KM8-M8-GSGD</p> <p>2) Optionally connect logic voltage for MTR-DCI-42/52/62-...-CO/DN/PB separately via fieldbus adapter.</p>		






Power LED		
Power supply	lights up green	Logic and load voltages applied.
	flashes green*)	Logic voltage is applied. Load voltage not applied.
	off	There is no voltage.
*) separation logic – load: only with MTR-DCI-PB/CO/DN		

Error LED		
Fault display	lights up red	Fault
	flashes red	Warning
	off	No internal fault reported.

I/F LED	MTR-DCI-...-IO	
Positioning status (two-colour LED)	lights up green	Ready to operate; is enabled
	lights up red	Not ready to operate, not enabled
	green/red	Ready to operate; not enabled
	off	Positioning operation or fault

I/F LED	MTR-DCI-...-PB	
green: Positioning status	lights up green	MC (motion complete)
	off	No MC or fault
red: Bus status	off	Data exchange active
	flashes fast	Address not parametrized
	flashes slowly	Wait for connection

I/F LED	MTR-DCI-...-CO	
green: Status machine	ON  OFF 	CAN status “operational” (on)
	ON  OFF 	CAN status “stopped”(single flash)
	ON  OFF 	CAN status “pre-operational” (blinking)
red: Bus connection	ON  OFF 	Fault-free connection (off)
	ON  OFF 	CAN warning limit reached (single flash)
	ON  OFF 	CAN Node guarding error (double flash)
	ON  OFF 	Bus parameter not parametrized or no external CAN supply (on)

LED I/F	MTR-DCI-...-DN	
Green: Bus status "Network"	ON  OFF	Status "Operational" (on)
	ON  OFF	Status "Device standby" (blinking)
Red: Bus status "Module"	ON  OFF	No bus connection "No Power/Bus-Off" (off)
	ON  OFF	Warning "Minor fault" (blinking)
	ON  OFF	Fault "Unrecoverable fault" (on)

3 Notes on fitting and installation



Warning

Before carrying out fitting, installation and/or maintenance work, always switch off the power supply.



Warning

If an axis is fitted in a sloping or vertical position, the work load may slide down.

- Check whether additional external safety measures are necessary (e.g. toothed latches or moveable bolts).
- Use the motor unit preferably with self-locking spindle drives.

This will prevent the work load from dropping suddenly in the event of a power cut.



Warning

Use only power units which guarantee reliable electrical isolation of the operating voltage as per IEC/DIN EN 60204-1. Observe also the general requirements for PELV power circuits as per IEC/DIN EN 60204-1.



Note

Motor units MTR-DCI-...-CO/DN/PB of size 32 must be connected to a separate logic voltage supply. Use the corresponding fieldbus adapter FBA for this purpose

Voltage supply	MTR-DCI			
	32	42	52	62
Load				
Rated voltage ¹⁾	24 V DC $\pm 10\%$			48 V DC ⁴⁾ +5/-10%
Rated current	0.73 A	2 A	5 A	6.19 A
Peak current	2.1 A	3.8 A	7.7 A	20 A
Power unit ²⁾	24 V DC /3 A	24 VDC /6 A	24VDC /10A	48 VDC /20 A
External fuse	5 A slow-blowing	7 A slow-blowing	10 A slow-blowing	25 A slow-blowing
Logic ³⁾				
Rated voltage ¹⁾	24 V DC $\pm 10\%$			
Rated current	150 mA			
Peak current	800 mA			
1) The tolerance must be observed directly at the voltage connection. 2) Recommended 3) with separate logic voltage supply.				



Note

For MTR-DCI-IO, load and logic voltage are supplied via the voltage supply connection.

- For MTR-DCI-32-CO/DN/PB:
connect logic voltage separately via fieldbus adapter.
- For MTR-DCI-42/52/62-CO/DN/PB:
optionally connect logic voltage separately via fieldbus adapter.
- Use a closed-loop power unit with high power reserve.
- Seal unused connections with the protective caps supplied.
- Connect the MTR-DCI with the following cables (observe max. length):

Cable	max.	Accessories type
– Supply cable	10 m	KPWR-MC-1-SUB-9HC
– Programming cable	2.5 m	KDI-MC-M8-SUB-9
– Control cable (only MTR-DCI-...-IO)	30 m	KES-MC-1-SUB-9

Field bus adapter ¹⁾	IP	Accessories type
MTR-DCI-...-CO	54	FBA-CO-SUB-9-M12
MTR-DCI-...-PB	54	FBA-PB-SUB-9-3XM12
MTR-DCI-...-DN	54	FBA-CO-SUB-9-M12
¹⁾ for separate supply of load voltage and logic voltage		

4 Notes on commissioning and operation



Warning

Electrical axes can move with high force and at high speed. Collisions can lead to serious injury to human beings and damage to components.

- Make sure that nobody can reach into the operating range of the axes or other connected actuators and that no objects lie in the positioning range while the system is still connected to a power supply.



Warning

Incorrect parameterization can cause injury to people and damage to property.

- Only enable the controller if the axis system has been installed and parameterized by technically qualified staff.
- You must carry out reference travel in the following cases:
 - **each** time the device is switched on,
 - when the reference system has been modified (reference travel method, axis zero point, direction of rotation (compare object 607E_H)).

Carry out commissioning with the Festo Configuration Tool configuration software (see FCT help system), or optionally with the control panel (only MTR-DCI-...H2).

Overview of commissioning

1. Select the axis and adapt the parametrization.
If necessary, set the field bus address.
2. Set the parameters for the reference travel:
 - Reference travel method
 - Search speed to reference point
 - Positioning speed to axis zero point
3. Carry out reference travel.

After a successful reference travel:

4. Teach axis zero point and working range:
 - Offset of the axis zero point to the reference point
 - Positive and negative software end positions
5. Parametrize position sets (target position, positioning mode, speed etc.).

Concluding commissioning

- Test run: Check positioning behaviour, basis points and working range and, if necessary, optimize.
- Check the controller interface (HMI = off).
- Protect with a password.