

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6ES7650-8EK80-1AA0

COATED THIRTY TWO CHANNEL OUTPUT MODULE

Used with the applicable SIMATIC ET 200PA SMART configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens exact-article technical data, 6ES7650-8EK80-1AA0

Short-circuit of the sensor supply Vs

The status LED of the sensor supply goes out in the event of a short-circuit of the sensor supply Vs, irrespective of the parameter assignment.

Wire break

In order for a wire break to be detected even in case of "0" signal, a resistance of 10 to 18 kilohms must be wired parallel to the sensor contacts.

10.3 Digital output modules**Overview of properties**

The table below presents the ET 200PA SMART digital output modules based on their most important properties.

Table 10-5 Digital output modules

Properties	Module	
	DO16 x 24V/0.5A	DO32 x 24V/0.5A
	6ES7650-8EK70-xAA0	6ES7650-8EK80-xAA0
Number of outputs	16 Isolated in groups of 16	32 Isolated in groups of 8
Output current	0.5 A	0.5 A
Rated load voltage	24 V DC	24 V DC
Suitable for	Solenoid valves, DC contactors and signal lamps	
Configurable diagnostics	Yes	No
Diagnostic interrupt	Yes	No
Substitute value output	Yes (channel-specific)	No

10.3.1 Digital output module DO 32 x DC 24 V/ 0.5 A**Article numbers**

Standard module: 6ES7 650-8EK80-0AA0

Module with conformal coating: 6ES7 650-8EK80-1AA0

Properties

The DO 32 x DC 24 V/0.5 A is characterized by the following properties:

- 32 outputs, isolated in groups of 8
- Output current 0.5 A
- Rated load voltage 24 V DC
- Suitable for solenoid valves, DC contactors and signal lamps
- Group error display (SF LED)

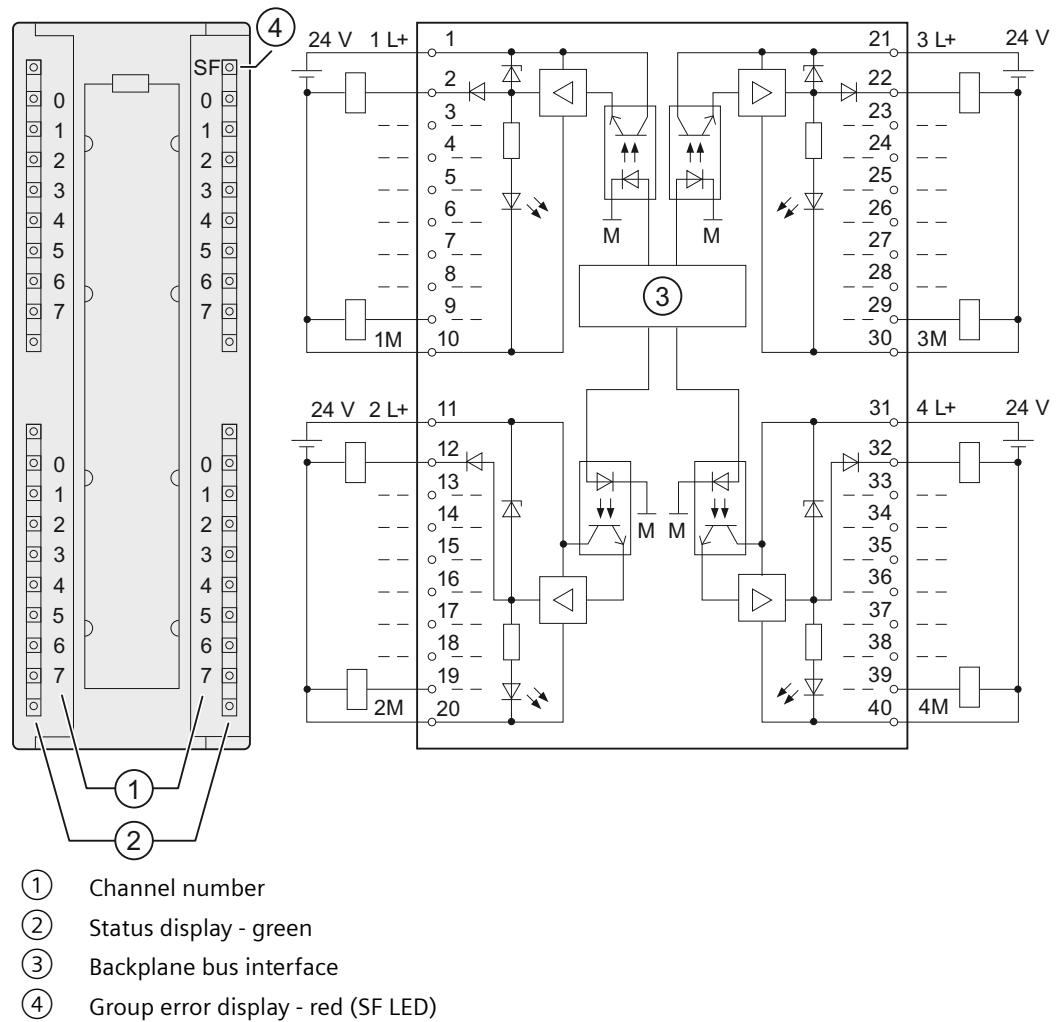
Use of the module with high-speed counters

Note the following when using the module in combination with high-speed counters:

Note

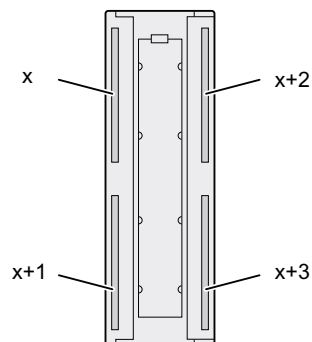
When the 24 V supply voltage is connected via a mechanical contact, the outputs of the DO 32 x DC 24 V/0.5 A have the "1" signal for approximately 50 µs due to the circuit.

Wiring and block diagram of the DO 32 x DC 24 V/ 0.5 A



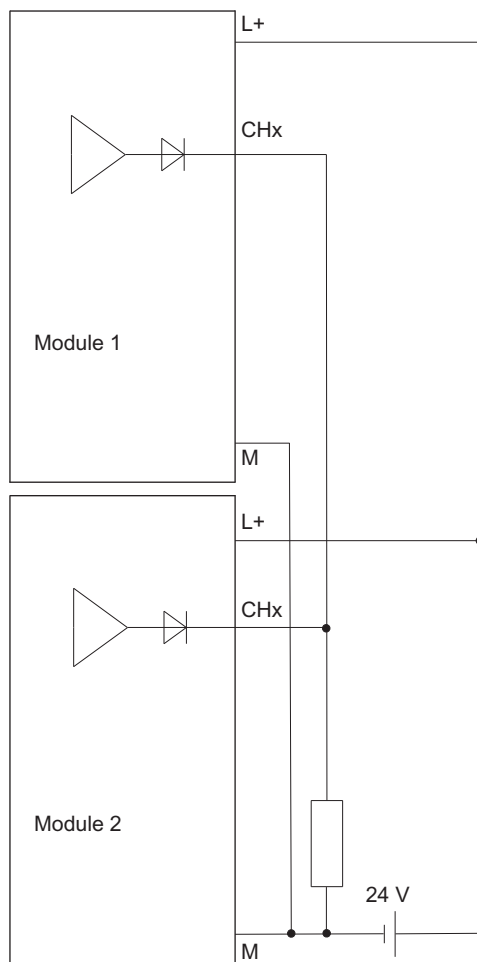
Terminal assignment

The figure below shows the assignment of the channels to the addresses (output byte x to output byte x+3).



Redundant use

The redundant control is possible without external protection circuit. Both signal modules must have the same reference potential M.



Technical specifications of the DO 32 x DC 24 V/ 0.5 A

Technical specifications	
Dimensions and weight	
Dimensions W x H x D (mm)	40 x 125 x 120
Weight	Approx. 300 g
Module-specific data	
Number of outputs	32
Cable length	
• Unshielded	Max. 600 m
• Shielded	Max. 1000 m
Voltages, currents, potentials	
Rated load voltage L+	24 V DC

Technical specifications	
Reverse polarity protection	No
Total current of outputs (per group)	
Horizontal mounting position Up to 40 °C Up to 60 °C	Max. 4 A Max. 3 A
Vertical mounting position Up to 40 °C	Max. 2 A
Electrical isolation	
Between channels and backplane bus	Yes
Between channels in groups of	Yes 8
Isolation, designed for basic isolation	
Between different circuits	75 V DC / 60 V AC
Isolation tested with	500 V AC or 707 V DC, type test
Current consumption	
- From backplane bus - From load voltage L+ (no load)	Max. 60 mA Max. 100 mA
Power loss of the module	Typ. 9.3 W
Status, interrupts, diagnostics	
Status display	Green LED per channel
Group error display (SF LED)	Yes
Diagnostic interrupts	None
Diagnostic functions	None
Actuator selection data	
Output voltage	
When signal "1" is present	Min. L+ (-1.3 V)
Output current	
When signal "1" is present Rated value Permitted range	0.5 A 5 mA to 0.6 A
When signal "0" is present (residual current)	Max. 0.5 mA
Output delay (with resistive load)	
- At "0" to "1" transition - At "1" to "0" transition	Max. 200 µs Max. 300 µs
Load resistance range	48 Ω to 4 kΩ
Lamp load	Max. 5 W
Connection of 2 outputs in parallel	
- For redundant control of a load - For performance increase	Supported Not supported
Control of a digital input	Supported
Switching frequency	
With resistive load	Max. 100 Hz

10.3 Digital output modules

Technical specifications	
• With inductive load according to IEC 947-5-1, DC 13	Max. 0.5 Hz
• With lamp load	Max. 10 Hz
Internal limiting of the inductive trip voltage to	Typ. L+ (-53 V)
Short-circuit protection of the output	Yes, electronic
• Response threshold	Typ. 1 A
Connection of the actuators	Using a 40-pin front connector

10.3.2 Digital output module DO 16 x DC 24 V/0.5 A

Article numbers

Standard module: 6ES7 650-8EK70-0AA0

Module with conformal coating: 6ES7 650-8EK70-1AA0

Properties

The DO 16 x DC 24 V/0.5 A is characterized by the following properties:

- 16 outputs, isolated in groups of 4 channels
- Output current 0.5 A
- Rated load voltage 24 V DC
- Suitable for solenoid valves, DC contactors and signal lamps
- Wire break detection at "0" and "1" signal
- Group error display (SF LED)
- Configurable diagnostics
- Configurable diagnostic interrupt
- Configuration in Run (CiR) supported