modular bus operating concept

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>> Profibus
>> EtherCAT
>> Profinet I/O
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>> AS-Interface

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Bus Systems

Dimensions / Spacings

### Basic module

<table>
<thead>
<tr>
<th>Spacing</th>
<th>25x25</th>
<th>27x27</th>
<th>30x30</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>98.0 mm</td>
<td>105.0 mm</td>
<td>116.0 mm</td>
</tr>
<tr>
<td>B</td>
<td>65.0 mm</td>
<td>70.0 mm</td>
<td>73.0 mm</td>
</tr>
<tr>
<td>C</td>
<td>11.5 mm</td>
<td>10.8 mm</td>
<td>12.5 mm</td>
</tr>
<tr>
<td>D</td>
<td>25.0 mm</td>
<td>27.0 mm</td>
<td>30.0 mm</td>
</tr>
<tr>
<td>E</td>
<td>11.5 mm</td>
<td>13.4 mm</td>
<td>13.4 mm</td>
</tr>
</tbody>
</table>

### Expansion module

<table>
<thead>
<tr>
<th>Spacing</th>
<th>25x25</th>
<th>27x27</th>
<th>30x30</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>97.0 mm</td>
<td>104.0 mm</td>
<td>113.0 mm</td>
</tr>
<tr>
<td>B</td>
<td>47.0 mm</td>
<td>53.0 mm</td>
<td>58.0 mm</td>
</tr>
<tr>
<td>C</td>
<td>11.5 mm</td>
<td>10.8 mm</td>
<td>11.0 mm</td>
</tr>
<tr>
<td>D</td>
<td>25.0 mm</td>
<td>27.0 mm</td>
<td>30.0 mm</td>
</tr>
<tr>
<td>E</td>
<td>11.5 mm</td>
<td>13.3 mm</td>
<td>14.0 mm</td>
</tr>
</tbody>
</table>

Further expansion modules can be arranged in the same spacing at three outer edges of the basic module.
Modular Bus Operating Concept

The basic idea was to develop an operating concept that makes us flexible enough to provide low-cost up to high-end solutions. The result is a future-proof and dynamic system to integrate contemporary design and state-of-the-art technology in modern machine concepts and panel layouts. The modular operating concept provides for project planning either standardised modules in a fixed grid spacing or the possibility to respond individually to customer-specific designs. The modular operating concept consists of two basic modules, the bus-specific basic module and the bus-independent expansion module. The basic module includes the typical bus connection as well as the bus node for communication with the corresponding bus system. The expansion module serves as a bus-independent I/O expansion in conjunction with the basic module, which enables us to integrate up to 128 command positions with 128 indicator lamps. The system power supply of the expansion modules is effected via the basic module, thus, reducing handling to a minimum. Each module is construed with 8 inputs for contact blocks and 8 outputs for the LED indicator lamps.

We distinguish in this modular operating concept two basic applications, control panel construction in which all command points are summarised on one area, and plant engineering & construction with several command points, which are distributed in the system.

Customised - fast - cost-effective

If your design plans cannot be implemented with the standardised modules, we can respond to your special design requirements anyway. For customised designs we resort to sub-modules of the modular operating concept while adapting the carrier card with the command points (PCB with individual contact blocks) according to your design proposal, consequently, the cost-optimised concept also taking effect here.

Control Panel Construction

Basic module

max. 250 mm

Expansion module 1

max. 250 mm

Expansion module 2

max. 250 mm

max. 7 expansion modules

Plant Engineering & Construction

Basic module (main control panel)

max. 5 m

Expansion module 1 (secondary control panel)

max. 5 m

Expansion module 2 (secondary control panel)

max. 5 m

max. 15 expansion modules

Technical Description - Control Panel Construction / Plant Engineering & Construction

Control Panel Construction

For the control panel construction, we consider the arrangement of the command points on one control unit, on which we can set up max. 64 command points with 64 indicator lamps. The 8 modules are then connected through with a ribbon cable. The individual modules can be arranged in a max. distance of 250mm to each other.

Plant Engineering & Construction

In the plant engineering & construction we consider the complete plant, which usually has a main control panel and several secondary control panels. In this case, the main control panel is equipped with the basic module and according to your operating concept, with additional expansion modules. The bus node with the typical bus connection is also arranged in the main control panel. It is then possible to equip more secondary control panels with expansion modules and to operate them via the main control panels using the bus data. In this application you can operate max. 128 command positions with 128 pilot lamps, and this at a cable length of 5m between the command positions and a total length of 30m within the plant.

Mounting of Standard Modules

We offer the standardised modules in fixed grid spacings of 25 x 25mm, 27 x 27mm or 30 x 30mm. The modules are plugged on the actuators in the front panel and secured to the contact blocks by means of a locking bolt. Therefore, no additional spacers are needed in the front panel to mount the modules. The basic module is supplied with a supply voltage of +24V/DC and the bus signal. The expansion modules are connected to each other by means of a connecting cable, thus, there is no need for an additional wiring by what the wiring outlay reduces enormously. The individual modules can be attached in the same spacing.
CANopen Basic Module

- 8 contact blocks with snap action (CTP) and 8 integrated white LEDs
- 8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5,5K
  LEDs to be ordered separately

<table>
<thead>
<tr>
<th>Application Area</th>
<th>Control Panel Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>spacing 25 x 25 mm</td>
</tr>
<tr>
<td></td>
<td>spacing 27 x 27 mm</td>
</tr>
<tr>
<td></td>
<td>spacing 30 x 30 mm</td>
</tr>
</tbody>
</table>

- CO_BTK25_01
- CO_BTK27_01
- CO_BTK30_01
- CO_BTK25_02
- CO_BTK27_02
- CO_BTK30_02

Expansion Module

- I/Os: 8 I/Os (8 inputs and 8 outputs)
- Control panel construction: up to max. 64 I/Os using 7 additional modules and a cable length of 250 mm between the modules
- Plant engineering and construction: up to max. 128 I/Os using 15 additional modules and a cable length of 5 m between the modules, total length 30 m
- System connection: via the connecting cables VK_BTK_.... (please order separately, see next page)

<table>
<thead>
<tr>
<th>Application Area</th>
<th>Control Panel Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>spacing 25 x 25 mm</td>
</tr>
<tr>
<td></td>
<td>spacing 27 x 27 mm</td>
</tr>
<tr>
<td></td>
<td>spacing 30 x 30 mm</td>
</tr>
</tbody>
</table>

- E_BTK25_01
- E_BTK27_01
- E_BTK30_01
- E_BTK25_02
- E_BTK27_02
- E_BTK30_02
<table>
<thead>
<tr>
<th>Illustration</th>
<th>Description</th>
</tr>
</thead>
</table>
| ![Expansion Module - Plant Engineering And Construction](image1.jpg) | **Expansion Module - Plant Engineering And Construction**  
8 external I/Os are led onto the bus via a terminal  
Connection: spring-type terminal  
I/Os: 8 I/Os, 8 inputs and 8 outputs up to max.  
128 I/Os with additional 15 modules  
System Connection: via connecting cable VK_BTK_001... max.  
cable length 5m between the modules; total length 30m  
The data sheet with pin assignments can be downloaded at www.schlegel.biz |

| ![Expansion Module - Control Panel Construction](image2.jpg) | **Expansion Module - Control Panel Construction**  
8 external I/Os are led onto the bus via a terminal  
Connection: spring-type terminal from 0.25 mm² to 1.5 mm²  
I/Os: 8 I/Os, 8 inputs on switching contacts (low active) and 8 outputs on pilot lights 10mA (low active)  
System Connection: via connecting cable VK_BTK_001... max.  
cable length 250 mm between the modules  
The data sheet with pin assignments can be downloaded at www.schlegel.biz |

| ![Ultra-bright LED, T5,5K socket, 24V](image3.jpg) | **Ultra-bright LED, T5,5K socket, 24V**  
with integrated series resistor and half-wave rectifier, for 24 V AC/DC  
(7/14 mA)  
When connecting to DC, the correct polarity must be observed:  
+ ... X1/- ... X2  
storage temperature: -25°C ... +80°C  
ambient temperature: -20°C ... +60°C  
voltage tolerance: + 10%  
colour: white  
L5,5K24UW |

| ![Connecting Cable for control panel construction](image4.jpg) | **Connecting Cable for control panel construction**  
Length: 50 mm  
Length: 100 mm  
Length: 220 mm  
VK_BTK_001_50  
VK_BTK_001_100  
VK_BTK_001_220 |

| ![Connecting Cable for plant engineering & construction](image5.jpg) | **Connecting Cable for plant engineering & construction**  
Length: 90 mm  
Length: 140 mm  
Length: 300 mm  
VK_BTK_002_90  
VK_BTK_002_140  
VK_BTK_002_300 |
### Profibus Basic Module

<table>
<thead>
<tr>
<th>Application Area</th>
<th>Control Panel Construction</th>
<th>spacing 25 x 25 mm</th>
<th>spacing 27 x 27 mm</th>
<th>spacing 30 x 30 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 contact blocks with snap action (CTP) and 8 integrated white LEDs</td>
<td>Profibus specification: DPVO</td>
<td>8 byte input 8 byte output</td>
<td>I/Os: 8 I/Os, 8 inputs and 8 outputs, expandable to max. 64 I/Os for control panel construction and 128 I/Os for plant engineering and construction</td>
<td>3-pole screw terminal</td>
</tr>
<tr>
<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5,5K</td>
<td>Addressing: DIP switch</td>
<td>Module name: 8 byte input 8 byte output</td>
<td>Bus termination: can be activated via sliding switch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LEDs to be ordered separately</td>
<td>Data length: 96 byte I/O</td>
<td>Bus connection: 3-pole screw terminal</td>
<td></td>
</tr>
</tbody>
</table>

#### Expansion Module

<table>
<thead>
<tr>
<th>Application Area</th>
<th>Plant Engineering and Construction</th>
<th>spacing 25 x 25 mm</th>
<th>spacing 27 x 27 mm</th>
<th>spacing 30 x 30 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 contact blocks with snap action (CTP) and 8 integrated white LEDs</td>
<td>I/Os: 8 I/Os (8 inputs and 8 outputs)</td>
<td>Control panel construction: up to max. 64 I/Os using 7 additional modules and a cable length of 250 mm between the modules</td>
<td>30 m</td>
<td></td>
</tr>
<tr>
<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5,5K</td>
<td>Plant engineering and construction: up to max. 128 I/Os using 15 additional modules and a cable length of 5 m between the modules, total length 30 m</td>
<td>System connection: via the connecting cables VK_BTK_.....</td>
<td>(please order separately, see next page)</td>
<td></td>
</tr>
<tr>
<td>LEDs to be ordered separately</td>
<td></td>
<td>Please download the GSD file and data sheet with pin configuration from <a href="http://www.schlegel.biz">www.schlegel.biz</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illustration</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expansion Module - Plant Engineering And Construction</strong>&lt;br&gt;8 external I/Os are led onto the bus via a terminal</td>
<td>Connection: spring-type terminal&lt;br&gt;I/Os: 8 I/Os, 8 inputs and 8 outputs up to max. 128 I/Os with additional 15 modules&lt;br&gt;System Connection: via connecting cable VK_BTK_001... max. cable length 30m&lt;br&gt;The data sheet with pin assignments can be downloaded at <a href="http://www.schlegel.biz">www.schlegel.biz</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expansion Module - Control Panel Construction</strong>&lt;br&gt;8 external I/Os are led onto the bus via a terminal</td>
<td>Connection: spring-type terminal from 0.25 mm² to 1.5 mm²&lt;br&gt;I/Os: 8 I/Os, 8 inputs on switching contacts (low active) and 8 outputs on pilot lights 10mA (low active)&lt;br&gt;System Connection: via connecting cable VK_BTK_001... max. cable length 250 mm between the modules&lt;br&gt;The data sheet with pin assignments can be downloaded at <a href="http://www.schlegel.biz">www.schlegel.biz</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ultra-bright LED, T5,5K socket, 24V</strong>&lt;br&gt;with integrated series resistor and half-wave rectifier, for 24 V AC/DC (7/14 mA)&lt;br&gt;When connecting to DC, the correct polarity must be observed:&lt;br&gt;+ ... X1/- ... X2&lt;br&gt;storage temperature:&lt;br&gt;-25°C ... +80°C&lt;br&gt;ambient temperature:&lt;br&gt;-20°C ... +60°C&lt;br&gt;voltage tolerance:&lt;br&gt;+ 10 %&lt;br&gt;colour white</td>
<td>L5,5K24UW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connecting Cable for control panel construction</strong>&lt;br&gt;Length: 50 mm&lt;br&gt;Length: 100 mm&lt;br&gt;Length: 220 mm</td>
<td>VK_BTK_001_50&lt;br&gt;VK_BTK_001_100&lt;br&gt;VK_BTK_001_220</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connecting Cable for plant engineering &amp; construction</strong>&lt;br&gt;Length: 90 mm&lt;br&gt;Length: 140 mm&lt;br&gt;Length: 300 mm</td>
<td>VK_BTK_002_90&lt;br&gt;VK_BTK_002_140&lt;br&gt;VK_BTK_002_300</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**EtherCAT Basic Module**

- **Application Area**: Control Panel Construction
- **Control Panel Construction**: spacing 25 x 25 mm, spacing 27 x 27 mm, spacing 30 x 30 mm
- **Transmission**: 100 Mbit/s
- **I/O data length**: 8 byte input 8 byte output
- **Addressing**: DIP switch
- **I/Os**: 8 inputs and 8 outputs, expandable to max. 64 I/Os for control panel construction and 128 I/Os for plant engineering and construction
- **Bus connection**: 2 x RJ45 plug connectors 8P4C

- **8 contact blocks with snap action (CTP)** and 8 integrated white LEDs
  - EC_BTK25_01
  - EC_BTK27_01
  - EC_BTK30_01

- **8 contact blocks with snap action (CTLP)** for 8 pluggable LEDs type L5.5K, LEDs to be ordered separately
  - EC_BTK25_02
  - EC_BTK27_02
  - EC_BTK30_02

**Expansion Module**

- **Application Area**: Plant Engineering and Construction
- **Plant Engineering and Construction**: spacing 25 x 25 mm, spacing 27 x 27 mm, spacing 30 x 30 mm
- **I/Os**: 8 I/Os (8 inputs and 8 outputs)
- **Control panel construction**: up to max. 64 I/Os using 7 additional modules and a cable length of 250 mm between the modules
- **Plant engineering and construction**: up to max. 128 I/Os using 15 additional modules and a cable length of 5 m between the modules, total length 30 m
- **System connection**: via the connecting cables VK_BTK_..... (please order separately, see next page)

- **8 contact blocks with snap action (CTP)** and 8 integrated white LEDs
  - E_BTK25_01
  - E_BTK27_01
  - E_BTK30_01

- **8 contact blocks with snap action (CTLP)** for 8 pluggable LEDs type L5.5K, LEDs to be ordered separately
  - E_BTK25_02
  - E_BTK27_02
  - E_BTK30_02

Please download the XML file and data sheet with pin configuration from www.schlegel.biz.
## Expansion Module - Plant Engineering And Construction

8 external I/Os are led onto the bus via a terminal

- **Connection:** spring-type terminal
- **I/Os:** 8 I/Os, 8 inputs and 8 outputs up to max. 128 I/Os with additional 15 modules
- **System Connection:** via connecting cable VK_BTK_002... max. cable length 5m between the modules; total length 30m

The data sheet with pin assignments can be downloaded at www.schlegel.biz

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## Expansion Module - Control Panel Construction

8 external I/Os are led onto the bus via a terminal

- **Connection:** spring-type terminal from 0.25 mm² to 1.5 mm²
- **I/Os:** 8 I/Os, 8 inputs on switching contacts (low active) and 8 outputs on pilot lights 10mA (low active)
- **System Connection:** via connecting cable VK_BTK_001... max. cable length 250 mm between the modules

The data sheet with pin assignments can be downloaded at www.schlegel.biz

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## Ultra-bright LED, T5,5K socket, 24V

- With integrated series resistor and half-wave rectifier, for 24 V AC/DC (7/14 mA)
- When connecting to DC, the correct polarity must be observed: + ... X1/- ... X2
- **Storage temperature:** -25°C ... +80°C
- **Ambient temperature:** -20°C ... +60°C
- **Voltage tolerance:** + 10%
- **Colour:** white

---

## Connecting Cable for control panel construction

- **Length:** 50 mm
- **Length:** 100 mm
- **Length:** 220 mm

- **Code:** VK_BTK_001_50
- **Code:** VK_BTK_001_100
- **Code:** VK_BTK_001_220

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## Connecting Cable for plant engineering & construction

- **Length:** 90 mm
- **Length:** 140 mm
- **Length:** 300 mm

- **Code:** VK_BTK_002_90
- **Code:** VK_BTK_002_140
- **Code:** VK_BTK_002_300

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Profinet I/O Basic Module

- **Profinet I/O specification:** 2 ports with transformer
- **Fieldbus Baud rates:** up to 100 MBaud
- **IP address:** assignment via bus
- **Fieldbus functions:** TCP/IP
- **I/Os:**
  - 8 I/Os, 8 inputs and 8 outputs, expandable to max.
  - 64 I/Os for control panel construction and 128 I/Os for plant engineering and construction.
- **Bus connection:** 2 x RJ45 plug connectors 8P4C

Please download the GSDML file and the data sheet with pin configuration from www.schlegel.biz.

### Application Area

<table>
<thead>
<tr>
<th>Control Panel Construction</th>
<th>25 x 25 mm</th>
<th>27 x 27 mm</th>
<th>30 x 30 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 contact blocks with snap action (CTP) and 8 integrated white LEDs</td>
<td>PN_BTK25_01</td>
<td>PN_BTK27_01</td>
<td>PN_BTK30_01</td>
</tr>
<tr>
<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5.5K</td>
<td>PN_BTK25_02</td>
<td>PN_BTK27_02</td>
<td>PN_BTK30_02</td>
</tr>
<tr>
<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5.5K</td>
<td>PN_BTK30_03</td>
<td>PN_BTK30_03</td>
<td>PN_BTK30_03</td>
</tr>
<tr>
<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5.5K</td>
<td>PN_BTK30_04</td>
<td>PN_BTK30_04</td>
<td>PN_BTK30_04</td>
</tr>
</tbody>
</table>

### Expansion Module

- **I/Os:** 8 I/Os (8 inputs and 8 outputs)
- **Control panel construction:** up to max. 64 I/Os using 7 additional modules and a cable length of 250 mm between the modules
- **Plant engineering and construction:** up to max. 128 I/Os using 15 additional modules and a cable length of 5 m between the modules, total length 30 m
- **System connection:** via the connecting cables VK_BTK_.... (please order separately, see next page)

### Application Area

<table>
<thead>
<tr>
<th>Control Panel Construction</th>
<th>25 x 25 mm</th>
<th>27 x 27 mm</th>
<th>30 x 30 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 contact blocks with snap action (CTP) and 8 integrated white LEDs</td>
<td>E_BTK25_01</td>
<td>E_BTK27_01</td>
<td>E_BTK30_01</td>
</tr>
<tr>
<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5.5K</td>
<td>E_BTK25_02</td>
<td>E_BTK27_02</td>
<td>E_BTK30_02</td>
</tr>
<tr>
<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5.5K</td>
<td>E_BTK30_03</td>
<td>E_BTK30_03</td>
<td>E_BTK30_03</td>
</tr>
<tr>
<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5.5K</td>
<td>E_BTK30_04</td>
<td>E_BTK30_04</td>
<td>E_BTK30_04</td>
</tr>
</tbody>
</table>
### Expansion Module - Plant Engineering And Construction

8 external I/Os are led onto the bus via a terminal

<table>
<thead>
<tr>
<th>Connection:</th>
<th>spring-type terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/Os:</td>
<td>8 I/Os, 8 inputs and 8 outputs up to max. 128 I/Os with additional 15 modules</td>
</tr>
<tr>
<td>System Connection:</td>
<td>via connecting cable VK_BTK_002... max. cable length 5m between the modules; total length 30m</td>
</tr>
</tbody>
</table>

The data sheet with pin assignments can be downloaded at [www.schlegel.biz](http://www.schlegel.biz)

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### Expansion Module - Control Panel Construction

8 external I/Os are led onto the bus via a terminal

<table>
<thead>
<tr>
<th>Connection:</th>
<th>spring-type terminal from 0.25 mm² to 1.5 mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/Os:</td>
<td>8 I/Os, 8 inputs on switching contacts (low active) and 8 outputs on pilot lights 10mA (low active)</td>
</tr>
<tr>
<td>System Connection:</td>
<td>via connecting cable VK_BTK_001... max. cable length 250 mm between the modules</td>
</tr>
</tbody>
</table>

The data sheet with pin assignments can be downloaded at [www.schlegel.biz](http://www.schlegel.biz)

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### Ultra-bright LED, T5,5K socket, 24V

with integrated series resistor and half-wave rectifier, for 24 V AC/DC (7/14 mA)

When connecting to DC, the correct polarity must be observed:

+ ... X1/- ... X2

storage temperature:

-25°C ... +80°C

ambient temperature:

-20°C ... +60°C

voltage tolerance:

+ 10 %

colour: white

---

### Connecting Cable for control panel construction

<table>
<thead>
<tr>
<th>Length:</th>
<th>50 mm</th>
<th>100 mm</th>
<th>220 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>VK_BTK_001_50</td>
<td>VK_BTK_001_100</td>
<td>VK_BTK_001_220</td>
<td></td>
</tr>
</tbody>
</table>

### Connecting Cable for plant engineering & construction

<table>
<thead>
<tr>
<th>Length:</th>
<th>90 mm</th>
<th>140 mm</th>
<th>300 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>VK_BTK_002_90</td>
<td>VK_BTK_002_140</td>
<td>VK_BTK_002_300</td>
<td></td>
</tr>
</tbody>
</table>
## Bus Systems

### Ethernet IP

**EtherNet IP Basic Module**

- **Transmission:** 100 Mbit/s
- **I/O data length:** 8 byte input 8 byte output
- **I/Os:** 8 I/Os (8 inputs and 8 outputs), expandable to max. 64 I/Os for control panel construction and 128 I/Os for plant engineering and construction
- **Bus connection:** 2 x RJ45 plug connectors 8P4C

<table>
<thead>
<tr>
<th>Application Area</th>
<th>Control Panel Construction</th>
<th>spacing 25 x 25 mm</th>
<th>spacing 27 x 27 mm</th>
<th>spacing 30 x 30 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 contact blocks with snap action (CTP) and 8 incorporated white LEDs</td>
<td>EN_BTK25_01</td>
<td>EN_BTK27_01</td>
<td>EN_BTK30_01</td>
</tr>
<tr>
<td></td>
<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5,5K LEDs to be ordered separately</td>
<td>EN_BTK25_02</td>
<td>EN_BTK27_02</td>
<td>EN_BTK30_02</td>
</tr>
</tbody>
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<table>
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<tr>
<th>Application Area</th>
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<td>8 contact blocks with snap action (CTP) and 8 integrated white LEDs</td>
<td>EN_BTK25_03</td>
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<td>8 contact blocks with snap action (CTLP) for 8 pluggable LEDs type L5,5K LEDs to be ordered separately</td>
<td>EN_BTK25_04</td>
<td>EN_BTK27_04</td>
<td>EN_BTK30_04</td>
</tr>
</tbody>
</table>

**Expansion Module**

- **I/Os:** 8 I/Os (8 inputs and 8 outputs)
- **Control panel construction:** up to max. 64 I/Os using 7 additional modules and a cable length of 250 mm between the modules
- **Plant engineering and construction:** up to max. 128 I/Os using 15 additional modules and a cable length of 5 m between the modules, total length 30 m
- **System connection:** via the connecting cables VK_BTK_...... (please order separately, see next page)

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### Expansion Module - Plant Engineering And Construction

8 external 1/Os are led onto the bus via a terminal

| Connection: | spring-type terminal |
| I/Os: | 8 I/Os, 8 inputs and 8 outputs up to max. 128 I/Os with additional 15 modules |
| System Connection: | via connecting cable VK_BTK_002... max. cable length 5m between the modules; total length 30m |

The data sheet with pin assignments can be downloaded at www.schlegel.biz

**Illustration**

**E_BTK8IO_0304**

### Expansion Module - Control Panel Construction

8 external 1/Os are led onto the bus via a terminal

| Connection: | spring-type terminal from 0.25 mm² to 1.5 mm² |
| I/Os: | 8 I/Os, 8 inputs on switching contacts (low active) and 8 outputs on pilot lights 10mA (low active) |
| System Connection: | via connecting cable VK_BTK_001... max. cable length 250 mm between the modules |

The data sheet with pin assignments can be downloaded at www.schlegel.biz

**Illustration**

**E_BTK8IO_0102**

### Ultra-bright LED, T5,5K socket, 24V

with integrated series resistor and half-wave rectifier, for 24 V AC/DC (7/14 mA)

When connecting to DC, the correct polarity must be observed: + ... X1/- ... X2

storage temperature: -25°C ... +80°C

ambient temperature: -20°C ... +60°C

voltage tolerance: + 10%

colour: white

**Illustration**

**L5,5K24UW**

### Connecting Cable for control panel construction

| Length: | 50 mm | VK_BTK_001_50 |
| Length: | 100 mm | VK_BTK_001_100 |
| Length: | 220 mm | VK_BTK_001_220 |

### Connecting Cable for plant engineering & construction

| Length: | 90 mm | VK_BTK_002_90 |
| Length: | 140 mm | VK_BTK_002_140 |
| Length: | 300 mm | VK_BTK_002_300 |
**AS-Interface Module**

I/Os: 8 I/Os, 8 inputs and 8 Ausgänge

AS-Interface specification: V3.0

AS-Interface profile: S7 A 7 A

Communication protocol: CTT3 for Master M4

Diagnostics: Data communication error signalling unit S5

Protocol or peripheral error signalling unit S6

Bus connection: 2pole screw clamp

Connecting cable: max. network length: 100m (without repeater)

max. cycle time: ≤40ms

LED voltage supply via the bus

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**Application Area**

Control Panel Construction / Plant Engineering and Construction

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8 contact blocks with snap action function (CTP) and 8 integrated white LEDs

8 contact blocks with snap-action function (CTLP) to accept 8 pluggable LEDs L5,5K

Please order the LEDs separately

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suitable actuators

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Georg Schlegel GmbH & Co. KG - 88525 Dürmentingen - t +49 (0) 73 71 / 502 0 - Fax: +49 (0) 73 71 / 502 49 - info@schlegel.biz - www.schlegel.biz
<table>
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