# 8EAC0122.003-1

## 1 General information

Resolver plug-in module 8EAC0122.003-1 can be used in the slot of an ACOPOS P3 8EI servo drive. The module contains three resolver interfaces for evaluating BRX resolvers.

The plug-in module evaluates the output from resolvers that are either built into B&R servo motors or used to evaluate external axes. These resolvers return the absolute position over one revolution. The traverse path is normally longer than one revolution. In this case, a reference switch must be used and a homing procedure carried out.

The encoder input signals are monitored. This makes it possible to detect open circuits, short circuits and failures of the encoder power supply (reference signal).

When switched on, the plug-in module is automatically identified by the operating system on the ACOPOS P3 8EI servo drive.

## 2 Order data

| Model number | Short description | Figure |
|---|---|---|
| | **Plug-in modules** |  |
| 8EAC0122.003-1 | ACOPOS P3 plug-in module, 3x resolver interface 10 kHz | |
| | **Optional accessories** | |
| | **Resolver cables** | |
| 8ECR0005.1111C-0 | ACOPOS P3 resolver cable, length 5 m, 3x 2x 24 AWG (19x 0.127), 12-pin female speedtec connector, 8-pin male mini I/O connector, can be used in cable drag chains | |
| 8ECR0007.1111C-0 | ACOPOS P3 resolver cable, length 7 m, 3x 2x 24 AWG (19x 0.127), 12-pin female speedtec connector, 8-pin male mini I/O connector, can be used in cable drag chains | |
| 8ECR0008.1111C-0 | ACOPOS P3 resolver cable, length 8 m, 3x 2x 24 AWG (19x 0.127), 12-pin female speedtec connector, 8-pin male mini I/O connector, can be used in cable drag chains | |
| 8ECR0009.1111C-0 | ACOPOS P3 resolver cable, length 9 m, 3x 2x 24 AWG (19x 0.127), 12-pin female speedtec connector, 8-pin male mini I/O connector, can be used in cable drag chains | |
| 8ECR0010.1111C-0 | ACOPOS P3 resolver cable, length 10 m, 3x 2x 24 AWG (19x 0.127), 12-pin female speedtec connector, 8-pin male mini I/O connector, can be used in cable drag chains | |
| 8ECR0012.1111C-0 | ACOPOS P3 resolver cable, length 12 m, 3x 2x 24 AWG (19x 0.127), 12-pin female speedtec connector, 8-pin male mini I/O connector, can be used in cable drag chains | |
| 8ECR0015.1111C-0 | ACOPOS P3 resolver cable, length 15 m, 3x 2x 24 AWG (19x 0.127), 12-pin female speedtec connector, 8-pin male mini I/O connector, can be used in cable drag chains | |
| 8ECR0020.1111C-0 | ACOPOS P3 resolver cable, length 20 m, 3x 2x 24 AWG (19x 0.127), 12-pin female speedtec connector, 8-pin male mini I/O connector, can be used in cable drag chains | |
| 8ECR0025.1111C-0 | ACOPOS P3 resolver cable, length 25 m, 3x 2x 24 AWG (19x 0.127), 12-pin female speedtec connector, 8-pin male mini I/O connector, can be used in cable drag chains | |

Table 1: 8EAC0122.003-1 - Order data

## 3 Technical data

| Model number | 8EAC0122.003-1 |
|---|---|
| **General information** | |
| Short description | 3 resolver interfaces in one module |
| Module type | ACOPOS P3 plug-in module |
| B&R ID code | 0xEA84 |
| Slot | Slot 1 |
| Max. power consumption | 1.5 W |

Table 2: 8EAC0122.003-1 - Technical data

| Model number | 8EAC0122.003-1 |
|---|---|
| Certifications | |
|    CE | Yes |
|    KC | Yes |
|    UL | cULus E225616<br>Power conversion equipment |
|    Functional safety [1] | Not relevant |
| **Encoder connection [2]** | |
| Module-side connection [3] | 8-pin female mini I/O connector |
| Status indicators | None |
| Encoder monitoring | Yes |
| Max. encoder cable length | 100 m |
| **Encoder power supply [2]** | |
| Output voltage | Typ. 3 $V_{eff}$ |
| Output current | Max. 50 $mA_{eff}$ |
| Frequency | 10 kHz |
| Protective measures | |
|    Overload protection | Yes |
|    Short circuit protection | Yes |
| **Position [2]** | |
| Resolution @ 1 $V_{SS}$ | Number of pole pairs * 16 bits |
| **Analog inputs [2]** | |
| Digital converter resolution | 16-bit |
| Input impedance | 10.4 kΩ - j8 kΩ |
| Input voltage | Resolver transformation ratio: 0.2 - 0.55 ± 10% |
| Common-mode voltage | Max. ±12 V |
| Signal transmission | Differential signals |
| **Support** | |
| Motion system | |
|    mapp Motion | 5.00.0 and higher |
|    ACP10 | 3.11.0 and higher |
| **Environmental conditions** | |
| Temperature | |
|    Operation | |
|       Nominal | 5 to 40°C |
|       Maximum | 55°C |
|    Storage | -25 to 55°C |
|    Transport | -25 to 70°C |
| Relative humidity | |
|    Operation | 5 to 85% |
|    Storage | 5 to 95% |
|    Transport | Max. 95% at 40°C |
| **Mechanical characteristics** | |
| Dimensions | |
|    Width | 24 mm |
|    Height | 82 mm |
|    Depth | 103 mm |
| Weight | 127 g |

Table 2: 8EAC0122.003-1 - Technical data

1)    Achievable safety classifications (safety integrity level, safety category, performance level) are documented in the user's manual (section "Safety technology").
2)    The data in this section applies to each of the 3 resolver interfaces.
3)    The resolver must be wired using a cable with a single shield and twisted pair signal lines.

# 4 Wiring

## 4.1 Pinout

> # Information:
>
> **Plug-in module 8EAC is not capable of hot plugging. An 8EAC plug-in module is only permitted to be connected to or disconnected from an ACOPOS P3 8EI servo drive when power to the servo drive is switched off.**
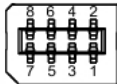
| Figure | Mini I/O connector X41C/X42C/X43C | Pin | Name [1] | Function | Typical wire colors for the resolver [2] |
|---|---|---|---|---|---|
|  |  | 1 | S2 | Sine input - | Yellow |
| | | 2 | R2 | Reference output + | Black/White (or yellow/white) |
| | | 3 | S4 | Sine input + | Blue |
| | | 4 | R1 | Reference output - | Red/White |
| | | 5 | S3 | Cosine input + | Black |
| | | 6 | T1 | Temperature sensor + | --- |
| | | 7 | S1 | Cosine input - | Red |
| | | 8 | T2 | Temperature sensor - | --- |
| | | | | | |

Table 3: Resolver interface 8EAC0122.003-1 - Pinout

1) Names are the same as those used by leading manufacturers (Tamagawa, Tyco, LTN).
2) This refers to the wire colors of the lines connected directly to the resolver that are used universally by leading manufacturers (Tamagawa, Tyco, LTN). **These are not the wire colors in B&R resolver cables!**

> # Danger!
>
> **The connections for the motor temperature sensor and encoder are safely isolated circuits. These connections are therefore only permitted to be connected to devices or components that have sufficient isolation per IEC 60364-4-41 or EN 61800-5-1.**

# 5 Firmware

The firmware is part of the operating system for the ACOPOS P3 8EI servo drive. Firmware is updated by updating the ACOPOS P3 operating system.