

# CABLE-FCN40/.../...M/S7...

**System cables for Simatic S7-300, 64-channel I/O boards**

## INTERFACE

Data sheet  
103913\_en\_00

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## 1 Description

These system cables are plugged into Simatic S7-300 I/O boards, which are connected via Fujitsu connectors.

Two connection options are available:

The following I/O boards can be connected:

- 6ES7 322-1BP00-0AA0
- 6ES7 322-1BP50-0AA0
- 6ES7 321-1BP00-0AA0

### CABLE-FCN40/1X50/...M/S7...

- Signal transfer of 32 channels  
(two cables are required per board)

### CABLE-FCN40/4X14/...M/S7...

- Splitting of 32 channels into 4 x 8 channels  
(two cables are required per board)



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This data sheet is valid for all products listed on the following page:

## 2 Ordering data

### System cables

| Description                                                                                                                                                                                | Cable length | Type                          | Order No. | Pcs./Pkt. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------|-----------|-----------|
| <b>Assembled round cable</b> , 40-pos. Fujitsu strip on 50-pos. FLK strip (for connection to 6ES7 322-1BP00-0AA0 and 6ES7 322-1BP50-0AA0 output modules)                                   | 0.5 m        | CABLE-FCN40/1X50/0,5M/S7-OUT  | 2321017   | 1         |
|                                                                                                                                                                                            | 1.0 m        | CABLE-FCN40/1X50/1,0M/S7-OUT  | 2321020   | 1         |
|                                                                                                                                                                                            | 2.0 m        | CABLE-FCN40/1X50/2,0M/S7-OUT  | 2321033   | 1         |
|                                                                                                                                                                                            | 3.0 m        | CABLE-FCN40/1X50/3,0M/S7-OUT  | 2321046   | 1         |
|                                                                                                                                                                                            | 4.0 m        | CABLE-FCN40/1X50/4,0M/S7-OUT  | 2321059   | 1         |
|                                                                                                                                                                                            | 6.0 m        | CABLE-FCN40/1X50/6,0M/S7-OUT  | 2321062   | 1         |
|                                                                                                                                                                                            | 8.0 m        | CABLE-FCN40/1X50/8,0M/S7-OUT  | 2321075   | 1         |
|                                                                                                                                                                                            | 10.0 m       | CABLE-FCN40/1X50/10,0M/S7-OUT | 2321088   | 1         |
| <b>Assembled round cable</b> , 40-pos. Fujitsu strip on 50-pos. FLK strip (for connection to 6ES7 321-1BP00-0AA0 input module)<br>Positive reading mode (sinking mode) of the module       | 0.5 m        | CABLE-FCN40/1X50/0,5M/S7-IN   | 2321091   | 1         |
|                                                                                                                                                                                            | 1.0 m        | CABLE-FCN40/1X50/1,0M/S7-IN   | 2321101   | 1         |
|                                                                                                                                                                                            | 2.0 m        | CABLE-FCN40/1X50/2,0M/S7-IN   | 2321114   | 1         |
|                                                                                                                                                                                            | 3.0 m        | CABLE-FCN40/1X50/3,0M/S7-IN   | 2321127   | 1         |
|                                                                                                                                                                                            | 4.0 m        | CABLE-FCN40/1X50/4,0M/S7-IN   | 2321130   | 1         |
|                                                                                                                                                                                            | 6.0 m        | CABLE-FCN40/1X50/6,0M/S7-IN   | 2321143   | 1         |
|                                                                                                                                                                                            | 8.0 m        | CABLE-FCN40/1X50/8,0M/S7-IN   | 2321156   | 1         |
|                                                                                                                                                                                            | 10.0 m       | CABLE-FCN40/1X50/10,0M/S7-IN  | 2321169   | 1         |
| <b>Assembled round cable</b> , 40-pos. Fujitsu strip on four 14-pos. FLK strips (for connection to 6ES7 321-1BP00-0AA0 and 6ES7 322-1BP50-0AA0 output modules)                             | 0.5 m        | CABLE-FCN40/4X14/0,5M/S7-OUT  | 2321172   | 1         |
|                                                                                                                                                                                            | 1.0 m        | CABLE-FCN40/4X14/1,0M/S7-OUT  | 2321185   | 1         |
|                                                                                                                                                                                            | 2.0 m        | CABLE-FCN40/4X14/2,0M/S7-OUT  | 2321198   | 1         |
|                                                                                                                                                                                            | 3.0 m        | CABLE-FCN40/4X14/3,0M/S7-OUT  | 2321208   | 1         |
|                                                                                                                                                                                            | 4.0 m        | CABLE-FCN40/4X14/4,0M/S7-OUT  | 2321211   | 1         |
|                                                                                                                                                                                            | 6.0 m        | CABLE-FCN40/4X14/6,0M/S7-OUT  | 2321224   | 1         |
|                                                                                                                                                                                            | 8.0 m        | CABLE-FCN40/4X14/8,0M/S7-OUT  | 2321237   | 1         |
|                                                                                                                                                                                            | 10.0 m       | CABLE-FCN40/4X14/10,0M/S7-OUT | 2321240   | 1         |
| <b>Assembled round cable</b> , 40-pos. Fujitsu strip on four 14-pos. FLK strips (for connection to 6ES7 321-1BP00-0AA0 input module)<br>Positive reading mode (sinking mode) of the module | 0.5 m        | CABLE-FCN40/4X14/0,5M/S7-IN   | 2321253   | 1         |
|                                                                                                                                                                                            | 1.0 m        | CABLE-FCN40/4X14/1,0M/S7-IN   | 2321266   | 1         |
|                                                                                                                                                                                            | 2.0 m        | CABLE-FCN40/4X14/2,0M/S7-IN   | 2321279   | 1         |
|                                                                                                                                                                                            | 3.0 m        | CABLE-FCN40/4X14/3,0M/S7-IN   | 2321282   | 1         |
|                                                                                                                                                                                            | 4.0 m        | CABLE-FCN40/4X14/4,0M/S7-IN   | 2321295   | 1         |
|                                                                                                                                                                                            | 6.0 m        | CABLE-FCN40/4X14/6,0M/S7-IN   | 2321305   | 1         |
|                                                                                                                                                                                            | 8.0 m        | CABLE-FCN40/4X14/8,0M/S7-IN   | 2321318   | 1         |
|                                                                                                                                                                                            | 10.0 m       | CABLE-FCN40/4X14/10,0M/S7-IN  | 2321321   | 1         |

## 3 Technical data

| General data                                           | CABLE-FCN40/1X50/...M/S7...             | CABLE-FCN40/4X14/...M/S7...                 |
|--------------------------------------------------------|-----------------------------------------|---------------------------------------------|
| Nominal voltage UN                                     | < 50 V AC/60 V DC                       |                                             |
| Maximum permissible current carrying capacity per path | 1 A                                     |                                             |
| Maximum conductor resistance                           | 0.16 Ω/m                                |                                             |
| Ambient temperature range                              |                                         |                                             |
| Operation                                              | -20°C ... +50°C                         |                                             |
| Storage/transport                                      | -20°C ... +70°C                         |                                             |
| Conductor cross-section                                | 0.14 mm <sup>2</sup> (26 AWG)           |                                             |
| Conductor structure                                    | 7 litz wires, Cu tin-plated             |                                             |
| Outside diameter                                       | 10 mm                                   | 6.3 mm                                      |
| Assembly                                               | IDC IEC 60352-4/DIN EN 60352-4          |                                             |
| Connector, control side                                | 40-pos. Fujitsu FCN connection          |                                             |
| Connector, module side                                 | 50-pos.<br>flat-ribbon cable connection | 4 x 14-pos.<br>flat-ribbon cable connection |

## 4 Color code and pin assignment

CABLE-FCN40/1X50/...M/S7-OUT

| Connector,<br>control side | Connector,<br>module side | Conductor<br>color |
|----------------------------|---------------------------|--------------------|
| A1                         | 3                         | Black              |
| B1                         | 27                        | Brown              |
| A2                         | 4                         | Red                |
| B2                         | 28                        | Orange             |
| A3                         | 5                         | Yellow             |
| B3                         | 29                        | Green              |
| A4                         | 6                         | Blue               |
| B4                         | 30                        | Violet             |
| A5                         | 7                         | Gray               |
| B5                         | 31                        | White              |
| A6                         | 8                         | White-black        |
| B6                         | 32                        | White-brown        |
| A7                         | 9                         | White-red          |
| B7                         | 33                        | White-orange       |
| A8                         | 10                        | White-yellow       |
| B8                         | 34                        | White-green        |
| A9                         | 11(-)                     | White-blue         |
| B9                         | 35(-)                     | White-violet       |
| A10                        | 1(+)                      | White-gray         |
| B10                        | 25(+)                     | Brown-black        |
| A11                        | 15                        | Brown-red          |
| B11                        | 39                        | Brown-orange       |
| A12                        | 16                        | Brown-yellow       |
| B12                        | 40                        | Brown-green        |
| A13                        | 17                        | Brown-blue         |
| B13                        | 41                        | Brown-violet       |
| A14                        | 18                        | Brown-gray         |
| B14                        | 42                        | Brown-white        |
| A15                        | 19                        | Green-black        |
| B15                        | 43                        | Green-brown        |
| A16                        | 20                        | Green-red          |
| B16                        | 44                        | Green-orange       |
| A17                        | 21                        | Green-blue         |
| B17                        | 45                        | Green-violet       |
| A18                        | 22                        | Green-gray         |
| B18                        | 46                        | Green-white        |
| A19                        | 23(-)                     | Yellow-black       |
| B19                        | 47(-)                     | Yellow-brown       |
| A20                        | 13(+)                     | Yellow-red         |
| B20                        | 37(+)                     | Yellow-orange      |

CABLE-FCN40/1X50/...M/S7-IN

| Connector,<br>control side | Connector,<br>module side | Conductor<br>color |
|----------------------------|---------------------------|--------------------|
| A1                         | 3                         | Black              |
| B1                         | 27                        | Brown              |
| A2                         | 4                         | Red                |
| B2                         | 28                        | Orange             |
| A3                         | 5                         | Yellow             |
| B3                         | 29                        | Green              |
| A4                         | 6                         | Blue               |
| B4                         | 30                        | Violet             |
| A5                         | 7                         | Gray               |
| B5                         | 31                        | White              |
| A6                         | 8                         | White-black        |
| B6                         | 32                        | White-brown        |
| A7                         | 9                         | White-red          |
| B7                         | 33                        | White-orange       |
| A8                         | 10                        | White-yellow       |
| B8                         | 34                        | White-green        |
| A9                         | 11(-)                     | White-blue         |
| B9                         | 35(-)                     | White-violet       |
| A10                        | 15                        | White-gray         |
| B10                        | 39                        | Brown-black        |
| A11                        | 16                        | Brown-red          |
| B11                        | 40                        | Brown-orange       |
| A12                        | 17                        | Brown-yellow       |
| B12                        | 41                        | Brown-green        |
| A13                        | 18                        | Brown-blue         |
| B13                        | 42                        | Brown-violet       |
| A14                        | 19                        | Brown-gray         |
| B14                        | 43                        | Brown-white        |
| A15                        | 20                        | Green-black        |
| B15                        | 44                        | Green-brown        |
| A16                        | 21                        | Green-red          |
| B16                        | 45                        | Green-orange       |
| A17                        | 22                        | Green-blue         |
| B17                        | 46                        | Green-violet       |
| A18                        | 23(-)                     | Green-gray         |
| B18                        | 47(-)                     | Green-white        |
| A19                        |                           | Yellow-black       |
| B19                        |                           | Yellow-brown       |
| A20                        |                           | Yellow-red         |
| B20                        |                           | Yellow-orange      |

## CABLE-FCN40/4X14/...M/S7-OUT

|                          | Connector,<br>control side | Connector,<br>module side | Conductor<br>color |
|--------------------------|----------------------------|---------------------------|--------------------|
| Connection 1<br>(byte 0) | A9                         | 10(-)                     | White              |
|                          | A10                        | 9(+)                      | Gray               |
|                          | A8                         | 8                         | Violet             |
|                          | A7                         | 7                         | Blue               |
|                          | A6                         | 6                         | Green              |
|                          | A5                         | 5                         | Yellow             |
|                          | A4                         | 4                         | Orange             |
|                          | A3                         | 3                         | Red                |
|                          | A2                         | 2                         | Brown              |
|                          | A1                         | 1                         | Black              |
| Connection 2<br>(byte 1) | A19                        | 10(-)                     | White              |
|                          | A20                        | 9(+)                      | Gray               |
|                          | A18                        | 8                         | Violet             |
|                          | A17                        | 7                         | Blue               |
|                          | A16                        | 6                         | Green              |
|                          | A15                        | 5                         | Yellow             |
|                          | A14                        | 4                         | Orange             |
|                          | A13                        | 3                         | Red                |
|                          | A12                        | 2                         | Brown              |
|                          | A11                        | 1                         | Black              |
| Connection 3<br>(byte 2) | B9                         | 10(-)                     | White              |
|                          | B10                        | 9(+)                      | Gray               |
|                          | B8                         | 8                         | Violet             |
|                          | B7                         | 7                         | Blue               |
|                          | B6                         | 6                         | Green              |
|                          | B5                         | 5                         | Yellow             |
|                          | B4                         | 4                         | Orange             |
|                          | B3                         | 3                         | Red                |
|                          | B2                         | 2                         | Brown              |
|                          | B1                         | 1                         | Black              |
| Connection 4<br>(byte 3) | B19                        | 10(-)                     | White              |
|                          | B20                        | 9(+)                      | Gray               |
|                          | B18                        | 8                         | Violet             |
|                          | B17                        | 7                         | Blue               |
|                          | B16                        | 6                         | Green              |
|                          | B15                        | 5                         | Yellow             |
|                          | B14                        | 4                         | Orange             |
|                          | B13                        | 3                         | Red                |
|                          | B12                        | 2                         | Brown              |
|                          | B11                        | 1                         | Black              |

## CABLE-FCN40/4X14/...M/S7-IN

|                          | Connector,<br>control side | Connector,<br>module side | Conductor<br>color |
|--------------------------|----------------------------|---------------------------|--------------------|
| Connection 1<br>(byte 0) | A9                         | 10(-)                     | Gray               |
|                          | A8                         | 8                         | Violet             |
|                          | A7                         | 7                         | Blue               |
|                          | A6                         | 6                         | Green              |
|                          | A5                         | 5                         | Yellow             |
|                          | A4                         | 4                         | Orange             |
|                          | A3                         | 3                         | Red                |
|                          | A2                         | 2                         | Brown              |
|                          | A1                         | 1                         | Black              |
| Connection 2<br>(byte 1) | A18                        | 10(-)                     | Gray               |
|                          | A17                        | 8                         | Violet             |
|                          | A16                        | 7                         | Blue               |
|                          | A15                        | 6                         | Green              |
|                          | A14                        | 5                         | Yellow             |
|                          | A13                        | 4                         | Orange             |
|                          | A12                        | 3                         | Red                |
|                          | A11                        | 2                         | Brown              |
|                          | A10                        | 1                         | Black              |
| Connection 3<br>(byte 2) | B9                         | 10(-)                     | Gray               |
|                          | B8                         | 8                         | Violet             |
|                          | B7                         | 7                         | Blue               |
|                          | B6                         | 6                         | Green              |
|                          | B5                         | 5                         | Yellow             |
|                          | B4                         | 4                         | Orange             |
|                          | B3                         | 3                         | Red                |
|                          | B2                         | 2                         | Brown              |
|                          | B1                         | 1                         | Black              |
| Connection 4<br>(byte 3) | B18                        | 10(-)                     | Gray               |
|                          | B17                        | 8                         | Violet             |
|                          | B16                        | 7                         | Blue               |
|                          | B15                        | 6                         | Green              |
|                          | B14                        | 5                         | Yellow             |
|                          | B13                        | 4                         | Orange             |
|                          | B12                        | 3                         | Red                |
|                          | B11                        | 2                         | Brown              |
|                          | B10                        | 1                         | Black              |

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