AS-Interface Overview
(Actuator Sensor Interface)

MicroSmart
Pentra

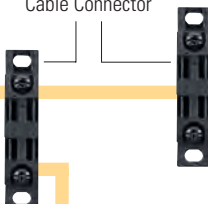AS-Interface Master Module Pg. 247

NEW

73W   145W

AS-Interface Power Supply Pg. 251

NEW

SX5A AS-Interface Safety
Monitor Pg. 292

AS-Interface Flat
Cable Connector

NEW

4 inputs
2 inputs/2 outputs

4 inputs/3 outputs

4 inputs
4 inputs/3 outputs

AS-Interface Communication Terminal Pg. 255

NEW

SX5A AS-Interface Safety Communication
Terminal (Safety Slave) Pg. 292

Emergency Stop
Switch Box

Safety Switches

IDEC SmartRelay
(See PLC section for more
information)

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).

NEW

FB Enclosures Pg. 289

NEW Models

XA & XW E-Stops Pg. 289
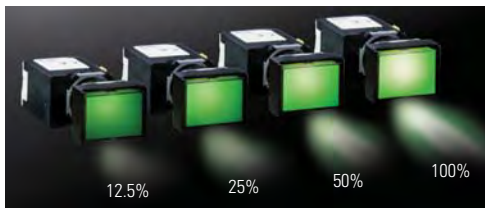
T-branch Connector

NEW

ø16mm L6 Series
SwitchNet Pg. 278

NEW

ø22mm HW Series
SwitchNet Pg. 267

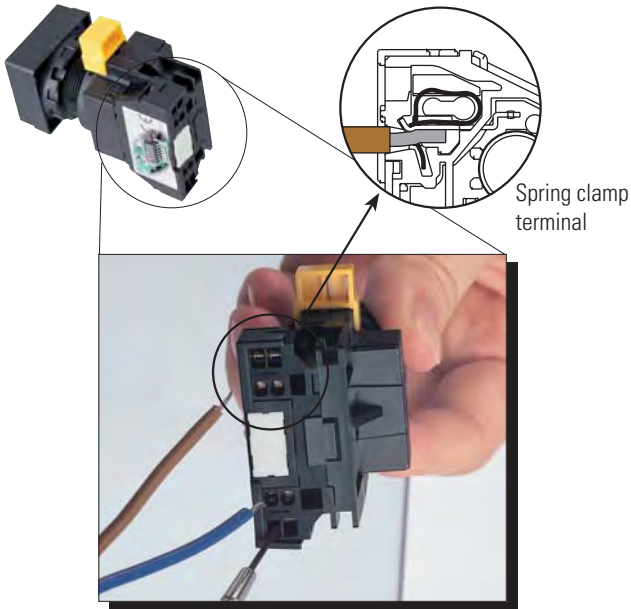### Pilot lights & Illuminated Pushbuttons Brightness Control

Illumination can be controlled at four levels according to a command from the AS-Interface master. Dynamic displays and energy savings are possible.

12.5%   25%   50%   100%

L6 Pilot Lights Pg. 278

PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

Communication & Networking

Easy & Flexible

Quick & Secure Connection

Spring clamp terminal

Spring clamp reduces wiring time
SwitchNet control units feature spring clamp terminals, eiminating the need for tightening screws.

Easy Wring

SX5A AS-Interface Communication Terminal
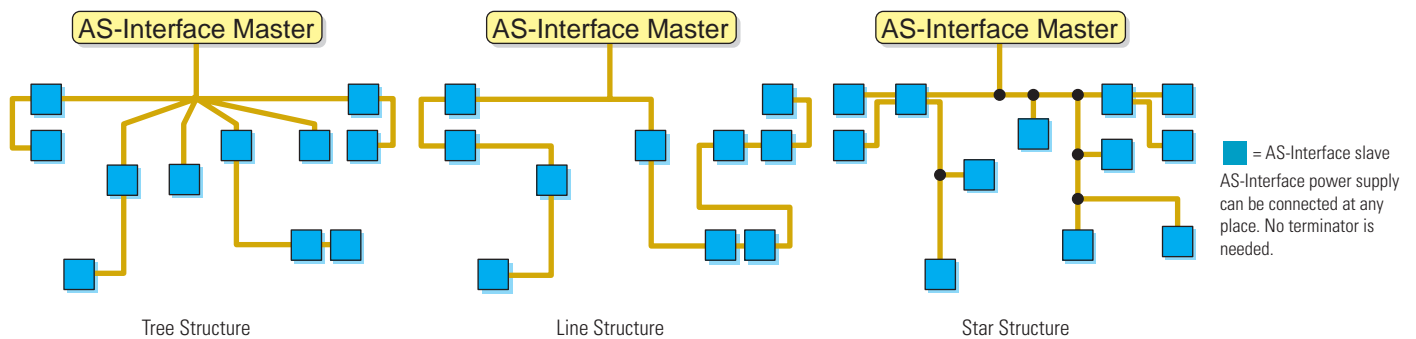
Contact Pins

Base Module

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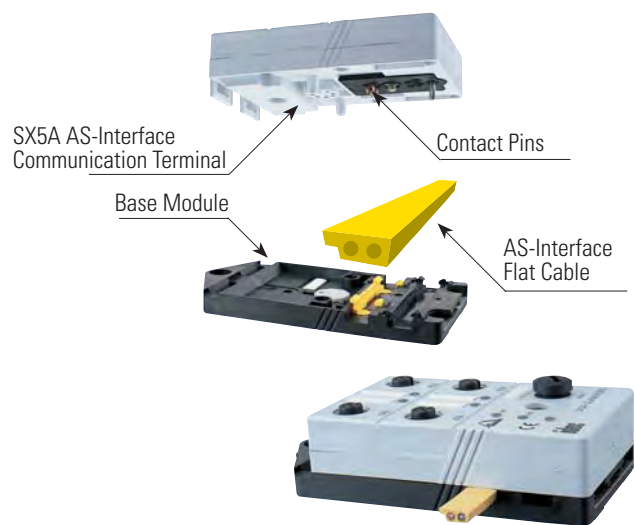
Contact pins pierce through the cable's insulation and make secure contact with the copper conductor. After disconnecting the AS-Interface communication terminal, the elasticity of the sheath closes the pierced holes and maintains insulation.

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.

AS-Interface Master

AS-Interface Master

AS-Interface Master

= AS-Interface slave
AS-Interface power supply can be connected at any place. No terminator is needed.

Tree Structure

Line Structure
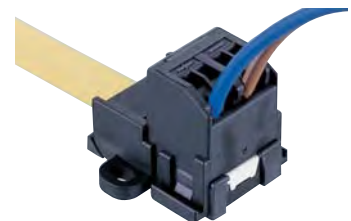
Star Structure

Connectors

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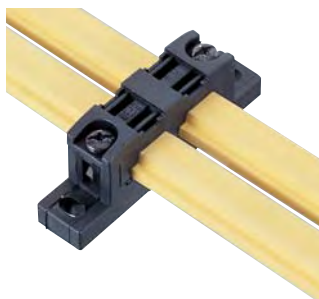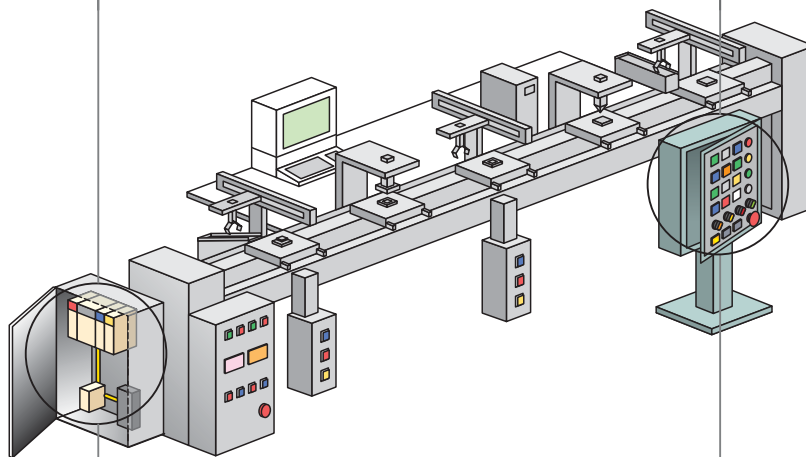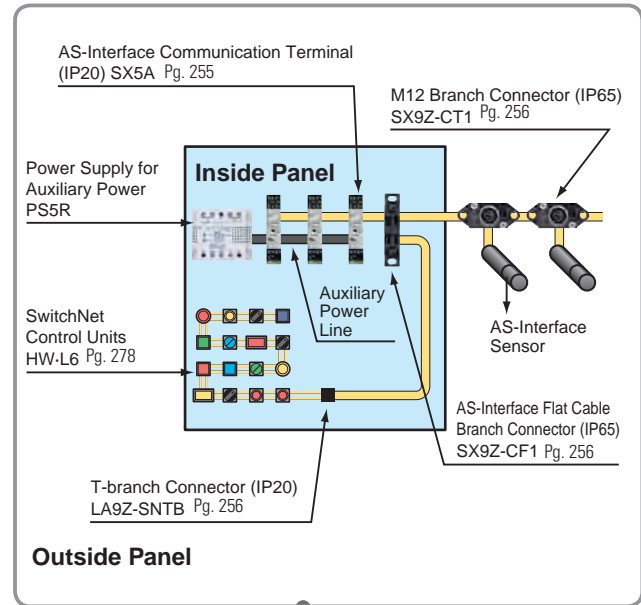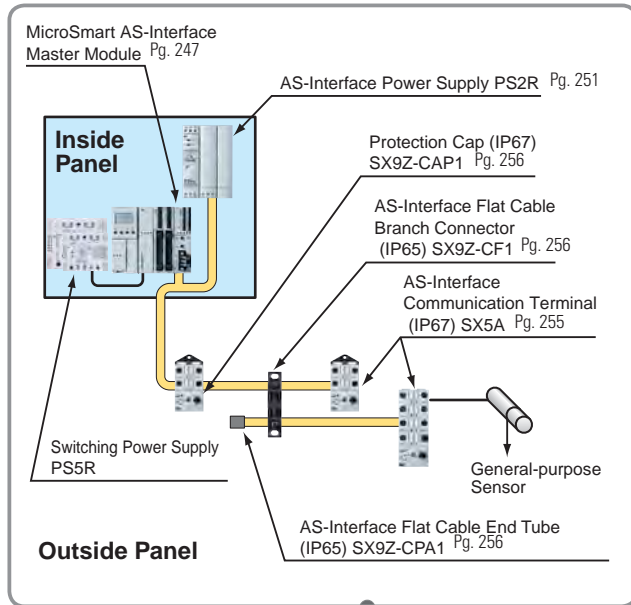

AS-Interface Flat Cable Branch Connector (IP65)
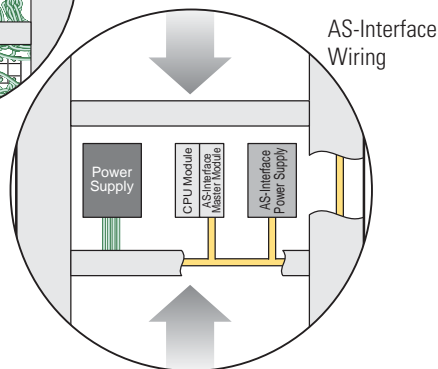
M12 Branch Connector (IP65)

T-branch Connector (IP20)

Sidebar tabs: PLCs | Operator Interfaces | Automation Software | Power Supplies | Sensors | Communication & Networking

Space & Wire Savings

MicroSmart AS-Interface Master Module Pg. 247

AS-Interface Power Supply PS2R Pg. 251

Inside Panel

Protection Cap (IP67) SX9Z-CAP1 Pg. 256

AS-Interface Flat Cable Branch Connector (IP65) SX9Z-CF1 Pg. 256

AS-Interface Communication Terminal (IP67) SX5A Pg. 255

Switching Power Supply PS5R

General-purpose Sensor

AS-Interface Flat Cable End Tube (IP65) SX9Z-CPA1 Pg. 256

Outside Panel

AS-Interface Communication Terminal (IP20) SX5A Pg. 255

M12 Branch Connector (IP65) SX9Z-CT1 Pg. 256

Inside Panel

Power Supply for Auxiliary Power PS5R

SwitchNet Control Units HW·L6 Pg. 278

Auxiliary Power Line

AS-Interface Sensor

AS-Interface Flat Cable Branch Connector (IP65) SX9Z-CF1 Pg. 256

T-branch Connector (IP20) LA9Z-SNTB Pg. 256

Outside Panel

Conventional Wiring

Power Supply   PLC   I/O Modules

Terminal Blocks

AS-Interface Wiring

Power Supply   CPU Module   AS-Interface Master Module   AS-Interface Power Supply

Conventional Switch Wiring
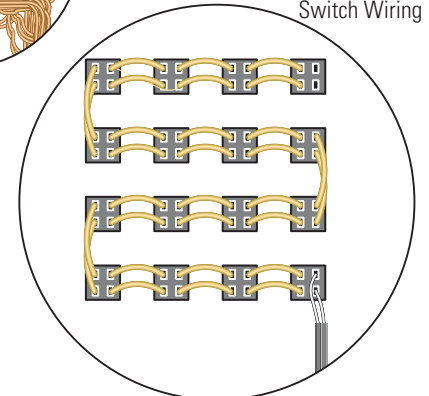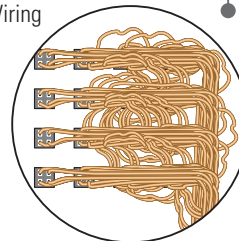
AS-Interface Switch Wiring

PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

Communication & Networking
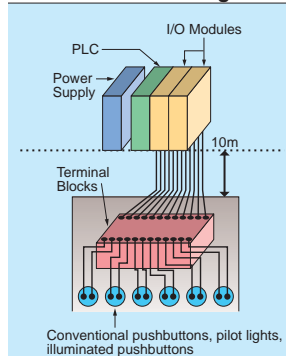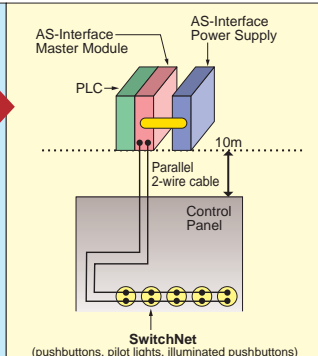
PLCs

Operator Interfaces

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Sensors

Cost Savings

Inside-Panel Wiring Example: Cost Savings Approximately 25%

Wiring Comparison
Conventional Wiring

Conventional pushbuttons, pilot lights, illuminated pushbuttons

AS-Interface & SwitchNet Wiring

SwitchNet
(pushbuttons, pilot lights, illuminated pushbuttons)

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.
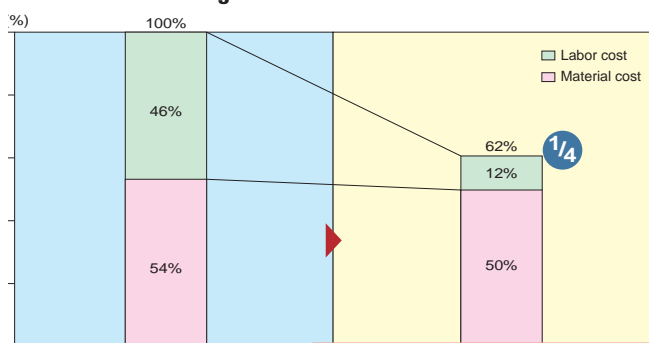
Cost Comparison
Conventional Wiring   **AS-Interface & SwitchNet Wiring**
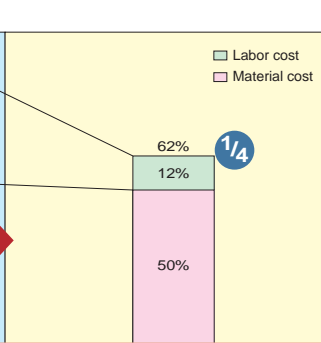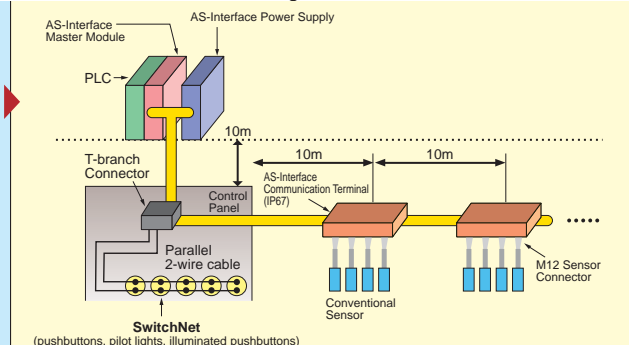

1. Comparisons were made using IDEC products.
2. Cost comparison is based on control panel configuration using 60 buttons and lights.

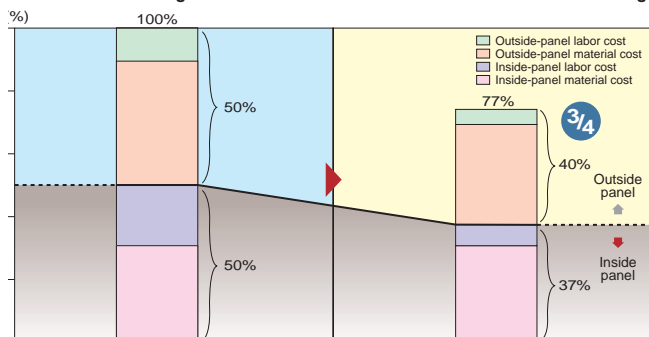## Inside & Outside-Panel Wiring Example: Cost Savings Approximately 25%
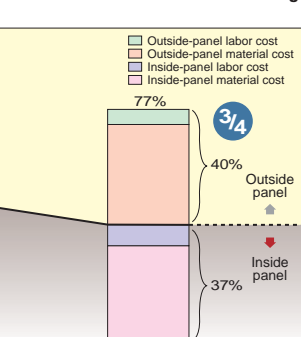
Wiring Comparison
Conventional Wiring

Conventional pushbuttons, pilot lights, illuminated pushbuttons

AS-Interface & SwitchNet Wiring

SwitchNet
(pushbuttons, pilot lights, illuminated pushbuttons)
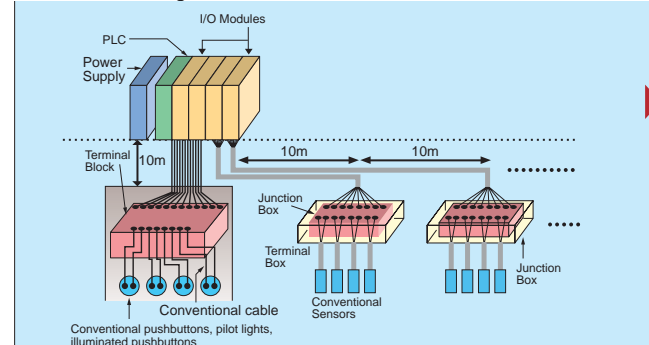
Cost Comparison
Conventional Wiring   **AS-Interface & SwitchNet Wiring**

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

PS2R AS-Interface Power Supply Pg. 251 NEW

73W

145W

PS2R-Q30ABL
Output capacity 73W
(30.5V, 2.4A)

PS2R-F20ABL
Output capacity 145W
(30.5V, 4.8A)

- AS-International Association certified
- UL, CSA, TÜV
- CE marked
- Universal AC input: 85 to 264V AC

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.

SX5A AS-Interface Communication Terminal Pg. 255
(Outside Panel) NEW

SX5A-SWN40S02
SX5A-SWN40K02N
(4 inputs)

SX5A-SWM22KS2N
(2 inputs / 2 outputs)

SX5A-SWM43KS2N
(4 inputs / 3 outputs)

Degree of protection: IP67, connector
- Expansion slave addresses up to 62 in the A/B slave mode
- Compatible with 2- and 3-wire sensors
- With AS-Interface power and I/O status indicators
- Overload detection on the sensor power supply
- Output overload detection (2 in/2 out, 4 in/3 out)

SX5A AS-Interface Communication Terminal Pg. 255
(Inside Panel) NEW

SX5A-SSN40S0N
SX5A-SSN40K0N
(4 inputs)

SX5A-SSM43KSN
(4 inputs / 3 outputs)

- 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

NEW
- 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.

Emergency Stop Switches Pg. 289 NEW

ø16mm XA Series E-Stops
ø29 & ø40mm Mushroom
Buttons

ø22mm XW Series E-Stops
ø29 & ø40mm Mushroom
Buttons

E-Stop Enclosures

- 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.

AS-Interface Safety Monitors: SX5A-MBR02 Pg. 292

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

PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

Communication & Networking

Sensors · **Power Supplies** · **Automation Software** · **Operator Interfaces** · **PLCs** · **Communication & Networking**

SwitchNet

Product Overview Con't

- 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.

Mounting Hole	Series	Minimum Mounting Centers (WH)	Depth Behind Panel
ø22	HW series	30.0 x 50.0mm (Note 1)	49.3 mm
ø16	L6 series	24.0 x 18.0mm (Note 2)	43.8 mm

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

22mm HW Series Pg. 267

	Non-illuminated Pushbuttons						Pilot Lights	
Round Flush	Round Extended	ø29mm Mushroom	ø40mm Mushroom	Square Flush	Square Extended		Round Flush	Square Flush

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

	Illuminated Pushbuttons					Selector Switch	Key Switch	Illuminated Selector Switch
Round Flush	Round Extended	Round Extended with Full Shroud	ø29mm Mushroom	40mm Mushroom	Square Flush	Knob Operator	Key Operator	

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

Selector Switch / Key Switch: I/O: 1 in (2 position), 1 in + 1 in on 2 slaves (3-position)

Illuminated Selector Switch: I/O: 1 in (2 position), 1 in/1 out + 1 in on 2 slaves (3-position)

16mm L6 Series Pg 278

Non-illuminated Pushbuttons			Illuminated Pushbuttons			Pilot Lights		
Round	Square	Rectangular	Round	Square	Rectangular	Round	Square	Rectangular

Non-illuminated: I/O: 1 in, momentary and maintained operation
Illuminated: I/O: 1 in/1 out, momentary and maintained operation
Pilot Lights: I/O: 1 out

Selector Switches			Key Switches			Illuminated Selector Switches		
Round	Square	Rectangular	Round	Square	Rectangular	Round	Square	Rectangular

Selector Switches: I/O: 1 in (2-position), 2 in (3-position)
Key Switches: I/O: 1 in (2-position), 2 in (3-position)
Illuminated Selector Switches: I/O: 1 in/1 out (2-position), 2 in/1 out (3-position)

Lever Switch

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