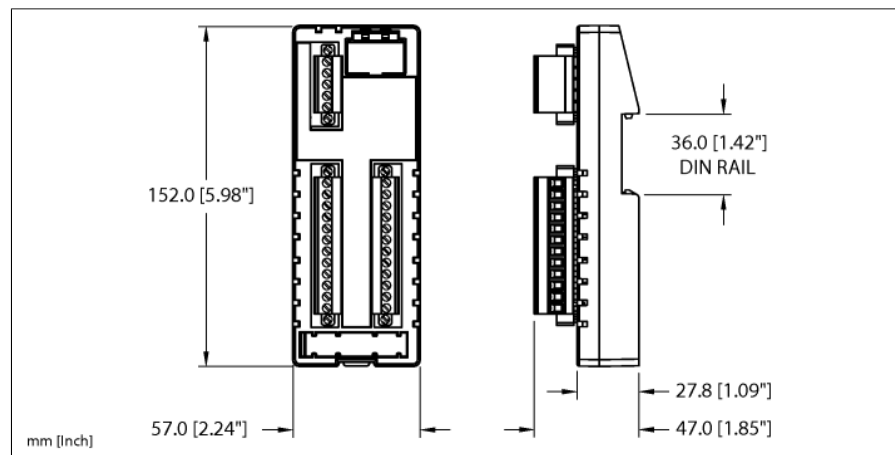


# I/O Hub for Connection of Digital Signals to IO-Link Master

## 16 Universal Digital Channels, PNP

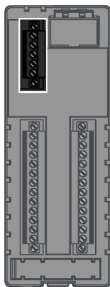
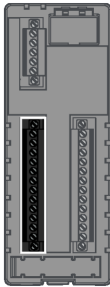
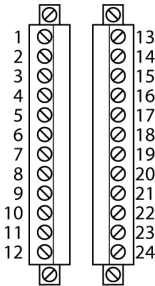
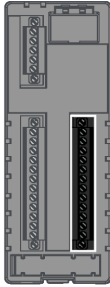
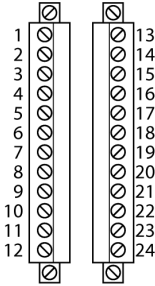
### FIL20-16DXP



|                                |                                                                            |
|--------------------------------|----------------------------------------------------------------------------|
| Type                           | FIL20-16DXP                                                                |
| ID                             | 100028254                                                                  |
| <b>Supply</b>                  |                                                                            |
| Supply voltage                 | 24 VDC                                                                     |
| Admissible range               | 18...30 VDC<br>V1 max. 4 A<br>V2 max. 4 A                                  |
| System power supply            | V1+                                                                        |
| Voltage supply connection      | Screw terminals                                                            |
| Operating current              | 120 mA                                                                     |
| Sensor/actuator supply         | V1 supply I/O0...I/O7                                                      |
| Sensor/actuator supply         | V2 supply I/O8...I/O15                                                     |
| Electrical isolation           | Potential isolation of V1 and V2 voltage group<br>Voltage proof up 500 VDC |
| <b>System data</b>             |                                                                            |
| Fieldbus connection technology | Screw terminals                                                            |
| Terminal cross-section         | 0.08...4.0 mm <sup>2</sup> (AWG: 28...12)                                  |
| Tightening torque              | 0.5 Nm                                                                     |
| <b>Digital inputs</b>          |                                                                            |
| Number of channels             | 16                                                                         |
| Connectivity inputs            | Screw terminals                                                            |
| Type of input diagnostics      | Channel diagnostics                                                        |
| Low-level signal voltage       | -3...5 VDC (EN 61131-2, type 1 and 3)                                      |
| High level signal voltage      | 11...30 VDC (EN 61131-2, type 1 and 3)                                     |
| Max. input current             | 120 mA                                                                     |
| <b>Digital outputs</b>         |                                                                            |
| Number of channels             | 16                                                                         |
| Connectivity outputs           | Screw terminals                                                            |
| Output type                    | PNP                                                                        |
| Type of output diagnostics     | Channel diagnostics                                                        |
| Output current per channel     | 500 mA                                                                     |
| Load type                      | Resistive, inductive, lamp load                                            |
| Short-circuit protection       | yes                                                                        |
| Electrical isolation           | 500 VDC                                                                    |

- Rugged, I/O hub in IP20
- Eight universal digital channels
- Metal screw terminal connectors
- 8 universal digital channels, DI/DO
- 24 VDC, PNP
- Output current: 1.0 A
- I&M data sets support installation and maintenance
- IO-Link diagnostics for short circuit and supply voltage
- Mounting on a DIN rail possible

|                               |                      |
|-------------------------------|----------------------|
| IO-Link                       |                      |
| Connectivity IO-Link          | Screw terminals      |
| IO-Link specification         | V 1.1                |
| IO-Link port type             | Class A and Class B  |
| Frame type                    | 2,6                  |
| Transmission rate             | COM 2/38.4 kbps      |
| Programming                   | FDT/DTM              |
| Standard/Directive conformity |                      |
| Approvals and certificates    | CE, UL               |
| General Information           |                      |
| Dimensions (W x L x H)        | 57.2 x 152.4 x 47 mm |
| Ambient temperature           | -40...+70 °C         |
| Storage temperature           | -40...+85 °C         |
| Protection class              | IP20                 |
| Housing material              | PA6-GF30             |
| Housing color                 | Black                |
| Mounting                      | DIN rail mounting    |

|                                                                                     |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------|---------|----------|---------|----------|---------|----------|-----------|------------|-----------|------------|-----------|-------------|-----------|-------------|-----------|-------------|------------|-------------|------------|-------------|------------|-------------|
|    | <p><b>Power Supply</b></p>                                                                                         | <p>IO-Link Screw Terminals</p>  <table><tr><td>1 = V2-</td></tr><tr><td>2 = V2+</td></tr><tr><td>3 = C/Q</td></tr><tr><td>4 = V1-</td></tr><tr><td>5 = V1+</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1 = V2- | 2 = V2+  | 3 = C/Q | 4 = V1-  | 5 = V1+ |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 1 = V2-                                                                             |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 2 = V2+                                                                             |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 3 = C/Q                                                                             |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 4 = V1-                                                                             |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 5 = V1+                                                                             |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
|    | <p><b>I/O Channels</b></p> <p>The internal module electronics and the I/O channels 0 to 7 are supplied via V1.</p> | <p>IO Screw Terminals</p>  <table><tr><td>1 = V1+</td><td>13 = V2+</td></tr><tr><td>2 = V1+</td><td>14 = V2+</td></tr><tr><td>3 = V1-</td><td>15 = V2-</td></tr><tr><td>4 = V1-</td><td>16 = V2-</td></tr><tr><td>5 = I/O 0</td><td>17 = I/O 8</td></tr><tr><td>6 = I/O 1</td><td>18 = I/O 9</td></tr><tr><td>7 = I/O 2</td><td>19 = I/O 10</td></tr><tr><td>8 = I/O 3</td><td>20 = I/O 11</td></tr><tr><td>9 = I/O 4</td><td>21 = I/O 12</td></tr><tr><td>10 = I/O 5</td><td>22 = I/O 13</td></tr><tr><td>11 = I/O 6</td><td>23 = I/O 14</td></tr><tr><td>12 = I/O 7</td><td>24 = I/O 15</td></tr></table>   | 1 = V1+ | 13 = V2+ | 2 = V1+ | 14 = V2+ | 3 = V1- | 15 = V2- | 4 = V1- | 16 = V2- | 5 = I/O 0 | 17 = I/O 8 | 6 = I/O 1 | 18 = I/O 9 | 7 = I/O 2 | 19 = I/O 10 | 8 = I/O 3 | 20 = I/O 11 | 9 = I/O 4 | 21 = I/O 12 | 10 = I/O 5 | 22 = I/O 13 | 11 = I/O 6 | 23 = I/O 14 | 12 = I/O 7 | 24 = I/O 15 |
| 1 = V1+                                                                             | 13 = V2+                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 2 = V1+                                                                             | 14 = V2+                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 3 = V1-                                                                             | 15 = V2-                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 4 = V1-                                                                             | 16 = V2-                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 5 = I/O 0                                                                           | 17 = I/O 8                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 6 = I/O 1                                                                           | 18 = I/O 9                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 7 = I/O 2                                                                           | 19 = I/O 10                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 8 = I/O 3                                                                           | 20 = I/O 11                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 9 = I/O 4                                                                           | 21 = I/O 12                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 10 = I/O 5                                                                          | 22 = I/O 13                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 11 = I/O 6                                                                          | 23 = I/O 14                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 12 = I/O 7                                                                          | 24 = I/O 15                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
|  | <p><b>I/O Channels</b></p> <p>The I/O channels 8 to 15 are supplied via V2.</p>                                    | <p>IO Screw Terminals</p>  <table><tr><td>1 = V1+</td><td>13 = V2+</td></tr><tr><td>2 = V1+</td><td>14 = V2+</td></tr><tr><td>3 = V1-</td><td>15 = V2-</td></tr><tr><td>4 = V1-</td><td>16 = V2-</td></tr><tr><td>5 = I/O 0</td><td>17 = I/O 8</td></tr><tr><td>6 = I/O 1</td><td>18 = I/O 9</td></tr><tr><td>7 = I/O 2</td><td>19 = I/O 10</td></tr><tr><td>8 = I/O 3</td><td>20 = I/O 11</td></tr><tr><td>9 = I/O 4</td><td>21 = I/O 12</td></tr><tr><td>10 = I/O 5</td><td>22 = I/O 13</td></tr><tr><td>11 = I/O 6</td><td>23 = I/O 14</td></tr><tr><td>12 = I/O 7</td><td>24 = I/O 15</td></tr></table> | 1 = V1+ | 13 = V2+ | 2 = V1+ | 14 = V2+ | 3 = V1- | 15 = V2- | 4 = V1- | 16 = V2- | 5 = I/O 0 | 17 = I/O 8 | 6 = I/O 1 | 18 = I/O 9 | 7 = I/O 2 | 19 = I/O 10 | 8 = I/O 3 | 20 = I/O 11 | 9 = I/O 4 | 21 = I/O 12 | 10 = I/O 5 | 22 = I/O 13 | 11 = I/O 6 | 23 = I/O 14 | 12 = I/O 7 | 24 = I/O 15 |
| 1 = V1+                                                                             | 13 = V2+                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 2 = V1+                                                                             | 14 = V2+                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 3 = V1-                                                                             | 15 = V2-                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 4 = V1-                                                                             | 16 = V2-                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 5 = I/O 0                                                                           | 17 = I/O 8                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 6 = I/O 1                                                                           | 18 = I/O 9                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 7 = I/O 2                                                                           | 19 = I/O 10                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 8 = I/O 3                                                                           | 20 = I/O 11                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 9 = I/O 4                                                                           | 21 = I/O 12                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 10 = I/O 5                                                                          | 22 = I/O 13                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 11 = I/O 6                                                                          | 23 = I/O 14                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |
| 12 = I/O 7                                                                          | 24 = I/O 15                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |          |         |          |         |          |         |          |           |            |           |            |           |             |           |             |           |             |            |             |            |             |            |             |

#### Module LED status

| LED indication | Color | Status   | Description                                                            |
|----------------|-------|----------|------------------------------------------------------------------------|
| IO-Link        | Green | OFF      | Power off                                                              |
|                |       | Flashing | IO-Link communication OK, valid process data is being sent or received |
|                | Red   | ON       | IO-Link communication or module error                                  |
|                |       | Flashing | IO-Link communication OK, invalid process data or diagnosis            |

#### I/O LED status

| LED indication | Color | Status   | Description                                                            |
|----------------|-------|----------|------------------------------------------------------------------------|
| C0...C7        | Green | ON       | Input or output active                                                 |
| 0...15         | Red   | ON       | Output active with overload/short circuit                              |
|                |       | Flashing | Power overload at the corresponding slot. Both slot LEDs are flashing. |
|                |       | OFF      | Input or output inactive                                               |

C... = slot no., 0...15 = signal LED (even = pin 4, odd = pin 2)