



# Digital input modules

## Signal modules digital | Digital input modules

|           |  |  |  |  |  |
|-----------|--|--|--|--|--|
| 321-1BH01 |  |  |  |  |  |
| 321-1BH70 |  |  |  |  |  |
| 321-1BL00 |  |  |  |  |  |
| 321-1FH00 |  |  |  |  |  |

| Order number                                                        | 321-1BH01                                                                         | 321-1BH70                                                                                                                                             | 321-1BL00                                                                         | 321-1FH00                                                                                              |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Figure                                                              |                                                                                   |                                                                                                                                                       |                                                                                   |                                                                                                        |
| Type                                                                | SM 321,<br>DI 16xDC 24V                                                           | SM 321S,<br>DI 16xDC 24V                                                                                                                              | SM 321,<br>DI 32xDC 24V                                                           | SM 321,<br>DI 16xAC 120/230V                                                                           |
| <b>General information</b>                                          |                                                                                   |                                                                                                                                                       |                                                                                   |                                                                                                        |
| Note                                                                | -                                                                                 | -                                                                                                                                                     | -                                                                                 | -                                                                                                      |
| Features                                                            | <ul style="list-style-type: none"> <li>► 16 inputs,</li> <li>► DC 24 V</li> </ul> | <ul style="list-style-type: none"> <li>► SPEED-Bus,</li> <li>► 16 fast inputs,</li> <li>► Parameterizable as Alarm/ETS,</li> <li>► DC 24 V</li> </ul> | <ul style="list-style-type: none"> <li>► 32 inputs,</li> <li>► DC 24 V</li> </ul> | <ul style="list-style-type: none"> <li>► 16 inputs, in groups of 4,</li> <li>► AC 120/230 V</li> </ul> |
| SPEED-Bus                                                           | -                                                                                 | ✓                                                                                                                                                     | -                                                                                 | -                                                                                                      |
| <b>Current consumption/power loss</b>                               |                                                                                   |                                                                                                                                                       |                                                                                   |                                                                                                        |
| Current consumption from backplane bus                              | 25 mA                                                                             | 25 mA                                                                                                                                                 | 35 mA                                                                             | 35 mA                                                                                                  |
| Power loss                                                          | 3.5 W                                                                             | 3.5 W                                                                                                                                                 | 5.5 W                                                                             | 5 W                                                                                                    |
| <b>Technical data digital inputs</b>                                |                                                                                   |                                                                                                                                                       |                                                                                   |                                                                                                        |
| Number of inputs                                                    | 16                                                                                | 16                                                                                                                                                    | 32                                                                                | 16                                                                                                     |
| Cable length, shielded                                              | 1000 m                                                                            | 1000 m                                                                                                                                                | 1000 m                                                                            | 1000 m                                                                                                 |
| Cable length, unshielded                                            | 600 m                                                                             | 600 m                                                                                                                                                 | 600 m                                                                             | 600 m                                                                                                  |
| Rated load voltage                                                  | -                                                                                 | -                                                                                                                                                     | -                                                                                 | AC 120/230 V                                                                                           |
| Current consumption from load voltage L+ (without load)             | -                                                                                 | -                                                                                                                                                     | -                                                                                 | -                                                                                                      |
| Rated value                                                         | DC 20.4...28.8 V                                                                  | DC 24 V                                                                                                                                               | DC 20.4...28.8 V                                                                  | AC 120/230 V                                                                                           |
| Input voltage for signal "0"                                        | DC 0...5 V                                                                        | DC 0...5 V                                                                                                                                            | DC 0...5 V                                                                        | AC 0...40 V                                                                                            |
| Input voltage for signal "1"                                        | DC 15...28.8 V                                                                    | DC 15...28.8 V                                                                                                                                        | DC 15...28.8 V                                                                    | AC 79...264 V                                                                                          |
| Input voltage hysteresis                                            | -                                                                                 | -                                                                                                                                                     | -                                                                                 | -                                                                                                      |
| Frequency range                                                     | -                                                                                 | -                                                                                                                                                     | -                                                                                 | 47...63 Hz                                                                                             |
| Input resistance                                                    | -                                                                                 | -                                                                                                                                                     | -                                                                                 | -                                                                                                      |
| Input current for signal "1"                                        | 7 mA                                                                              | 7 mA                                                                                                                                                  | 7 mA                                                                              | 7 mA                                                                                                   |
| Connection of Two-Wire-BEROs possible                               | ✓                                                                                 | ✓                                                                                                                                                     | ✓                                                                                 | ✓                                                                                                      |
| Max. permissible BERO quiescent current                             | 1.5 mA                                                                            | 1.5 mA                                                                                                                                                | 1.5 mA                                                                            | 1.5 mA                                                                                                 |
| Input delay of "0" to "1"                                           | 3 ms                                                                              | 6.12 µs                                                                                                                                               | 3 ms                                                                              | 25 ms                                                                                                  |
| Input delay of "1" to "0"                                           | 3 ms                                                                              | 6.12 µs                                                                                                                                               | 3 ms                                                                              | 25 ms                                                                                                  |
| Number of simultaneously utilizable inputs horizontal configuration | -                                                                                 | 16                                                                                                                                                    | -                                                                                 | 16                                                                                                     |
| Number of simultaneously utilizable inputs vertical configuration   | -                                                                                 | 16                                                                                                                                                    | -                                                                                 | 16                                                                                                     |
| Input characteristic curve                                          | -                                                                                 | -                                                                                                                                                     | -                                                                                 | IEC 61131, type 1                                                                                      |
| Initial data size                                                   | 2 Byte                                                                            | 2 Byte                                                                                                                                                | 4 Byte                                                                            | 2 Byte                                                                                                 |
| <b>Status information, alarms, diagnostics</b>                      |                                                                                   |                                                                                                                                                       |                                                                                   |                                                                                                        |
| Status display                                                      | green LED per channel                                                             | green LED per channel                                                                                                                                 | green LED per channel                                                             | green LED per channel                                                                                  |
| Interrupts                                                          | no                                                                                | no                                                                                                                                                    | no                                                                                | no                                                                                                     |
| Process alarm                                                       | no                                                                                | no                                                                                                                                                    | no                                                                                | no                                                                                                     |

**Signal modules digital | Digital input modules**

|           |  |  |  |  |  |
|-----------|--|--|--|--|--|
| 321-1BH01 |  |  |  |  |  |
| 321-1BH70 |  |  |  |  |  |
| 321-1BL00 |  |  |  |  |  |
| 321-1FH00 |  |  |  |  |  |

| Order number                       | 321-1BH01               | 321-1BH70               | 321-1BL00               | 321-1FH00               |
|------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Diagnostic interrupt               | no                      | no                      | no                      | no                      |
| Diagnostic functions               | no                      | no                      | no                      | no                      |
| Diagnostics information read-out   | none                    | none                    | none                    | none                    |
| Supply voltage display             | none                    | none                    | none                    | none                    |
| Group error display                | none                    | none                    | none                    | none                    |
| Channel error display              | none                    | none                    | none                    | none                    |
| <b>Isolation</b>                   |                         |                         |                         |                         |
| Between channels                   | -                       | -                       | -                       | -                       |
| Between channels of groups to      | 16                      | 16                      | 16                      | 4                       |
| Between channels and backplane bus | ✓                       | ✓                       | ✓                       | ✓                       |
| Insulation tested with             | DC 500 V                | DC 500 V                | DC 500 V                | DC 4000 V               |
| <b>Mechanical data</b>             |                         |                         |                         |                         |
| Dimensions (WxHxD)                 | 40 mm x 125 mm x 120 mm | 40 mm x 125 mm x 120 mm | 40 mm x 125 mm x 120 mm | 40 mm x 125 mm x 120 mm |
| Weight                             | 220 g                   | 220 g                   | 240 g                   | 240 g                   |
| <b>Environmental conditions</b>    |                         |                         |                         |                         |
| Operating temperature              | 0 °C to 60 °C           |
| Storage temperature                | -25 °C to 70 °C         |
| <b>Certifications</b>              |                         |                         |                         |                         |
| UL508 certification                | yes                     | yes                     | yes                     | yes                     |

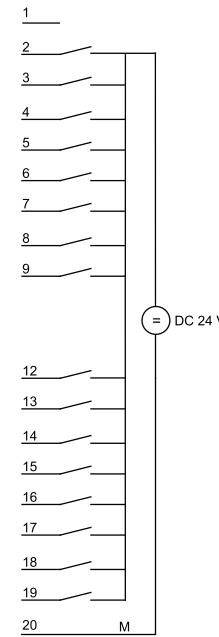


# Connections, Interfaces

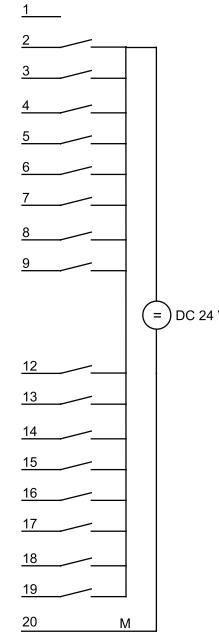
## Signal modules digital | Digital input modules

321-1BH01  
321-1BH70  
321-1BL00  
321-1FH00

### 321-1BH01

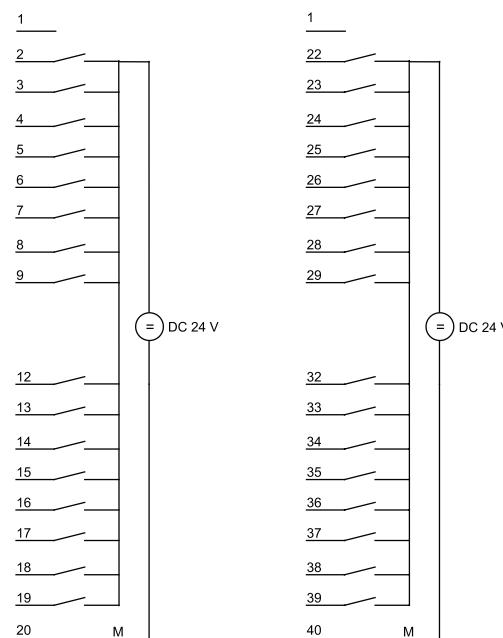
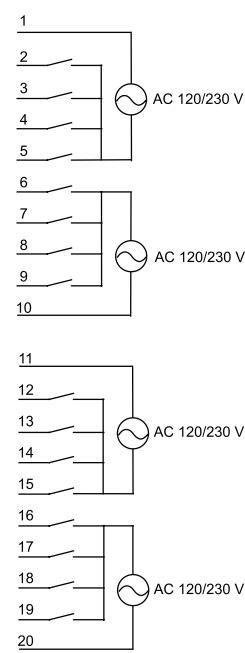


### 321-1BH70



**Signal modules digital | Digital input modules**

321-1BH01  
321-1BH70  
321-1BL00  
321-1FH00

**321-1BL00****321-1FH00**



# Digital output modules

## Signal modules digital | Digital output modules

|           |           |  |  |  |  |
|-----------|-----------|--|--|--|--|
| 322-1BF01 | 322-1BH70 |  |  |  |  |
| 322-1BH01 | 322-1BL00 |  |  |  |  |
| 322-1BH41 | 322-1HH00 |  |  |  |  |
| 322-1BH60 | 322-5FF00 |  |  |  |  |

| Order number                                                  | 322-1BH70                                                                                                                                      | 322-1BL00                                                                                                                         | 322-1HH00                                                                                                                                                      | 322-5FF00                                                                                                                                                                                |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Figure                                                        |                                                                                                                                                |                                                                                                                                   |                                                                                                                                                                |                                                                                                                                                                                          |
| Type                                                          | SM 322S,<br>DO 16xDC 24V 0.5A                                                                                                                  | SM 322,<br>DO 32xDC 24V 1A                                                                                                        | SM 322,<br>DO 16xRelay                                                                                                                                         | SM 322,<br>DO 8xAC 120/230V                                                                                                                                                              |
| <b>General information</b>                                    |                                                                                                                                                |                                                                                                                                   |                                                                                                                                                                |                                                                                                                                                                                          |
| Note                                                          | -                                                                                                                                              | -                                                                                                                                 | -                                                                                                                                                              | -                                                                                                                                                                                        |
| Features                                                      | <ul style="list-style-type: none"> <li>► SPEED bus,</li> <li>► 16 fast outputs,</li> <li>► DC 24 V,</li> <li>► Output current 0.5 A</li> </ul> | <ul style="list-style-type: none"> <li>► 32 outputs, in groups of 8,</li> <li>► DC 24 V,</li> <li>► Output current 1 A</li> </ul> | <ul style="list-style-type: none"> <li>► 16 relay outputs, in groups of 8,</li> <li>► AC 230 V / DC 30 V,</li> <li>► Contact rating per channel 5 A</li> </ul> | <ul style="list-style-type: none"> <li>► 8 outputs, in groups of 1,</li> <li>► AC 120/230 V,</li> <li>► Output current 2 A,</li> <li>► Substitute value output (programmable)</li> </ul> |
| SPEED-Bus                                                     | ✓                                                                                                                                              | -                                                                                                                                 | -                                                                                                                                                              | -                                                                                                                                                                                        |
| <b>Current consumption/power loss</b>                         |                                                                                                                                                |                                                                                                                                   |                                                                                                                                                                |                                                                                                                                                                                          |
| Current consumption from backplane bus                        | 390 mA                                                                                                                                         | 200 mA                                                                                                                            | 80 mA                                                                                                                                                          | 100 mA                                                                                                                                                                                   |
| Power loss                                                    | 4 W                                                                                                                                            | 5 W                                                                                                                               | 4 W                                                                                                                                                            | 8.6 W                                                                                                                                                                                    |
| <b>Technical data digital outputs</b>                         |                                                                                                                                                |                                                                                                                                   |                                                                                                                                                                |                                                                                                                                                                                          |
| Number of outputs                                             | 16                                                                                                                                             | 32                                                                                                                                | 16                                                                                                                                                             | 8                                                                                                                                                                                        |
| Cable length, shielded                                        | 1000 m                                                                                                                                         | -                                                                                                                                 | -                                                                                                                                                              | 1000 m                                                                                                                                                                                   |
| Cable length, unshielded                                      | 600 m                                                                                                                                          | 600 m                                                                                                                             | 600 m                                                                                                                                                          | 600 m                                                                                                                                                                                    |
| Rated load voltage                                            | DC 24 V                                                                                                                                        | DC 24 V                                                                                                                           | DC 30 V / AC 230 V                                                                                                                                             | AC 120/230 V                                                                                                                                                                             |
| Current consumption from load voltage L+ (without load)       | 30 mA                                                                                                                                          | 30 mA                                                                                                                             | -                                                                                                                                                              | -                                                                                                                                                                                        |
| Output current at signal "1", rated value                     | 0.5 A                                                                                                                                          | 0.5 A                                                                                                                             | 4 A                                                                                                                                                            | 2 A                                                                                                                                                                                      |
| Output delay of "0" to "1"                                    | -                                                                                                                                              | -                                                                                                                                 | -                                                                                                                                                              | -                                                                                                                                                                                        |
| Output delay of "1" to "0"                                    | -                                                                                                                                              | -                                                                                                                                 | -                                                                                                                                                              | -                                                                                                                                                                                        |
| Minimum load current                                          | -                                                                                                                                              | -                                                                                                                                 | -                                                                                                                                                              | -                                                                                                                                                                                        |
| Lamp load                                                     | 5 W                                                                                                                                            | 6 W                                                                                                                               | 6 W                                                                                                                                                            | 50 W                                                                                                                                                                                     |
| Parallel switching of outputs for redundant control of a load | -                                                                                                                                              | -                                                                                                                                 | -                                                                                                                                                              | possible                                                                                                                                                                                 |
| Parallel switching of outputs for increased power             | -                                                                                                                                              | -                                                                                                                                 | -                                                                                                                                                              | not possible                                                                                                                                                                             |
| Actuation of digital input                                    | -                                                                                                                                              | ✓                                                                                                                                 | -                                                                                                                                                              | ✓                                                                                                                                                                                        |
| Switching frequency with resistive load                       | max. 100 kHz                                                                                                                                   | max. 1000 Hz                                                                                                                      | -                                                                                                                                                              | max. 10 Hz                                                                                                                                                                               |
| Switching frequency with inductive load                       | max. 0.5 Hz                                                                                                                                    | max. 0.5 Hz                                                                                                                       | -                                                                                                                                                              | max. 0.5 Hz                                                                                                                                                                              |
| Switching frequency on lamp load                              | max. 10 Hz                                                                                                                                     | max. 1 Hz                                                                                                                         | -                                                                                                                                                              | max. 1 Hz                                                                                                                                                                                |
| Internal limitation of inductive shut-off voltage             | L+ (-52 V)                                                                                                                                     | L+ (-52 V)                                                                                                                        | L+ (-52 V)                                                                                                                                                     | L+ (-52 V)                                                                                                                                                                               |
| Short-circuit protection of output                            | yes, electronic                                                                                                                                | yes, electronic                                                                                                                   | yes, electronic                                                                                                                                                | Fuse 3.15 A / 250 V, quick response                                                                                                                                                      |
| Trigger level                                                 | 1 A                                                                                                                                            | 1.7 A                                                                                                                             | 1 A                                                                                                                                                            | -                                                                                                                                                                                        |
| Number of operating cycle of relay outputs                    | -                                                                                                                                              | -                                                                                                                                 | -                                                                                                                                                              | -                                                                                                                                                                                        |
| Switching capacity of contacts                                | -                                                                                                                                              | -                                                                                                                                 | -                                                                                                                                                              | -                                                                                                                                                                                        |
| Output data size                                              | 2 Byte                                                                                                                                         | 4 Byte                                                                                                                            | 2 Byte                                                                                                                                                         | 1 Byte                                                                                                                                                                                   |

**Signal modules digital | Digital output modules**

|           |           |  |  |  |  |
|-----------|-----------|--|--|--|--|
| 322-1BF01 | 322-1BH70 |  |  |  |  |
| 322-1BH01 | 322-1BL00 |  |  |  |  |
| 322-1BH41 | 322-1HH00 |  |  |  |  |
| 322-1BH60 | 322-5FF00 |  |  |  |  |

| Order number                                   | 322-1BH70               | 322-1BL00               | 322-1HH00               | 322-5FF00               |
|------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| <b>Status information, alarms, diagnostics</b> |                         |                         |                         |                         |
| Status display                                 | green LED per channel   |
| Interrupts                                     | no                      | no                      | no                      | no                      |
| Process alarm                                  | no                      | no                      | no                      | no                      |
| Diagnostic interrupt                           | no                      | no                      | no                      | no                      |
| Diagnostic functions                           | no                      | no                      | no                      | no                      |
| Diagnostics information read-out               | none                    | none                    | none                    | none                    |
| Supply voltage display                         | green LED per group     | green LED per group     | none                    | none                    |
| Group error display                            | red SF LED              | red SF LED              | none                    | red SF LED              |
| Channel error display                          | none                    | none                    | none                    | none                    |
| <b>Isolation</b>                               |                         |                         |                         |                         |
| Between channels                               | ✓                       | -                       | -                       | ✓                       |
| Between channels of groups to                  | 8                       | 8                       | 8                       | 1                       |
| Between channels and backplane bus             | ✓                       | ✓                       | ✓                       | ✓                       |
| Insulation tested with                         | DC 500 V                | DC 500 V                | DC 500 V                | AC 1500 V               |
| <b>Mechanical data</b>                         |                         |                         |                         |                         |
| Dimensions (WxHxD)                             | 40 mm x 125 mm x 120 mm | 40 mm x 125 mm x 120 mm | 40 mm x 125 mm x 120 mm | 40 mm x 125 mm x 120 mm |
| Weight                                         | 250 g                   | 260 g                   | 290 g                   | 330 g                   |
| <b>Environmental conditions</b>                |                         |                         |                         |                         |
| Operating temperature                          | 0 °C to 60 °C           |
| Storage temperature                            | -25 °C to 70 °C         |
| <b>Certifications</b>                          |                         |                         |                         |                         |
| UL508 certification                            | yes                     | yes                     | yes                     | yes                     |

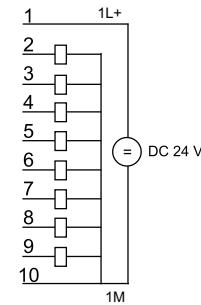


# Connections, Interfaces

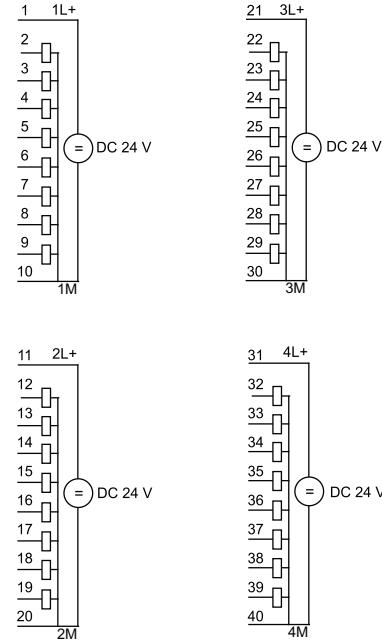
## Signal modules digital | Digital output modules

|           |           |  |  |  |  |
|-----------|-----------|--|--|--|--|
| 322-1BF01 | 322-1BH70 |  |  |  |  |
| 322-1BH01 | 322-1BL00 |  |  |  |  |
| 322-1BH41 | 322-1HH00 |  |  |  |  |
| 322-1BH60 | 322-5FF00 |  |  |  |  |

### 322-1BH70



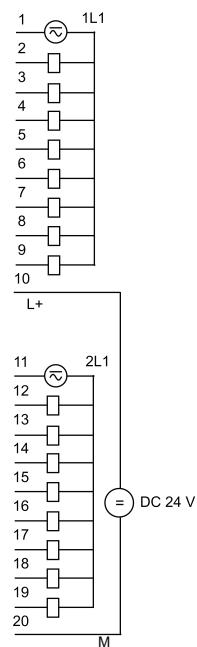
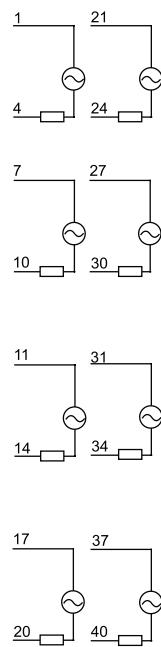
### 322-1BL00



**Signal modules digital | Digital output modules**

322-1BF01  
322-1BH01  
322-1BH41  
322-1BH60

322-1BH70  
322-1BL00  
322-1HH00  
322-5FF00

**322-1HH00****322-5FF00**



# Digital in/output modules

## Signal modules digital | Digital in/output modules

|           |  |  |  |  |  |
|-----------|--|--|--|--|--|
| 323-1BH00 |  |  |  |  |  |
| 323-1BH01 |  |  |  |  |  |
| 323-1BH70 |  |  |  |  |  |
| 323-1BL00 |  |  |  |  |  |

| Order number                                                        | 323-1BH00                                                                                                                                                                 | 323-1BH01                                                                                                                  | 323-1BH70                                                                                                                                             | 323-1BL00                                                                                                                    |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Figure                                                              |                                                                                                                                                                           |                                                                                                                            |                                                                                                                                                       |                                                                                                                              |
| Type                                                                | SM 323,<br>DIO 16xDC 24V 1A                                                                                                                                               | SM 323,<br>DI 8xDC 24V,<br>DO 8xDC 24V 1A                                                                                  | SM 323S,<br>DIO 16xDC 24V 0.5A                                                                                                                        | SM 323,<br>DI 16xDC 24V,<br>DO 16x DC 24V 1A                                                                                 |
| <b>General information</b>                                          |                                                                                                                                                                           |                                                                                                                            |                                                                                                                                                       |                                                                                                                              |
| Note                                                                | -                                                                                                                                                                         | -                                                                                                                          | -                                                                                                                                                     | -                                                                                                                            |
| Features                                                            | <ul style="list-style-type: none"> <li>► 16 channels (as inputs or outputs),</li> <li>► Diagnostic function,</li> <li>► DC 24 V,</li> <li>► Output current 1 A</li> </ul> | <ul style="list-style-type: none"> <li>► 8 inputs/ 8 outputs,</li> <li>► DC 24 V,</li> <li>► Output current 1 A</li> </ul> | <ul style="list-style-type: none"> <li>► SPEED-Bus,</li> <li>► 16 fast inputs/outputs,</li> <li>► DC 24 V,</li> <li>► Output current 0.5 A</li> </ul> | <ul style="list-style-type: none"> <li>► 16 inputs/ 16 outputs,</li> <li>► DC 24 V,</li> <li>► Output current 1 A</li> </ul> |
| SPEED-Bus                                                           | -                                                                                                                                                                         | -                                                                                                                          | ✓                                                                                                                                                     | -                                                                                                                            |
| <b>Current consumption/power loss</b>                               |                                                                                                                                                                           |                                                                                                                            |                                                                                                                                                       |                                                                                                                              |
| Current consumption from backplane bus                              | 130 mA                                                                                                                                                                    | 70 mA                                                                                                                      | 390 mA                                                                                                                                                | 130 mA                                                                                                                       |
| Power loss                                                          | 4 W                                                                                                                                                                       | 4 W                                                                                                                        | 4 W                                                                                                                                                   | 5.8 W                                                                                                                        |
| <b>Technical data digital inputs</b>                                |                                                                                                                                                                           |                                                                                                                            |                                                                                                                                                       |                                                                                                                              |
| Number of inputs                                                    | 16                                                                                                                                                                        | 8                                                                                                                          | 16                                                                                                                                                    | 16                                                                                                                           |
| Cable length, shielded                                              | 1000 m                                                                                                                                                                    | 1000 m                                                                                                                     | 1000 m                                                                                                                                                | 1000 m                                                                                                                       |
| Cable length, unshielded                                            | 600 m                                                                                                                                                                     | 600 m                                                                                                                      | 600 m                                                                                                                                                 | 600 m                                                                                                                        |
| Rated load voltage                                                  | DC 24 V                                                                                                                                                                   | DC 24 V                                                                                                                    | DC 24 V                                                                                                                                               | DC 24 V                                                                                                                      |
| Current consumption from load voltage L+ (without load)             | 30 mA                                                                                                                                                                     | 15 mA                                                                                                                      | -                                                                                                                                                     | 30 mA                                                                                                                        |
| Rated value                                                         | DC 20.4...28.8 V                                                                                                                                                          | DC 20.4...28.8 V                                                                                                           | DC 20.4...28.8 V                                                                                                                                      | DC 20.4...28.8 V                                                                                                             |
| Input voltage for signal "0"                                        | DC 0...5 V                                                                                                                                                                | DC 0...5 V                                                                                                                 | DC 0...5 V                                                                                                                                            | DC 0...5 V                                                                                                                   |
| Input voltage for signal "1"                                        | DC 15...28.8 V                                                                                                                                                            | DC 15...28.8 V                                                                                                             | DC 15...28.8 V                                                                                                                                        | DC 15...28.8 V                                                                                                               |
| Input voltage hysteresis                                            | -                                                                                                                                                                         | -                                                                                                                          | -                                                                                                                                                     | -                                                                                                                            |
| Frequency range                                                     | -                                                                                                                                                                         | -                                                                                                                          | -                                                                                                                                                     | -                                                                                                                            |
| Input resistance                                                    | -                                                                                                                                                                         | -                                                                                                                          | -                                                                                                                                                     | -                                                                                                                            |
| Input current for signal "1"                                        | 7 mA                                                                                                                                                                      | 7 mA                                                                                                                       | 7 mA                                                                                                                                                  | 7 mA                                                                                                                         |
| Connection of Two-Wire-BEROs possible                               | ✓                                                                                                                                                                         | ✓                                                                                                                          | ✓                                                                                                                                                     | ✓                                                                                                                            |
| Max. permissible BERO quiescent current                             | 1.5 mA                                                                                                                                                                    | 1.5 mA                                                                                                                     | 1.5 mA                                                                                                                                                | 1.5 mA                                                                                                                       |
| Input delay of "0" to "1"                                           | 3 ms                                                                                                                                                                      | 3 ms                                                                                                                       | 6.12 µs                                                                                                                                               | 3 ms                                                                                                                         |
| Input delay of "1" to "0"                                           | 3 ms                                                                                                                                                                      | 3 ms                                                                                                                       | 6.12 µs                                                                                                                                               | 3 ms                                                                                                                         |
| Number of simultaneously utilizable inputs horizontal configuration | -                                                                                                                                                                         | -                                                                                                                          | -                                                                                                                                                     | -                                                                                                                            |
| Number of simultaneously utilizable inputs vertical configuration   | -                                                                                                                                                                         | -                                                                                                                          | -                                                                                                                                                     | -                                                                                                                            |
| Input characteristic curve                                          | -                                                                                                                                                                         | -                                                                                                                          | -                                                                                                                                                     | -                                                                                                                            |
| Initial data size                                                   | 2 Byte                                                                                                                                                                    | 1 Byte                                                                                                                     | 2 Byte                                                                                                                                                | 2 Byte                                                                                                                       |

**Signal modules digital | Digital in/output modules**

|           |  |  |  |  |  |  |
|-----------|--|--|--|--|--|--|
| 323-1BH00 |  |  |  |  |  |  |
| 323-1BH01 |  |  |  |  |  |  |
| 323-1BH70 |  |  |  |  |  |  |
| 323-1BL00 |  |  |  |  |  |  |

| Order number                                                  | 323-1BH00             | 323-1BH01             | 323-1BH70             | 323-1BL00             |
|---------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>Technical data digital outputs</b>                         |                       |                       |                       |                       |
| Number of outputs                                             | 16                    | 8                     | 16                    | 16                    |
| Cable length, shielded                                        | 1000 m                | 1000 m                | 1000 m                | 1000 m                |
| Cable length, unshielded                                      | 600 m                 | 600 m                 | 600 m                 | 600 m                 |
| Rated load voltage                                            | DC 24 V               | DC 24 V               | DC 24 V               | DC 24 V               |
| Reverse polarity protection of rated load voltage             | -                     | -                     | -                     | -                     |
| Current consumption from load voltage L+ (without load)       | 30 mA                 | 15 mA                 | 50 mA                 | 30 mA                 |
| Output current at signal "1", rated value                     | 1 A                   | 1 A                   | 0.5 A                 | 1 A                   |
| Output delay of "0" to "1"                                    | -                     | -                     | -                     | -                     |
| Output delay of "1" to "0"                                    | -                     | -                     | -                     | -                     |
| Minimum load current                                          | -                     | -                     | -                     | -                     |
| Lamp load                                                     | 5 W                   | 5 W                   | 5 W                   | 5 W                   |
| Parallel switching of outputs for redundant control of a load | -                     | -                     | -                     | -                     |
| Parallel switching of outputs for increased power             | -                     | -                     | -                     | -                     |
| Actuation of digital input                                    | -                     | -                     | -                     | -                     |
| Switching frequency with resistive load                       | max. 1000 Hz          | max. 1000 Hz          | max. 100 kHz          | max. 1000 Hz          |
| Switching frequency with inductive load                       | max. 0.5 Hz           | max. 0.5 Hz           | max. 0.5 Hz           | max. 0.5 Hz           |
| Switching frequency on lamp load                              | max. 10 Hz            | max. 1 Hz             | max. 10 Hz            | max. 1 Hz             |
| Internal limitation of inductive shut-off voltage             | -                     | L+ (-52 V)            | L+ (-52 V)            | L+ (-52 V)            |
| Short-circuit protection of output                            | -                     | -                     | -                     | -                     |
| Trigger level                                                 | -                     | -                     | -                     | -                     |
| Number of operating cycle of relay outputs                    | -                     | -                     | -                     | -                     |
| Switching capacity of contacts                                | -                     | -                     | -                     | -                     |
| Output data size                                              | 2 Byte                | 1 Byte                | 2 Byte                | 2 Byte                |
| <b>Status information, alarms, diagnostics</b>                |                       |                       |                       |                       |
| Status display                                                | green LED per channel |
| Interrupts                                                    | no                    | no                    | no                    | no                    |
| Process alarm                                                 | no                    | no                    | no                    | no                    |
| Diagnostic interrupt                                          | no                    | no                    | no                    | no                    |
| Diagnostic functions                                          | no                    | no                    | no                    | no                    |
| Diagnostics information read-out                              | none                  | none                  | none                  | none                  |
| Supply voltage display                                        | green LED per group   |
| Group error display                                           | red SF LED            | red SF LED            | red SF LED            | red SF LED            |
| Channel error display                                         | none                  | none                  | none                  | none                  |
| <b>Isolation</b>                                              |                       |                       |                       |                       |
| Between channels                                              | -                     | ✓                     | -                     | ✓                     |
| Between channels of groups to                                 | -                     | 8                     | 8                     | 8                     |
| Between channels and backplane bus                            | ✓                     | ✓                     | ✓                     | ✓                     |
| Insulation tested with                                        | DC 500 V              | DC 500 V              | DC 500 V              | DC 500 V              |

**Signal modules digital | Digital in/output modules**

|           |  |  |  |  |  |
|-----------|--|--|--|--|--|
| 323-1BH00 |  |  |  |  |  |
| 323-1BH01 |  |  |  |  |  |
| 323-1BH70 |  |  |  |  |  |
| 323-1BL00 |  |  |  |  |  |

| Order number                    |
|---------------------------------|
| <b>Mechanical data</b>          |
| Dimensions (WxHxD)              |
| Weight                          |
| <b>Environmental conditions</b> |
| Operating temperature           |
| Storage temperature             |
| <b>Certifications</b>           |
| UL508 certification             |

| 323-1BH00                  |
|----------------------------|
| 40 mm x 125 mm x<br>120 mm |
| 230 g                      |
| 0 °C to 60 °C              |
| -25 °C to 70 °C            |
| yes                        |

| 323-1BH01                  |
|----------------------------|
| 40 mm x 125 mm x<br>120 mm |
| 240 g                      |
| 0 °C to 60 °C              |
| -25 °C to 70 °C            |
| yes                        |

| 323-1BH70                  |
|----------------------------|
| 40 mm x 125 mm x<br>120 mm |
| 240 g                      |
| 0 °C to 60 °C              |
| -25 °C to 70 °C            |
| yes                        |

| 323-1BL00                  |
|----------------------------|
| 40 mm x 125 mm x<br>120 mm |
| 260 g                      |
| 0 °C to 60 °C              |
| -25 °C to 70 °C            |
| yes                        |

# Analog input modules

## Signal modules analog | Analog input modules

|                                     |                        |  |  |  |  |  |
|-------------------------------------|------------------------|--|--|--|--|--|
| 331-1KF01<br>331-7KF01<br>331-7KB01 | 331-7AF70<br>331-7BF70 |  |  |  |  |  |
|-------------------------------------|------------------------|--|--|--|--|--|

| Order number                                            | 331-7AF70                                                                                                                                                                                    | 331-7BF70                                                                                                                                                                                   |  |  |  |  |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| Figure                                                  |                                                                                                                                                                                              |                                                                                                                                                                                             |  |  |  |  |
| Type                                                    | SM 331S,<br>AI 8x16Bit $\pm 20\text{mA}$ fast                                                                                                                                                | SM 331S,<br>AI 8x16Bit $\pm 10\text{V}$                                                                                                                                                     |  |  |  |  |
| <b>General information</b>                              | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Note                                                    |                                                                                                                                                                                              |                                                                                                                                                                                             |  |  |  |  |
| Features                                                | <ul style="list-style-type: none"> <li>» 8 inputs,</li> <li>» Current <math>\pm 20\text{ mA}</math>,</li> <li>» Oscilloscope-/FIFO-Function,</li> <li>» Interrupt parameterizable</li> </ul> | <ul style="list-style-type: none"> <li>» 8 inputs,</li> <li>» Voltage <math>\pm 10\text{ V}</math>,</li> <li>» Oscilloscope-/FIFO-Function,</li> <li>» Interrupt parameterizable</li> </ul> |  |  |  |  |
| SPEED-Bus                                               | ✓                                                                                                                                                                                            | ✓                                                                                                                                                                                           |  |  |  |  |
| <b>Current consumption/power loss</b>                   |                                                                                                                                                                                              |                                                                                                                                                                                             |  |  |  |  |
| Current consumption from backplane bus                  | 530 mA                                                                                                                                                                                       | 530 mA                                                                                                                                                                                      |  |  |  |  |
| Power loss                                              | 4 W                                                                                                                                                                                          | 4 W                                                                                                                                                                                         |  |  |  |  |
| <b>Technical data analog inputs</b>                     |                                                                                                                                                                                              |                                                                                                                                                                                             |  |  |  |  |
| Number of inputs                                        | 8                                                                                                                                                                                            | 8                                                                                                                                                                                           |  |  |  |  |
| Cable length, shielded                                  | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Rated load voltage                                      | DC 24 V                                                                                                                                                                                      | DC 24 V                                                                                                                                                                                     |  |  |  |  |
| Current consumption from load voltage L+ (without load) | 62 mA                                                                                                                                                                                        | 62 mA                                                                                                                                                                                       |  |  |  |  |
| Voltage inputs                                          | -                                                                                                                                                                                            | ✓                                                                                                                                                                                           |  |  |  |  |
| Min. input resistance (voltage range)                   | -                                                                                                                                                                                            | 120 k $\Omega$                                                                                                                                                                              |  |  |  |  |
| Input voltage ranges                                    | -                                                                                                                                                                                            | -10 V ... +10 V                                                                                                                                                                             |  |  |  |  |
| Operational limit of voltage ranges                     | -                                                                                                                                                                                            | +/-0.6%                                                                                                                                                                                     |  |  |  |  |
| Basic error limit voltage ranges                        | -                                                                                                                                                                                            | +/-0.4%                                                                                                                                                                                     |  |  |  |  |
| Current inputs                                          | ✓                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Min. input resistance (current range)                   | 100 $\Omega$                                                                                                                                                                                 | -                                                                                                                                                                                           |  |  |  |  |
| Input current ranges                                    | -20 mA ... +20 mA                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Operational limit of current ranges                     | +/-0.6%                                                                                                                                                                                      | -                                                                                                                                                                                           |  |  |  |  |
| Basic error limit current ranges                        | +/-0.4%                                                                                                                                                                                      | -                                                                                                                                                                                           |  |  |  |  |
| Resistance inputs                                       | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Resistance ranges                                       | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Operational limit of resistor ranges                    | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Basic error limit                                       | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Resistance thermometer inputs                           | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Resistance thermometer ranges                           | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Operational limit of resistance thermometer ranges      | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |
| Basic error limit thermoresistor ranges                 | -                                                                                                                                                                                            | -                                                                                                                                                                                           |  |  |  |  |


**Signal modules analog | Analog input modules**

|                                     |                        |  |  |  |  |  |
|-------------------------------------|------------------------|--|--|--|--|--|
| 331-1KF01<br>331-7KF01<br>331-7KB01 | 331-7AF70<br>331-7BF70 |  |  |  |  |  |
|-------------------------------------|------------------------|--|--|--|--|--|

| Order number                                                 | 331-7AF70                     | 331-7BF70                     |  |  |  |  |
|--------------------------------------------------------------|-------------------------------|-------------------------------|--|--|--|--|
| Thermocouple inputs                                          | -                             | -                             |  |  |  |  |
| Thermocouple ranges                                          | -                             | -                             |  |  |  |  |
| Operational limit of thermocouple ranges                     | -                             | -                             |  |  |  |  |
| Basic error limit thermoelement ranges                       | -                             | -                             |  |  |  |  |
| Programmable temperature compensation                        | -                             | -                             |  |  |  |  |
| External temperature compensation                            | -                             | -                             |  |  |  |  |
| Internal temperature compensation                            | -                             | -                             |  |  |  |  |
| Resolution in bit                                            | 16                            | 16                            |  |  |  |  |
| Measurement principle                                        | successive approxi-<br>mation | successive approxi-<br>mation |  |  |  |  |
| Basic conversion time                                        | 25 µs all channels            | 25 µs all channels            |  |  |  |  |
| Noise suppression for frequency                              | -                             | -                             |  |  |  |  |
| Initial data size                                            | 16 Byte                       | 16 Byte                       |  |  |  |  |
| Status information, alarms, diagnostics                      |                               |                               |  |  |  |  |
| Status display                                               | none                          | none                          |  |  |  |  |
| Interrupts                                                   | yes                           | yes                           |  |  |  |  |
| Process alarm                                                | yes, parameterizable          | yes, parameterizable          |  |  |  |  |
| Diagnostic interrupt                                         | yes, parameterizable          | yes, parameterizable          |  |  |  |  |
| Diagnostic functions                                         | yes                           | yes                           |  |  |  |  |
| Diagnostics information read-out                             | possible                      | possible                      |  |  |  |  |
| Supply voltage display                                       | none                          | none                          |  |  |  |  |
| Group error display                                          | red SF LED                    | red SF LED                    |  |  |  |  |
| Channel error display                                        | none                          | none                          |  |  |  |  |
| Isolation                                                    |                               |                               |  |  |  |  |
| Between channels                                             | ✓                             | ✓                             |  |  |  |  |
| Between channels of groups to                                | -                             | -                             |  |  |  |  |
| Between channels and backplane bus                           | ✓                             | ✓                             |  |  |  |  |
| Between channels and power supply                            | ✓                             | ✓                             |  |  |  |  |
| Max. potential difference between circuits                   | -                             | -                             |  |  |  |  |
| Max. potential difference between inputs (Ucm)               | DC 30 V                       | DC 30 V                       |  |  |  |  |
| Max. potential difference between Mana and Mintern (Uiiso)   | -                             | -                             |  |  |  |  |
| Max. potential difference between inputs and Mana (Ucm)      | -                             | -                             |  |  |  |  |
| Max. potential difference between inputs and Mintern (Uiiso) | DC 75 V/ AC 60 V              | DC 75 V/ AC 60 V              |  |  |  |  |
| Max. potential difference between Mintern and outputs        | -                             | -                             |  |  |  |  |
| Insulation tested with                                       | DC 500 V                      | DC 500 V                      |  |  |  |  |
| Mechanical data                                              |                               |                               |  |  |  |  |
| Dimensions (WxHxD)                                           | 40 mm x 125 mm x<br>120 mm    | 40 mm x 125 mm x<br>120 mm    |  |  |  |  |
| Weight                                                       | 235 g                         | 235 g                         |  |  |  |  |

**Signal modules analog | Analog input modules**

|                                     |                        |  |  |  |  |  |
|-------------------------------------|------------------------|--|--|--|--|--|
| 331-1KF01<br>331-7KF01<br>331-7KB01 | 331-7AF70<br>331-7BF70 |  |  |  |  |  |
|-------------------------------------|------------------------|--|--|--|--|--|

|                                 |
|---------------------------------|
| <b>Order number</b>             |
| <b>Environmental conditions</b> |
| Operating temperature           |
| Storage temperature             |
| <b>Certifications</b>           |
| UL508 certification             |

|                  |
|------------------|
| <b>331-7AF70</b> |
| 0 °C to 60 °C    |
| -25 °C to 70 °C  |
| yes              |

|                  |
|------------------|
| <b>331-7BF70</b> |
| 0 °C to 60 °C    |
| -25 °C to 70 °C  |
| yes              |

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# Fieldbus master modules

| Communication processors   Fieldbus master modules |  |  |  |  |  |  |
|----------------------------------------------------|--|--|--|--|--|--|
| 342-1CA70<br>342-1DA70<br>342-1IA70<br>342-2IA71   |  |  |  |  |  |  |

| Order number                                   | 342-1CA70                                                                                                                                                                                                                                                                                                  | 342-1DA70                                                                                                                                                                                         | 342-1IA70                                                                                                                                                                                           | 342-2IA71                                                                                                                                                                                                             |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Figure                                         |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                   |                                                                                                                                                                                                     |                                                                                                                                                                                                                       |
| Type                                           | CP 342S<br>CAN, CANopen master<br>SPEED-Bus                                                                                                                                                                                                                                                                | CP 342S DP,<br>PROFIBUS-DP master<br>SPEED-Bus                                                                                                                                                    | CP 342S IBS,<br>INTERBUS master<br>SPEED-Bus                                                                                                                                                        | CP 342S IBS,<br>dual INTERBUS master<br>SPEED-Bus                                                                                                                                                                     |
| <b>General information</b>                     |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                   |                                                                                                                                                                                                     |                                                                                                                                                                                                                       |
| Note                                           | -                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                                 | -                                                                                                                                                                                                   | -                                                                                                                                                                                                                     |
| Features                                       | <ul style="list-style-type: none"> <li>» CANopen master, SPEED-Bus,</li> <li>» 125 CAN slaves connectable,</li> <li>» 40 Transmit PDOs, 40 Receive PDOs,</li> <li>» 1 SDO (Server), 127 SDO (Client),</li> <li>» Project engineering: Siemens SIMATIC Manager,</li> <li>» Diagnostic facilities</li> </ul> | <ul style="list-style-type: none"> <li>» PROFIBUS-DP master (Class 1), SPEED-Bus,</li> <li>» RS485,</li> <li>» 124 DP slaves connectable,</li> <li>» Project engineering: VIPA WinCoCT</li> </ul> | <ul style="list-style-type: none"> <li>» INTERBUS master, SPEED-Bus,</li> <li>» RS422,</li> <li>» Diagnostics via LEDs, RS232, Mini-DIN and DPM,</li> <li>» Up to 512 slaves connectable</li> </ul> | <ul style="list-style-type: none"> <li>» Dual INTERBUS master, SPEED-Bus,</li> <li>» 2x RS422,</li> <li>» Diagnostics via LEDs, diagnostics device (2x RJ45), DPM,</li> <li>» Up to 512 slaves connectable</li> </ul> |
| SPEED-Bus                                      | ✓                                                                                                                                                                                                                                                                                                          | ✓                                                                                                                                                                                                 | ✓                                                                                                                                                                                                   | ✓                                                                                                                                                                                                                     |
| <b>Current consumption/power loss</b>          |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                   |                                                                                                                                                                                                     |                                                                                                                                                                                                                       |
| Current consumption from backplane bus         | 550 mA                                                                                                                                                                                                                                                                                                     | 560 mA                                                                                                                                                                                            | 600 mA                                                                                                                                                                                              | 1 A                                                                                                                                                                                                                   |
| Power loss                                     | -                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                                 | -                                                                                                                                                                                                   | 4.5 W                                                                                                                                                                                                                 |
| <b>Status information, alarms, diagnostics</b> |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                   |                                                                                                                                                                                                     |                                                                                                                                                                                                                       |
| Status display                                 | yes                                                                                                                                                                                                                                                                                                        | yes                                                                                                                                                                                               | yes                                                                                                                                                                                                 | yes                                                                                                                                                                                                                   |
| Interrupts                                     | no                                                                                                                                                                                                                                                                                                         | no                                                                                                                                                                                                | no                                                                                                                                                                                                  | no                                                                                                                                                                                                                    |
| Process alarm                                  | no                                                                                                                                                                                                                                                                                                         | no                                                                                                                                                                                                | no                                                                                                                                                                                                  | no                                                                                                                                                                                                                    |
| Diagnostic interrupt                           | no                                                                                                                                                                                                                                                                                                         | no                                                                                                                                                                                                | no                                                                                                                                                                                                  | no                                                                                                                                                                                                                    |
| Diagnostic functions                           | no                                                                                                                                                                                                                                                                                                         | no                                                                                                                                                                                                | no                                                                                                                                                                                                  | no                                                                                                                                                                                                                    |
| Diagnostics information read-out               | possible                                                                                                                                                                                                                                                                                                   | possible                                                                                                                                                                                          | none                                                                                                                                                                                                | none                                                                                                                                                                                                                  |
| Supply voltage display                         | none                                                                                                                                                                                                                                                                                                       | none                                                                                                                                                                                              | green LED                                                                                                                                                                                           | yes                                                                                                                                                                                                                   |
| Group error display                            | yes                                                                                                                                                                                                                                                                                                        | yes                                                                                                                                                                                               | yes                                                                                                                                                                                                 | yes                                                                                                                                                                                                                   |
| Channel error display                          | none                                                                                                                                                                                                                                                                                                       | none                                                                                                                                                                                              | none                                                                                                                                                                                                | none                                                                                                                                                                                                                  |
| <b>Functionality Sub-D interfaces</b>          |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                   |                                                                                                                                                                                                     |                                                                                                                                                                                                                       |
| Type                                           | -                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                                 | -                                                                                                                                                                                                   | X2                                                                                                                                                                                                                    |
| Type of interface                              | CAN                                                                                                                                                                                                                                                                                                        | RS485                                                                                                                                                                                             | RS422                                                                                                                                                                                               | RS422                                                                                                                                                                                                                 |
| Connector                                      | Sub-D, 9-pin, male                                                                                                                                                                                                                                                                                         | Sub-D, 9-pin, female                                                                                                                                                                              | Sub-D, 9-pin, female                                                                                                                                                                                | Sub-D, 9-pin, female                                                                                                                                                                                                  |
| Electrically isolated                          | ✓                                                                                                                                                                                                                                                                                                          | ✓                                                                                                                                                                                                 | ✓                                                                                                                                                                                                   | ✓                                                                                                                                                                                                                     |
| MPI                                            | -                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                                 | -                                                                                                                                                                                                   | -                                                                                                                                                                                                                     |
| MP <sup>2</sup> I (MPI/RS232)                  | -                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                                 | -                                                                                                                                                                                                   | -                                                                                                                                                                                                                     |
| DP master                                      | -                                                                                                                                                                                                                                                                                                          | ✓                                                                                                                                                                                                 | -                                                                                                                                                                                                   | -                                                                                                                                                                                                                     |
| DP slave                                       | -                                                                                                                                                                                                                                                                                                          | ✓                                                                                                                                                                                                 | -                                                                                                                                                                                                   | -                                                                                                                                                                                                                     |
| Point-to-point interface                       | -                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                                 | -                                                                                                                                                                                                   | -                                                                                                                                                                                                                     |
| Type                                           | -                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                                 | -                                                                                                                                                                                                   | X3                                                                                                                                                                                                                    |
| Type of interface                              | -                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                                 | RS232                                                                                                                                                                                               | RS422                                                                                                                                                                                                                 |

## Communication processors | Fieldbus master modules

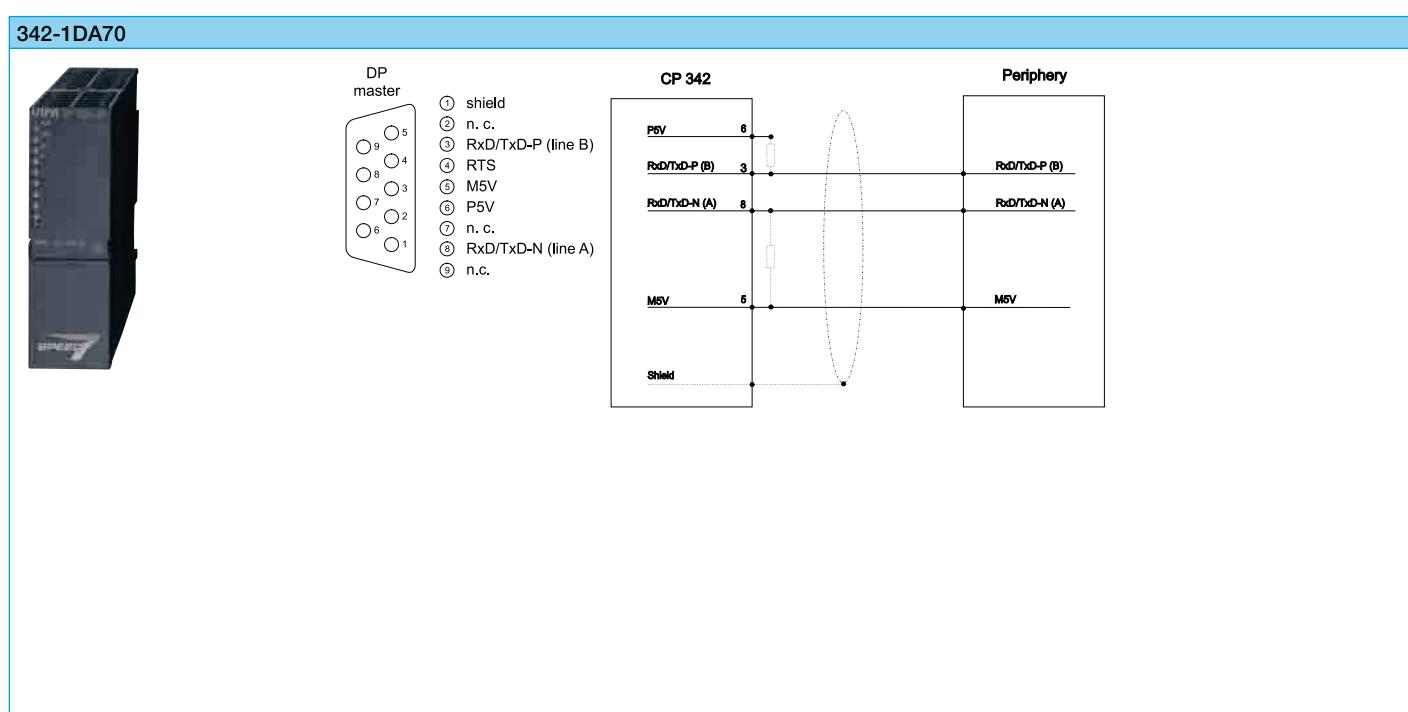
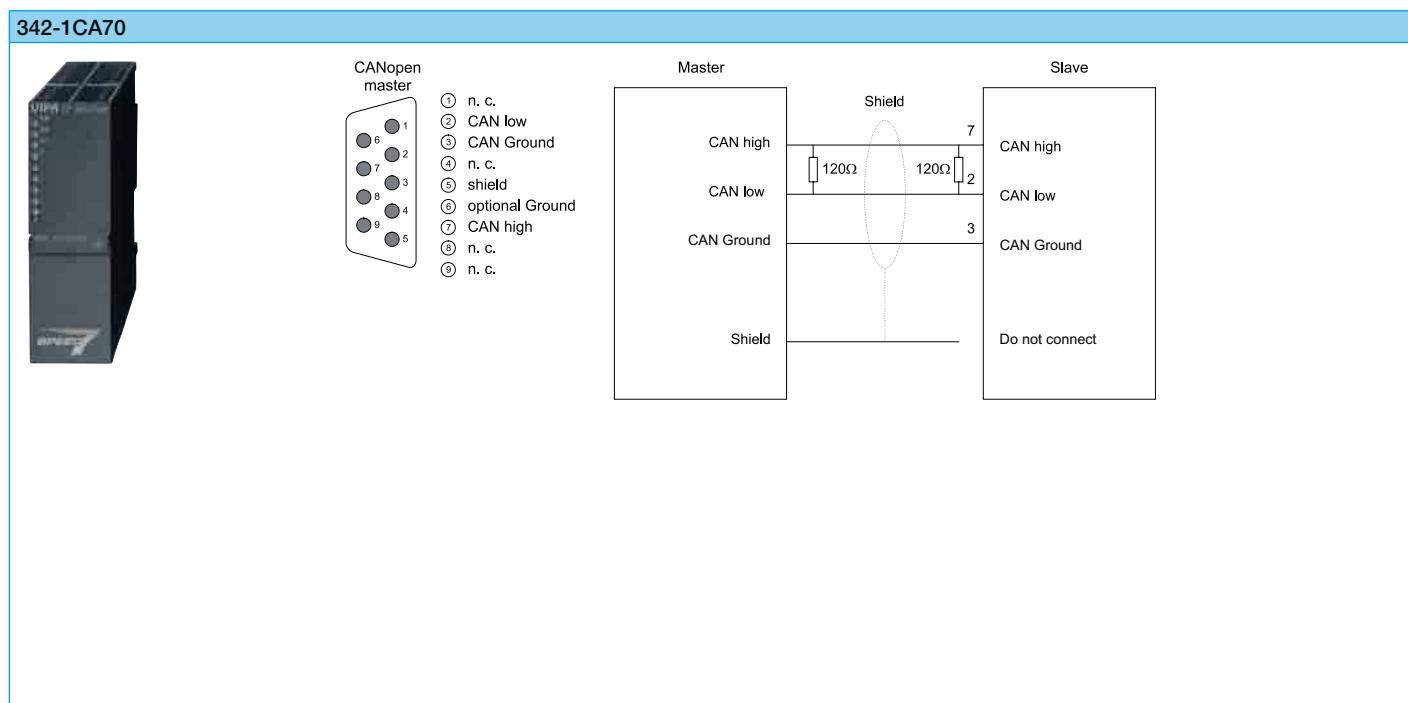
|           |  |  |  |  |  |
|-----------|--|--|--|--|--|
| 342-1CA70 |  |  |  |  |  |
| 342-1DA70 |  |  |  |  |  |
| 342-1IA70 |  |  |  |  |  |
| 342-2IA71 |  |  |  |  |  |

| Order number                  | 342-1CA70                  | 342-1DA70                  | 342-1IA70                  | 342-2IA71                  |
|-------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Connector                     | -                          | -                          | Sub-D, 9-pin, male         | Sub-D, 9-pin, female       |
| Electrically isolated         | -                          | -                          | ✓                          | ✓                          |
| MPI                           | -                          | -                          | -                          | -                          |
| MP <sup>2</sup> I (MPI/RS232) | -                          | -                          | -                          | -                          |
| DP master                     | -                          | -                          | -                          | -                          |
| DP slave                      | -                          | -                          | -                          | -                          |
| Point-to-point interface      | -                          | -                          | ✓                          | -                          |
| CAN                           | -                          | -                          | -                          | -                          |
| Functionality RJ45 interfaces |                            |                            |                            |                            |
| Type                          | -                          | -                          | -                          | -                          |
| Type of interface             | -                          | -                          | -                          | -                          |
| Connector                     | -                          | -                          | -                          | RJ45                       |
| Electrically isolated         | -                          | -                          | -                          | -                          |
| PG/OP channel                 | -                          | -                          | -                          | -                          |
| Productive connections        | -                          | -                          | -                          | -                          |
| Type                          |                            |                            |                            |                            |
| Type of interface             | -                          | -                          | -                          | -                          |
| Connector                     | -                          | -                          | -                          | RJ45                       |
| Electrically isolated         | -                          | -                          | -                          | -                          |
| PG/OP channel                 | -                          | -                          | -                          | -                          |
| Productive connections        | -                          | -                          | -                          | -                          |
| Mechanical data               |                            |                            |                            |                            |
| Dimensions (WxHxD)            | 40 mm x 125 mm x<br>120 mm |
| Weight                        | 210 g                      | 210 g                      | 260 g                      | 260 g                      |
| Environmental conditions      |                            |                            |                            |                            |
| Operating temperature         | 0 °C to 60 °C              |
| Storage temperature           | -25 °C to 70 °C            |
| Certifications                |                            |                            |                            |                            |
| UL508 certification           | yes                        | yes                        | yes                        | -                          |



# Connections, Interfaces

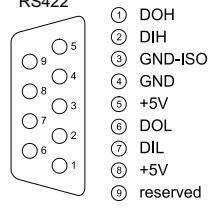
| Communication processors   Fieldbus master modules |  |  |  |  |  |
|----------------------------------------------------|--|--|--|--|--|
| 342-1CA70                                          |  |  |  |  |  |
| 342-1DA70                                          |  |  |  |  |  |
| 342-1IA70                                          |  |  |  |  |  |
| 342-2IA71                                          |  |  |  |  |  |



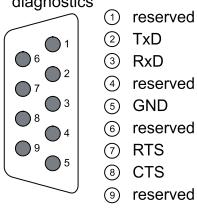
## Communication processors | Fieldbus master modules

342-1CA70  
342-1DA70  
342-1IA70  
342-2IA71

## 342-1IA70

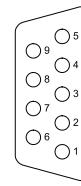
Interbus  
RS422

- ① DOH
- ② DIH
- ③ GND-ISO
- ④ GND
- ⑤ +5V
- ⑥ DOL
- ⑦ DIL
- ⑧ +5V
- ⑨ reserved

RS232  
diagnosticsMini-DIN slot  
diagnostics

- ① reserved
- ② TxD
- ③ RxD
- ④ reserved
- ⑤ GND
- ⑥ reserved
- ⑦ RTS
- ⑧ CTS
- ⑨ reserved

## 342-2IA71

IBS1/IBS2  
RS422

- ① DOH
- ② DIH
- ③ GND (ISO)
- ④ GND
- ⑤ +5V (ISO)
- ⑥ DOL
- ⑦ DIL
- ⑧ +5V
- ⑨ reserved

2x RJ45  
Diagnostic device  
VIPA-342-0IA01

- ① GND
- ② PCS3
- ③ MISO
- ④ MOSI
- ⑤ SCK
- ⑥ PCS2
- ⑦ VCC
- ⑧ n. c.



# Ethernet-CPs

| Communication processors   Ethernet-CPs |  |  |  |  |  |  |
|-----------------------------------------|--|--|--|--|--|--|
| 343-1EX71                               |  |  |  |  |  |  |

| Order number                                             | 343-1EX71                                                                                                                                                                                                                       |  |  |  |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Figure                                                   |                                                                                                                                                |  |  |  |
| Type                                                     | CP 343S<br>TCP/IP, Ethernet-CP<br>343 SPEED-Bus                                                                                                                                                                                 |  |  |  |
| <b>General information</b>                               | -                                                                                                                                                                                                                               |  |  |  |
| Note                                                     |                                                                                                                                                                                                                                 |  |  |  |
| Features                                                 | <ul style="list-style-type: none"> <li>➤ Ethernet CP 343S-NET, SPEED-Bus,</li> <li>➤ RJ45,</li> <li>➤ 16 connections via Siemens NetPro,</li> <li>➤ 64 connections via user program,</li> <li>➤ 32 PG/OP connections</li> </ul> |  |  |  |
| SPEED-Bus                                                | ✓                                                                                                                                                                                                                               |  |  |  |
| <b>Current consumption/power loss</b>                    |                                                                                                                                                                                                                                 |  |  |  |
| Current consumption from backplane bus                   | 550 mA                                                                                                                                                                                                                          |  |  |  |
| Power loss                                               | 2.75 W                                                                                                                                                                                                                          |  |  |  |
| <b>Status information, alarms, diagnostics</b>           |                                                                                                                                                                                                                                 |  |  |  |
| Status display                                           | yes                                                                                                                                                                                                                             |  |  |  |
| Interrupts                                               | no                                                                                                                                                                                                                              |  |  |  |
| Process alarm                                            | no                                                                                                                                                                                                                              |  |  |  |
| Diagnostic interrupt                                     | no                                                                                                                                                                                                                              |  |  |  |
| Diagnostic functions                                     | no                                                                                                                                                                                                                              |  |  |  |
| Diagnostics information read-out                         | possible                                                                                                                                                                                                                        |  |  |  |
| Supply voltage display                                   | green LED                                                                                                                                                                                                                       |  |  |  |
| Group error display                                      | red SF LED                                                                                                                                                                                                                      |  |  |  |
| Channel error display                                    | none                                                                                                                                                                                                                            |  |  |  |
| <b>Ethernet communication CP</b>                         |                                                                                                                                                                                                                                 |  |  |  |
| Number of productive connections, max.                   | 64                                                                                                                                                                                                                              |  |  |  |
| Number of productive connections by Siemens NetPro, max. | 16                                                                                                                                                                                                                              |  |  |  |
| S7 connections                                           | USEND, URCV, BSEND, BRCV, GET, PUT, connection establishment active and passive                                                                                                                                                 |  |  |  |
| User data per S7-connection, max.                        | 32 KB                                                                                                                                                                                                                           |  |  |  |
| TCP-connections                                          | SEND, RECEIVE, SEND, RECEIVE, FETCH PASSIVE, WRITE PASSIVE, connection establishment active and passive                                                                                                                         |  |  |  |
| User data per TCP-connection, max.                       | 64 KB                                                                                                                                                                                                                           |  |  |  |

## Communication processors | Ethernet-CPs

|           |  |  |  |  |  |  |
|-----------|--|--|--|--|--|--|
| 343-1EX71 |  |  |  |  |  |  |
|-----------|--|--|--|--|--|--|

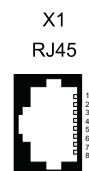
| Order number                                 | 343-1EX71                                                                                              |  |  |  |  |  |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| ISO-connections                              | SEND, RECEIVE,<br>FETCH PASSIVE,<br>WRITE PASSIVE,<br>connection establish-<br>ment active and passive |  |  |  |  |  |
| User data per ISO-connection, max.           | 8 KB                                                                                                   |  |  |  |  |  |
| ISO on TCP connections (RFC 1006)            | SEND, RECEIVE,<br>FETCH PASSIVE,<br>WRITE PASSIVE,<br>connection establish-<br>ment active and passive |  |  |  |  |  |
| User data per ISO on TCP-connection,<br>max. | 32 KB                                                                                                  |  |  |  |  |  |
| UDP-connections                              | SEND and RECEIVE                                                                                       |  |  |  |  |  |
| User data per UDP-connection, max.           | 2 KB                                                                                                   |  |  |  |  |  |
| UDP-multicast-connections                    | SEND and RECEIVE<br>(max. 16 multicast<br>cycles)                                                      |  |  |  |  |  |
| UDP-broadcast-connections                    | SEND                                                                                                   |  |  |  |  |  |
| Functionality RJ45 interfaces                |                                                                                                        |  |  |  |  |  |
| Type                                         | -                                                                                                      |  |  |  |  |  |
| Type of interface                            | Ethernet 10/100 MBit                                                                                   |  |  |  |  |  |
| Connector                                    | RJ45                                                                                                   |  |  |  |  |  |
| Electrically isolated                        | ✓                                                                                                      |  |  |  |  |  |
| PG/OP channel                                | ✓                                                                                                      |  |  |  |  |  |
| Productive connections                       | ✓                                                                                                      |  |  |  |  |  |
| Mechanical data                              |                                                                                                        |  |  |  |  |  |
| Dimensions (WxHxD)                           | 40 mm x 125 mm x<br>120 mm                                                                             |  |  |  |  |  |
| Weight                                       | 210 g                                                                                                  |  |  |  |  |  |
| Environmental conditions                     |                                                                                                        |  |  |  |  |  |
| Operating temperature                        | 0 °C to 60 °C                                                                                          |  |  |  |  |  |
| Storage temperature                          | -25 °C to 70 °C                                                                                        |  |  |  |  |  |
| Certifications                               |                                                                                                        |  |  |  |  |  |
| UL508 certification                          | yes                                                                                                    |  |  |  |  |  |



# Connections, Interfaces

## Communication processors | Ethernet-CPs

343-1EX71



- ① Transmit +
- ② Transmit -
- ③ Receive +
- ④ n. c.
- ⑤ n. c.
- ⑥ Receive -
- ⑦ n. c.
- ⑧ n. c.

## PROFILE RAIL



| Order number | Type               | Description                                                                           | Note |
|--------------|--------------------|---------------------------------------------------------------------------------------|------|
| 391-1AF10    | BP 391 - SPEED-Bus | Profile rail, 530 mm with integrated High-SPEED rear panel bus for 2 expansion slots  |      |
| 391-1AF30    | BP 391 - SPEED-Bus | Profile rail, 530 mm with integrated High-SPEED rear panel bus for 6 expansion slots  |      |
| 391-1AF50    | BP 391 - SPEED-Bus | Profile rail, 830 mm with integrated High-SPEED rear panel bus for 10 expansion slots |      |
| 391-1AJ10    | BP 391 - SPEED-Bus | DIN rail, 830 mm with integrated High-SPEED rear panel bus for 2 expansion slots      |      |
| 391-1AJ30    | BP 391 - SPEED-Bus | Profile rail, 830 mm with integrated High-SPEED rear panel bus for 6 expansion slots  |      |
| 391-1AJ50    | BP 391 - SPEED-Bus | Profile rail, 830 mm with integrated High-SPEED rear panel bus for 10 expansion slots |      |
| 390-1AB60    | Profile rail       | Length: 160 mm                                                                        |      |
| 390-1AE80    | Profile rail       | Length: 482 mm                                                                        |      |
| 390-1AF30    | Profile rail       | Length: 530 mm                                                                        |      |
| 390-1AJ30    | Profile rail       | Length: 830 mm                                                                        |      |
| 390-9AB60    | Profile rail       | Length: 160 mm, ECO pack: 100 pieces                                                  |      |
| 390-9AE80    | Profile rail       | Length: 482 mm, ECO pack: 32 pieces                                                   |      |
| 390-9AF30    | Profile rail       | Length: 530 mm, ECO pack: 32 pieces                                                   |      |
| 390-9AJ30    | Profile rail       | Length: 830 mm, ECO pack: 20 pieces                                                   |      |
| 390-9BC00    | Profile rail       | Length: 2000 mm, ECO pack: 10 pieces                                                  |      |

## FRONT CONNECTOR



| Order number | Type            | Description                                     | Note |
|--------------|-----------------|-------------------------------------------------|------|
| 392-1BJ00    | Front connector | 20pole with cage clamps                         |      |
| 392-1AJ00    | Front connector | 20pole with screw contact                       |      |
| 392-9AJ00    | Front connector | 20pole with screw contact, ECO pack: 100 pieces |      |
| 392-1BM01    | Front connector | 40pole with cage clamps                         |      |
| 392-1AM00    | Front connector | 40pole with screw contact                       |      |
| 392-9AM00    | Front connector | 40pole with screw contact, ECO pack: 100 pieces |      |