AS-Interface Overview
(Actuator Sensor Interface)

AS-Interface Flat Cable Connector

AS-Interface Master Module Pg. 247

MicroSmart Pentra

AS-Interface Power Supply Pg. 251

73W 145W

AS-Interface Communication Terminal Pg. 255

4 inputs
2 inputs/2 outputs

AS-Interface Communication Terminal (Safety Slave) Pg. 292

4 inputs
4 inputs/3 outputs

New

AS-Interface Power Supply Pg. 251

4 inputs
4 inputs/3 outputs

New

SX5A AS-Interface Safety Monitor Pg. 292

M

New

IDEC SmartRelay
(See PLC section for more information)

Emergency Stop Switch Box

Safety Switches
Link to the world and reduce wiring at the same time!

SwitchNet Control Units directly connect to AS-Interface
Panels can be built with substantially less wiring at a lower total cost.
- Signals and power are carried through two wires.
- A maximum of 62 switches and pilot lights can be connected. The wire length can be extended to 300m by using two repeaters.
- Spring clamp terminals save wiring time. Each control switch or pilot light contains a communication chip (AS-Interface Ver. 2.1).

Pilot lights & Illuminated Pushbuttons Brightness Control
Illumination can be controlled at four levels according to a command from the AS-Interface master. Dynamic displays and energy savings are possible.
Spring clamp reduces wiring time
SwitchNet control units feature spring clamp terminals, eliminating the need for tightening screws.

Contact pins pierce through the cable's insulation and make secure contact with the copper conductor. After disconnecting the AS-Interface communication terminal, the elasticity of the sheath closes the pierced holes and maintains insulation.

Flexible Network Topology
The AS-Interface network structure can be selected from various types of topology to meet application requirements for slave locations and cable branching.

Tree Structure
Line Structure
Star Structure

Connectors
Three types of connectors are available for designing the inside- and outside-panel layout.
Cost Savings

Inside-Panel Wiring Example: Cost Savings Approximately 25%

Conventional Wiring

When using conventional wiring that involves a PLC and terminal blocks, the inside of the control panel is filled with wires for switches, pilot lights, and other devices. Approximately half of the total panel cost is attributable to labor costs for wiring.

AS-Interface & SwitchNet Wiring

All SwitchNet units are connected to the AS-Interface master module using 2-wire cables. Wiring time is reduced to approximately 1/4 of the time needed for the conventional method and the total cost can be reduced up to 40%. In addition, maintenance is much easier.

Inside & Outside-Panel Wiring Example: Cost Savings Approximately 25%

Conventional Wiring

A large amount of space and cost is required by wiring to and inside junction boxes.

AS-Interface & SwitchNet Wiring

SwitchNet wiring reduces costs for inside-panel wiring resulting in a total cost reduction of approximately 25%.

1. Comparisons were made using IDEC products.
2. Cost comparison is based on control panel configuration using 60 buttons and lights.
Product Overview

**MicroSmart PLC**
AS-Interface Master Module: FC4A-AS62M Pg. 247

- AS-Interface Ver. 2.1 compliant
- Digital and analog slaves can be connected.
- 23.5-mm-wide compact housing
- Applicable CPU modules: FC5A-C24R2C, FC5A-C24R2, FC5A-D16RK1, FC5A-D16RS1, FC5A-D32K3, FC5A-D32S3, FC4A-D20RK1, FC4A-D20RS1, FC4A-D40K3, FC4A-D40S3

**SX5A AS-Interface Communication Terminal**
Inside Panel

- AS-Interface Ver. 2.1 compliant
- Digital and analog slaves can be connected.
- 23.5-mm-wide compact housing
- Applicable CPU modules: FC5A-C24R2C, FC5A-C24R2, FC5A-D16RK1, FC5A-D16RS1, FC5A-D32K3, FC5A-D32S3, FC4A-D20RK1, FC4A-D20RS1, FC4A-D40K3, FC4A-D40S3

**PS2R AS-Interface Power Supply** Pg. 251

- AS-Interface Ver. 2.1 compliant
- Digital and analog slaves can be connected.
- 23.5-mm-wide compact housing
- Applicable CPU modules: FC5A-C24R2C, FC5A-C24R2, FC5A-D16RK1, FC5A-D16RS1, FC5A-D32K3, FC5A-D32S3, FC4A-D20RK1, FC4A-D20RS1, FC4A-D40K3, FC4A-D40S3

**SX5A AS-Interface Communication Terminal**
Outside Panel

- Degree of protection: IP20, terminal block
- Expansion slave addresses up to 62 in the A/B slave mode
- Removable terminal block
- Communication monitor function
- Compatible with 2- and 3-wire sensors

**Repeater Pg. 255**

- No address setting required
- AS-Interface network can be extended up to 300 m.
- IP65 protection
- Input status of AS-Interface 1 and 2 are displayed with LED indicators.

**IDEC SmartRelay**
AS-Interface Communication Module: FL1B-CAS2 (see PLC section)

- AS-Interface Ver. 2.0 compliant
- A maximum of 31 slaves can be connected.
- I/O: 4 input points, 4 output points.
- Space-saving, labor-saving, and cost-saving intelligent relay achieves decentralized control.

**Emergency Stop Switches Pg. 289**

- Emergency stop switches with safety slave functions can be connected to AS-Interface Safety at Work.
- Complies with IEC 61508 SIL3 (Functional safety of electrical/electronic/programmable electronic safety-related systems) and EN954-1 safety category 4 (Safety of machinery-Safety related parts of control systems).
- Space, wire, and labor-saving solution for safety equipment
- Equipped with AS-Interface standard slave functions.

**SX5A AS-Interface Communication Terminal**
(Inside Panel)

- Degree of protection: IP20, terminal block
- Expansion slave addresses up to 62 in the A/B slave mode
- Removable terminal block
- Communication monitor function
- Compatible with 2- and 3-wire sensors

**ON**

- 2 safety outputs x 2 circuits
- PNP Transistor Output 200mA
- 2NO contacts
SwitchNet

- Switches and pilot lights containing an AS-Interface communication chip, with IP65 degree of protection.
- The HW series for 22mm mounting holes are available in 216 models, and the L6 series (for 16mm mounting holes) in 277 models — a total of 493 models to choose from.
- Spring clamp terminals reduce wiring time.
- Illuminated units can change brightness in four levels: 100%, 50%, 25%, and 12.5%.
- The same panel layout (mounting centers and behind-panel depth) as conventional HW and L6 series.

### 22mm HW Series Pg. 267

<table>
<thead>
<tr>
<th>Non-illuminated Pushbuttons</th>
<th>Pilot Lights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round Flush</td>
<td>Round Flush</td>
</tr>
<tr>
<td>Round Extended</td>
<td>Square Flush</td>
</tr>
<tr>
<td>ø29mm Mushroom</td>
<td>Square Extended</td>
</tr>
<tr>
<td>ø40mm Mushroom</td>
<td>Round Flush</td>
</tr>
<tr>
<td>Square Flush</td>
<td>Square Flush</td>
</tr>
</tbody>
</table>

I/O: 1 in, momentary and maintained operation

<table>
<thead>
<tr>
<th>Illuminated Pushbuttons</th>
<th>Selector Switch</th>
<th>Key Switch</th>
<th>Illuminated Selector Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round Flush</td>
<td>Round Extended</td>
<td>Round Extended with Full Shroud</td>
<td></td>
</tr>
<tr>
<td>ø29mm Mushroom</td>
<td>ø40mm Mushroom</td>
<td>Square Flush</td>
<td></td>
</tr>
<tr>
<td>40mm Mushroom</td>
<td>Knob Operator</td>
<td>Key Operator</td>
<td></td>
</tr>
</tbody>
</table>

I/O: 1 in/1 out, momentary and maintained operation

### 16mm L6 Series Pg 278

<table>
<thead>
<tr>
<th>Non-illuminated Pushbuttons</th>
<th>Illuminated Pushbuttons</th>
<th>Pilot Lights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round</td>
<td>Round</td>
<td>Round</td>
</tr>
<tr>
<td>Square</td>
<td>Square</td>
<td>Square</td>
</tr>
<tr>
<td>Rectangular</td>
<td>Rectangular</td>
<td>Rectangular</td>
</tr>
</tbody>
</table>

I/O: 1 in, momentary and maintained operation

<table>
<thead>
<tr>
<th>Selector Switches</th>
<th>Key Switches</th>
<th>Illuminated Selector Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round</td>
<td>Round</td>
<td>Round</td>
</tr>
<tr>
<td>Square</td>
<td>Square</td>
<td>Square</td>
</tr>
<tr>
<td>Rectangular</td>
<td>Rectangular</td>
<td>Rectangular</td>
</tr>
</tbody>
</table>

I/O: 1 in (2-position), 2 in (3-position)

### Lever Switch

I/O: 1 in (2-position), 2 in (3-position)

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Product Overview Con’t

<table>
<thead>
<tr>
<th>Mounting Hole</th>
<th>Series</th>
<th>Minimum Mounting Centers (WH)</th>
<th>Depth Behind Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø22</td>
<td>HW</td>
<td>30.0 x 50.0mm (Note 1)</td>
<td>49.3 mm</td>
</tr>
<tr>
<td>ø16</td>
<td>L6</td>
<td>24.0 x 18.0mm (Note 2)</td>
<td>43.8 mm</td>
</tr>
</tbody>
</table>

1. 30 x 50 mm for ø40 mushroom buttons
2. Same mounting centers for round, square, and rectangular units.