

Special function module - AXL F CNT2 INC2 XC 1F - 2701239

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Axioline F function module, extreme conditions version, 2 counter inputs, 2 incremental encoder inputs (including bus base module and connectors)

The figure shows the standard item

Product Description

The module is designed for use within an Axioline F station.


On the one hand, it is used to acquire fast pulse sequences from sensors, and on the other hand to detect positions using incremental encoders. The module combines two counter inputs for the evaluation of fast counter pulses and two incremental encoder inputs for position detection.

Why buy this product

- 2 counter inputs
- 2 incremental encoder inputs
- Maximum input frequency: 300 kHz/100 kHz (depending on the wiring)
- 32-bit counter (up and down)
- Output control according to two limit values
- Counter: counting (source) is controlled via a control input (gate)
- Counter: single or periodic counting
- Incremental encoder acquisition: acquisition of digital signals from symmetrical and asymmetrical incremental encoders
- Incremental encoder acquisition: evaluation of linear or rotary axes
- Device rating plate stored
- Diagnostic and status indicators
- Can be used under extreme ambient conditions
- Extended temperature range of -40°C ... +70°C (see "Tested successfully: use under extreme ambient conditions" in the data sheet)
- Partially coated PCBs



Key Commercial Data

Packing unit	1 STK
GTIN	 4 046356 730082
GTIN	4046356730082

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Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Dimensions

Width	53.6 mm
Height	126.1 mm
Depth	54 mm
Note on dimensions	The depth is valid when a TH 35-7,5 DIN rail is used (according to EN 60715).

Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C (Standard)
	-40 °C ... 70 °C (Extended, see section "Tested successfully: use under extreme ambient conditions" in the data sheet.)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % ... 95 % (non-condensing)
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Degree of protection	IP20

General

Mounting type	DIN rail
Net weight	233.9 g
Note on weight specifications	with connectors and bus base module
Diagnostics messages	Short-circuit / overload of the digital outputs Yes
	Error at the symmetrical incremental encoder Yes

Interfaces

Designation	Axoline F local bus
No. of channels	2
Connection method	Bus base module
Transmission speed	100 Mbps

Axoline potentials

Designation	Axoline F local bus supply (U_{Bus})
Supply voltage	5 V DC (via bus base module)
Current consumption	typ. 100 mA
	max. 120 mA
Power consumption	typ. 0.5 W
	max. 0.6 W
Designation	Supply voltage input U_i
Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC including all tolerances, including ripple

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Axioline potentials

Current consumption	max. 2.5 A (dependent on the encoder or sensor type used and the load on the digital output.)
Power consumption	max. 60 W (of which 1.6 W internal losses)
Type of protection	Surge protection of the supply voltage
	Polarity reversal protection of the supply voltage
Protection	max. 8 A (polarity reversal protection up to 5 A)

Counter inputs

Input name	Counter input for 24 V signals
Number of inputs	2 (S1, S2)
Description of the input	EN 61131-2, type 3
Connection method	Push-in connection
Input voltage	24 V DC
Input voltage range "0" signal	-3 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC
Input frequency	max. 300 kHz (1 channel wired)
	max. 100 kHz (More than one channel wired or Z signal monitoring via the firmware)
Input current	2.5 mA (per channel)
Resolution	32 bits
Permissible cable length to the sensor	30 m

Encoder inputs

Input name	Incremental encoder inputs
Number of inputs	2 (A1, /A1, B1, /B1, Z1, /Z1; A2, /A2, B2, /B2, Z2, /Z2)
Connection method	Push-in connection
Encoder signals	Symmetrical and asymmetrical encoders
Cable length	30 m

Encoder data

Number of 5 V encoder supplies	2 (U _{E1} , U _{E2})
Nominal output voltage	5 V DC
Voltage range	5 V DC ... 5.5 V DC
Current carrying capacity	max. 250 mA
Type of protection	Short-circuit protection
Number of 24 V encoder supplies	2 (U _{S1} , U _{S2})
Nominal output voltage	24 V DC
Voltage range	19.2 V DC ... 30 V DC
Current carrying capacity	typ. 500 mA
Type of protection	Short-circuit protection
Designation	Symmetrical incremental encoders
Encoder types that can be connected	max. 2 (A, /A, B, /B, (Z, /Z))
Type of connection of signals	Push-in connection

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Encoder data

Encoder supply voltage	5 V DC
	24 V DC
Signal voltage level	Differential signal (signal – inverted signal) ± 0.5 V, minimum; ± 6 V, maximum
Common mode voltage range signal - ground	-10 V ... 13.2 V
Input frequency	max. 300 kHz (1 channel wired)
	max. 100 kHz (More than one channel wired or Z signal monitoring via the firmware)
Designation	Asymmetrical incremental encoders
Encoder types that can be connected	max. 2 (A, B, (Z))
Type of connection of signals	Push-in connection
Signal voltage level	Low ≤ 2.5 V, high ≥ 3.5 V (up to 27 V, maximum)
Input frequency	max. 300 kHz (1 channel wired)
	max. 100 kHz (More than one channel wired or Z signal monitoring via the firmware)

Digital inputs

Input name	Digital inputs
Description of the input	EN 61131-2, type 3
Connection method	Push-in connection
Connection technology	1-wire (optionally 2, 3-wire)
Number of inputs	8 (CNT: G1, G2, Dir1, Dir2; INC: Ref1, Ref2, L1, L2)
Input voltage range "0" signal	-3 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC
Nominal input current at U_{IN}	2.5 mA (per channel)

Digital outputs

Output name	Digital outputs
Connection method	Push-in connection
Connection technology	1-wire
Number of outputs	2 (Out1, Out2)
Type of protection	Short-circuit protection, overload protection of the outputs
Output voltage	24 V DC
Nominal output voltage	24 V DC
Maximum output current per channel	500 mA
Nominal load, inductive	max. 12 VA (1.2 H, 48 Ω , with nominal voltage)
Nominal load, lamp	max. 12 W (at nominal voltage)
Nominal load, ohmic	max. 12 W (48 Ω , with nominal voltage)

Standards and Regulations

Mechanical tests	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6 5g
	Shock in acc. with EN 60068-2-27/IEC 60068-2-27 30g
	Continuous shock according to EN 60068-2-27/IEC 60068-2-27 10g

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Standards and Regulations

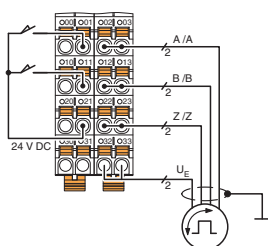
Protection class	III, IEC 61140, EN 61140, VDE 0140-1
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Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

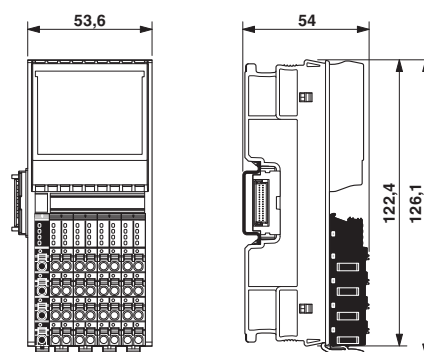
Drawings

Connection diagram

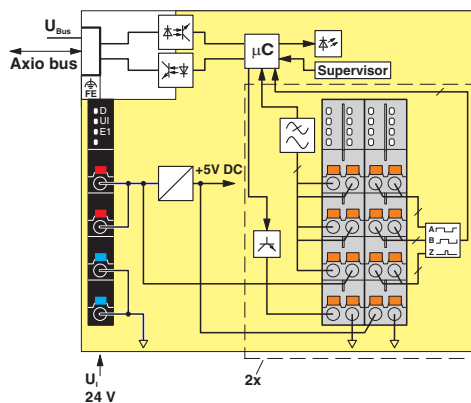


Quadrature encoder with 5 V supply

Dimensional drawing



Block diagram



Internal wiring of the terminal points

Approvals

Approvals

Approvals

UL Listed / cUL Listed / LR / ABS / NK / BV / DNV GL / PRS / RINA / BSH / KR / cULus Listed

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Approvals

Ex Approvals

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
LR		http://www.lr.org/en	14-20019
ABS		http://www.eagle.org/eagleExternalPortalWEB/	17-HG1669996-PDA
NK		http://www.classnk.or.jp/hp/en/	14A006
BV		http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials	36433/A2 BV
DNV GL		http://exchange.dnv.com/tari/	TAA00000DF
PRS		http://www.prs.pl/	TE/2106/880590/16
RINA		http://www.rina.org/en	ELE0078216XG
BSH		http://www.bsh.de/de/index.jsp	840
KR		http://www.krs.co.kr/eng/main/main.aspx	HMB17372-AC002

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Approvals

cULus Listed



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