

Cable Adapter. EC-PA-DQS-M



- The EC-PA-DQS Adapter connects Fagor linear absolute encoders with FeeDat Fast protocol to Siemens systems through DRIVE-CLiQ digital INTERFACE.
- DRIVE-CLiQ digital protocol for Siemens Solution Line and SINUMERIK ONE.
- Functional Safety encoder cable for applications with up to **SIL 2** (acc. to EN 61508) or **Category 3, Performance Level d** (acc.to ISO 13849).
- Resolution 10 and 50 nanometers for linear encoders.
- The encoder can be operated as single-encoder in applications with Siemens systems and in applications with the control category **SIL 2** (acc. to EN 61508) or **Category 3, Performance Level d** (acc. to ISO 13849).

Specifications DRIVE-CLiQ Adapter Cable

Maximum vibration (55 Hz - 2 000 Hz)	100 m/s ²	Maximum shock (11 ms)	1000 m/s ²
Cable Adapter lengths	1, 3, 6 or 9 meters	Maximum cable length	Up to 100 m *
IP rating	67	Terminating connector	M12 8-pin male
Communication Speed	With encoder 10 MHz With Siemens control system 100 MHz	Cable bending radius	With armour: ≥ 75 mm without armour: ≥ 40 mm
Power Supply	24 V < 150 mA, < 3.6 W; (14 V ... 36 V) (with encoder load 300 mA)	Cable protection	With or without armour

* Depending on CNC model. Consult Siemens documentation.

General Specification

Input		Output	
Interface	FeeDat Fast	Interface	DRIVE-CLiQ
Communication Speed	10 MHz	Communication Speed	100 MHz
Power Supply	(5 ± 0.5) Vdc	Power Supply	24 Vdc

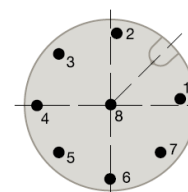
Pin Layout

Cable Diagram

Pin Layout



L = 1, 3, 6, 9 meters



Front view

Pin Out

1	VCC (24 Vdc)	3	RXP	4	RXN	5	GND (0 V)	6	TXN	7	TXP
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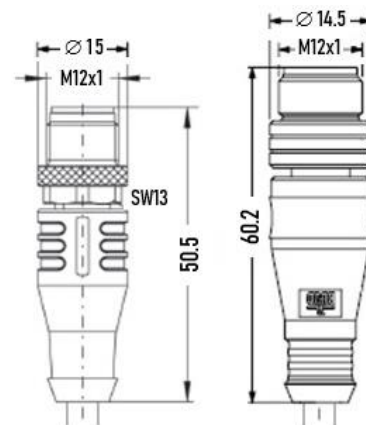
Lead-in Connector

Cable Specification

Construction	4 x 2 x 0.14 mm ²
Material	Polyurethane
Ø without armour	6 mm
Bend radius dynamic	≥ 60 mm
Bend radius static	≥ 24 mm
Shield	Single
Lead-in connector (encoder side)	M23 17-pin female, external female, contact arrangement direction P
Terminating connector	M12 8-pin male

Terminating Connector

Housing dimensions slightly differ for manufacturers



Safety Functions

The Encoder **Safety Functions** are:

- **Safe Absolute Position.** The encoder always provides a safe absolute position value. This means that the encoder always provides an absolute value for the position that is correct within the safe position tolerance when the error bits are not set.
- **Safe Communication.** The encoder communicates two independently generated position values and error bits. This allows a wide range of safety functions to be implemented in the control.

Functional Safety. Safety Capability

The encoder system with **Functional Safety** has the following characteristics related to the safety acc. to ISO 13849-1:2015 and acc. to IEC 61508:2010 Standards:

Safety Capability acc. to ISO 13849-1: 2015 and IEC 61508: 2010. G3BD-FS + EC-PA-DQS

MTTFd (years) (2 000 m above mean sea level)	66.75 years
DC (%)	99
Category	3
Performance Level, PL	d
PFH (2 000 m above mean sea level)	19.48 10 ⁻⁹
Safe position tolerance	+1738 µm, -210 µm (Safety-Related measuring step 200 µm)
For applications up to	SIL 2

The encoder system also complies with IEC 61800-5-2: 2017. The instructions in the catalog and installation manuals must be observed.

Feedback Product Data Sheet



Related Products

Product	Description
XC-M2-...S-M1	Intermediate extension cable M12 8-pin connectors for DRIVE-CLiQ applications.
XC-M2-...S-RJ2	Extension Cable for DRIVE-CLiQ Cable Adapter (EC-...PA-DQ..-M) or Extension Adapter (XC-C8-...PA-DQ-M-N). With M12 8-pin female input connector and RJ-45 IP 20 terminating connector for DRIVE-CLiQ applications.
XC-M2-...S-RJ6	Extension Cable for DRIVE-CLiQ Cable Adapter (EC-...PA-DQ..-M) or Extension Adapter (XC-C8-...PA-DQ-M-N). With M12 8-pin female input connector and RJ-45 IP 67 terminating connector for DRIVE-CLiQ applications.

Order Information

DRIVE-CLiQ Adapter	Cable Length	Protection
EC-...PA-DQS-M	1, 3, 6 or 9 meters	Blank with armour N without armour

Example

Order Code	Description
G3BD10-740-3-T-FS	The Functional Safety system comprises one linear encoder and one DRIVE-CLiQ Adapter:
EC-3PA-DQS-M-N	<ul style="list-style-type: none">Absolute G3 linear encoder with 3Statech technology, FeeDat protocol, 0.01 µm resolution, 740 mm measuring length, ± 3 µm/m accuracy, M6 thread (tapped) reader head.DRIVE-CLiQ Adapter, cable length 3 meters without armour connecting to Fagor encoder and terminating connector M12 8-pin male.