

**Overview**

K60



K45



K20

Three coordinated series of AS-Interface compact modules with digital and analog compact modules and a high degree of protection are available for use in the field:

- Series K60 (digital and analog)
- Series K45 (digital)
- Series K20 (digital)

All compact modules are characterized by particularly simple handling. The K60 and K45 modules are mounted with a mounting plate. The mounting plate is used to mount the AS-Interface flat cables and enables mounting on a wall or standard mounting rail.

The particularly narrow K20 modules are directly mounted without a mounting plate and connected to the AS-Interface using a round cable.

**Connection types**

For flexible connection of different sensors and actuators, the following PIN assignments are available on the I/O modules with M12 sockets:

Standard assignment

With the standard assignment, one sensor/actuator is connected per M12 socket. In this case the signal for the outputs is acquired at PIN4 while the signal for the inputs is acquired at PIN4 and PIN2. As the result, sensors can be connected directly to PIN2 and PIN4.

Y assignment

With the Y assignment, two sensors or two actuators can be connected to one M12 socket. In this case, both PIN4 and PIN2 are provided for one sensor signal and one actuator signal on each M12 socket.

Y-II assignment

The Y-II assignment offers the following options:

- Individual connection of a sensor/actuator to one M12 socket
- Connection of two sensors/actuators to one M12 socket as follows:
  - The signal of the first sensor/actuator is connected to PIN4 of the first socket
  - The signal of the second sensor/actuator is connected to PIN2 of the first socket and to PIN4 of the second socket
 In this case, the second socket is not required and is closed with a sealing cap.

**Overview of digital compact modules**

The following table provides an overview of the important features of the digital compact modules.

Version	K60	K45	K20
8 inputs / 2 outputs	✓	--	--
8 inputs	✓	✓	--
4 inputs / 4 outputs	✓	✓	✓
4 inputs / 3 outputs	✓	--	--
4 inputs / 2 outputs	✓	--	--
4 inputs	✓	✓	✓
2 inputs / 2 outputs	--	✓	✓
4 outputs	✓	✓	✓
3 outputs	--	✓	--
AS-Interface connection	Flat cable / round cable	Flat cable	Round cable
I/O connection method	M12	M12/M8	M12/M8
Pin assignment	Standard/Y-II/Y	Standard/Y	Standard/Y
Degree of protection	IP65/IP67/IP68/IP69K	IP65/IP67	IP65/IP67
ATEX 3D (Zone 22)	✓	--	--
Extended address mode	✓	✓	✓

✓ Available

-- Not available

## AS-Interface

### Slaves

### I/O Modules for Use in the Field, High Degree of Protection

#### Digital I/O modules, IP67 - K60

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#### Overview

The K60 digital AS-Interface compact modules are characterized by optimized handling characteristics and user-friendliness. They permit the mounting times and startup times of AS-Interface to be reduced by up to 40 %.

#### **Mounting and connection of the AS-Interface shaped cables**

Assembly of the K60 modules is performed with a mounting plate which accommodates the AS-Interface shaped cables. Two different mounting plates are offered for

- Wall mounting
- Standard rail mounting

The mounting plate and the compact module are joined together by means of a screw, with simultaneous contacting of the AS-Interface cable by the service-proven insulation piercing method.

#### **Addressing and connection of the sensors/actuators**

Addressing of the K60 modules is performed using an addressing socket integrated in the compact module. The addresses can also be assigned after installation.

#### K60 modules with a maximum of four digital inputs and outputs

These compact modules contain the M12 standard connections for inputs and outputs. Using M12 standard connectors, a maximum of four sensors and four actuators can be connected to the compact module.

#### K60 compact modules with a maximum of eight digital inputs

These modules have eight digital inputs for connection through M12 plugs.

The module requires two AS-Interface addresses for processing all eight inputs. The addressing can thus be performed through a double addressing socket integrated in the module.

#### K60 compact modules with four digital inputs and outputs according to AS-Interface Specification 3.0

The AS-Interface Specification V3.0 extended address mode (A/B addresses) enables connection of up to 62 slaves on one AS-Interface network. With the extended address mode, four outputs are now possible even with A/B slaves (instead of only three outputs possible up to now with Specification V2.1). Hence with full expansion of an AS-Interface network, there are now 248 inputs as well as 248 outputs available on one AS-i network.

Points to bear in mind:

- These modules can be used only with a master according to AS-i Specification V3.0
- The cycle times for the outputs may be up to 20 ms

#### **K60 data couplers**

An AS-Interface data coupler has been added to the K60 compact module range. Integrated in this module are two AS-i slaves which are connected to two different AS-i networks. Each of the two integrated slaves has four virtual inputs and four virtual outputs. The bidirectional data transmission of four data bits between two AS-i networks is thus possible in a simple and cost-effective manner. The data coupler needs its own address in each AS-i network.

Each AS-i network works with a different cycle time depending on the number of stations. Hence two AS-i networks are not necessarily synchronous. For this reason the AS-i data coupler can be used to transmit only standard data and no safety data.

#### **K60 compact modules for use in hazardous areas (ATEX)**

Two versions of the K60 modules are available for operation in Zone 22 hazardous areas according to Classification II 3D (dusty atmosphere, non-conductive dust). The version with four inputs and four outputs has the designation (Ex) II 3D Ex tD A22 IP65X T75°C and the version with four inputs has the designation (Ex) II 3D Ex tD A22 IP65X T60°C.

Special conditions have to be observed for the safe operation of these devices. In particular the module must be protected by suitable measures from mechanical damage.

#### More information

For other conditions for safe operation, see <http://support.automation.siemens.com/WW/view/en/18290447>.

## Selection and ordering data



3RK1400-1DQ00-0AA3

Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
<b>Digital I/O modules, IP67 - K60</b> <ul style="list-style-type: none"> <li>• PNP transistor</li> <li>• Width 60 mm</li> <li>• Connection method: M12</li> <li>• Modules supplied without mounting plate</li> </ul>						
Type	Current carrying capacity of outputs	Slave type	Pin assignment	Sensor power supply off		
8 inputs/ 2 outputs <sup>1)</sup>	2 A	A/B	Special	AS-i	A	<b>3RK2400-1HQ00-0AA3</b>
8 inputs <sup>1)</sup>	--	Standard	Y-II	AS-i	▶	<b>3RK1200-0DQ00-0AA3</b>
	--	A/B	Y-II	AS-i	▶	<b>3RK2200-0DQ00-0AA3</b>
	--	A/B	Y-II	U <sub>aux</sub>	A	<b>3RK2200-1DQ00-1AA3</b>
4 inputs/ 4 outputs	2 A	Standard	Y-II	AS-i	▶	<b>3RK1400-1DQ00-0AA3</b>
	2 A	Standard	Standard	AS-i	▶	<b>3RK1400-1CQ00-0AA3</b>
	1 A	Standard	Y-II	AS-i	A	<b>3RK1400-1DQ01-0AA3</b>
	1 A	Standard	Standard	AS-i	▶	<b>3RK1400-1DQ03-0AA3</b>
	2 A	A/B (Spec. V3.0)	Y-II	AS-i	A	<b>3RK2400-1DQ00-0AA3</b>
	2 A	A/B (Spec. V3.0)	Y-II	U <sub>aux</sub>	A	<b>3RK2400-1DQ00-1AA3</b>
4 inputs/ 3 outputs	2 A	A/B	Y-II	AS-i	▶	<b>3RK2400-1FQ03-0AA3</b>
4 inputs/ 2 outputs	2 A	Standard	Y-II	AS-i	▶	<b>3RK1400-1MQ00-0AA3</b>
4 inputs	--	Standard	Y-II	AS-i	▶	<b>3RK1200-0CQ00-0AA3</b>
	--	A/B	Y-II	AS-i <b>NEW</b>	A	<b>3RK2200-0CQ00-0AA3</b>
2x2 inputs/ 2x2 outputs	1 A	Standard	Y	AS-i	B	<b>3RK1400-1DQ02-0AA3</b>
4 outputs	2 A	Standard	Y-II	--	▶	<b>3RK1100-1CQ00-0AA3</b>
	2 A	A/B (Spec. V3.0)	Y-II	-- <b>NEW</b>	A	<b>3RK2100-1CQ00-0AA3</b>
<b>Digital I/O modules IP67 - K60, version ATEX (Ex) II 3D Ex tD A22 IP65X T75°C/60°C</b> <ul style="list-style-type: none"> <li>• PNP transistor</li> <li>• Width 60 mm</li> <li>• Current carrying capacity of the inputs: 200 mA</li> <li>• Connection method: M12</li> <li>• Modules supplied without mounting plate</li> </ul>						
Type	Current carrying capacity of outputs	Slave type	Pin assignment			
4 inputs/ 4 outputs	2 A	Standard	Y-II		B	<b>3RK1400-1DQ05-0AA3</b>
4 inputs	--	Standard	Y-II		C	<b>3RK1200-0CQ05-0AA3</b>
<b>Digital I/O modules IP67 - K60 data couplers</b> <ul style="list-style-type: none"> <li>• Modules supplied without mounting plate</li> </ul>						
Type	Current carrying capacity of outputs	Slave type	Pin assignment			
Data coupler 4 inputs/4 outputs (virtual)	--	Standard	--		C	<b>3RK1408-8SQ00-0AA3</b>

## Accessories



3RK1901-0CA00



3RK1901-1KA00



3RK1902-0AR00

**K60 mounting plates**

Suitable for all K60 compact modules

- Wall mounting
- Standard rail mounting

▶	<b>3RK1901-0CA00</b>	1	1 unit	42C
▶	<b>3RK1901-0CB01</b>	1	1 unit	42C

**AS-Interface sealing caps M12**

For free M12 sockets

▶	<b>3RK1901-1KA00</b>	100	10 units	42C
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**Sealing sets**

- For K60 mounting plate and standard distributor
- Cannot be used for K45 mounting plate
- One set contains one straight and one shaped seal

A	<b>3RK1902-0AR00</b>	100	5 units	42D
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<sup>1)</sup> Module occupies two AS-Interface addresses