

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.

Your advantages

- ✓ 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 pc |
| 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 |
|-------------------------|---|

Dimensions

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|--------------------|---|
| 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 | Axiline F local bus |
| No. of channels | 2 |
| Connection method | Bus base module |
| Transmission speed | 100 Mbps |

Axiline potentials

| | |
|----------------------|--|
| Designation | Axiline 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 |
|------------------|--------------------------------------|

Environmental Product Compliance

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

Approvals

Approvals

Approvals

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





Ex Approvals

Approval details

| | | | |
|--------|--|---|-------------------|
| DNV GL | | https://approvalfinder.dnvgl.com/ | TAA00000DF |
| PRS | | http://www.prs.pl/ | TE/2239/880590/19 |
| BV | | http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials | 36433/B0 BV |
| LR | | http://www.lr.org/en | 14-20019 |
| KR | | http://www.krs.co.kr/eng/main/main.aspx | HMB17372-AC002 |
| NK | | http://www.classnk.or.jp/hp/en/ | 14A006 |

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Approvals

| | | | |
|--------------|---|---|------------------|
| ABS | | http://www.eagle.org/eagleExternalPortalWEB/ | 18-HG1767360-PDA |
| BSH | | http://www.bsh.de/de/index.jsp | 840 |
| RINA |  | http://www.rina.org/en | ELE256518XG |
| 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 |
| cULus Listed |  | | |

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