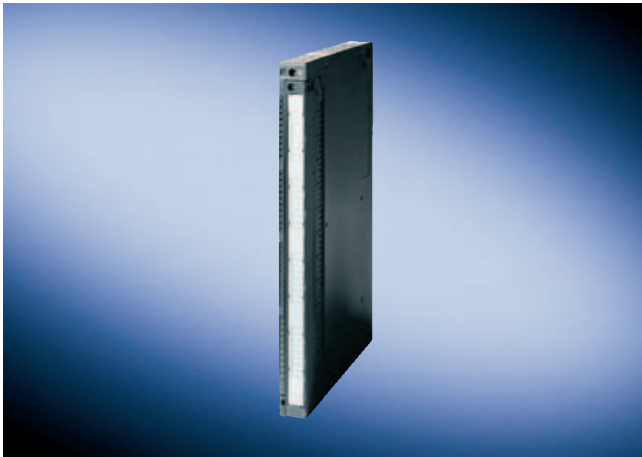


#### Overview



- Digital outputs for the SIMATIC S7-400
- For connecting solenoid valves, contactors, low-power motors, lamps and motor starters

#### Technical specifications

|                                             | 6ES7 422-1FH00-0AA0                | 6ES7 422-1HH00-0AA0 | 6ES7 422-1BH11-0AA0         | 6ES7 422-1BL00-0AA0         | 6ES7 422-7BL00-0AB0         |
|---------------------------------------------|------------------------------------|---------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Voltages and currents</b>                |                                    |                     |                             |                             |                             |
| Load voltage L+                             |                                    |                     |                             |                             |                             |
| • Rated value (DC)                          |                                    | 60 V                | 24 V                        | 24 V                        | 24 V                        |
| • permissible range, lower limit (DC)       |                                    | 1 V                 | 20.4 V                      | 20.4 V                      | 20.4 V                      |
| • permissible range, upper limit (DC)       |                                    | 60 V                | 28.8 V                      | 28.8 V                      | 28.8 V                      |
| Load voltage L1                             |                                    |                     |                             |                             |                             |
| • Rated value (AC)                          | 230 V;<br>120/230 V AC             | 230 V               |                             |                             |                             |
| • permissible range, lower limit (AC)       | 79 V                               | 2 V                 |                             |                             | 20.4 V                      |
| • permissible range, upper limit (AC)       | 264 V                              | 264 V               |                             |                             | 28.8 V                      |
| <b>Current consumption</b>                  |                                    |                     |                             |                             |                             |
| from load voltage L+ (without load), max.   | 1.5 mA                             |                     | 30 mA                       | 30 mA                       | 120 mA                      |
| from load voltage L1 (without load), max.   | 6 mA                               |                     |                             |                             |                             |
| from backplane bus DC 5 V, max.             | 400 mA                             | 1 A                 | 160 mA                      | 200 mA                      | 200 mA                      |
| Power loss, max.                            | 16 W                               | 25 W                | 7 W                         | 4 W                         | 8 W                         |
| <b>Digital outputs</b>                      |                                    |                     |                             |                             |                             |
| Number of digital outputs                   | 16                                 | 16; Relay           | 16                          | 32                          | 32                          |
| Cable length, shielded, max.                | 1,000 m                            | 1,000 m             | 1,000 m                     | 1,000 m                     | 1,000 m                     |
| Cable length unshielded, max.               | 600 m                              | 600 m               | 600 m                       | 600 m                       | 600 m                       |
| Short-circuit protection of the output      | Yes; Fuse, 8 A / 250 V (per group) |                     | Yes; clocked electronically | Yes; clocked electronically | Yes; clocked electronically |
| Limitation of inductive shutdown voltage to |                                    |                     | -30 V                       | -27 V                       | L+ (-45 V)                  |
| Lamp load, max.                             | 50 W                               | 60 W                | 10 W                        | 5 W                         | 5 W                         |
| Output voltage                              |                                    |                     |                             |                             |                             |
| • for signal "1", min.                      | L1 (-18.1 V)                       |                     | L+ (-0.5 V)                 | L+ (-0.3 V)                 | L+ (-0.8 V)                 |

# SIMATIC S7-400

## Digital modules

### SM 422 digital output module

#### Technical specifications (continued)

|                                                         | 6ES7 422-1FH00-0AA0                                | 6ES7 422-1HH00-0AA0                                                               | 6ES7 422-1BH11-0AA0          | 6ES7 422-1BL00-0AA0          | 6ES7 422-7BL00-0AB0              |
|---------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------|------------------------------|----------------------------------|
| Output current                                          |                                                    |                                                                                   |                              |                              |                                  |
| • for signal "1" rated value                            | 2 A                                                |                                                                                   | 2 A                          | 0.5 A                        | 0.5 A                            |
| • for signal "1" permissible range for 0 to 60 °C, min. | 10 mA                                              |                                                                                   | 5 mA                         | 5 mA                         | 5 mA                             |
| • for signal "1" permissible range for 0 to 60 °C, max. |                                                    |                                                                                   | 2.4 A                        | 0.6 A                        | 0.6 A                            |
| • for signal "0" residual current, max.                 | 2.6 mA                                             |                                                                                   | 0.5 mA                       | 0.3 mA                       | 0.5 mA                           |
| Switching frequency                                     |                                                    |                                                                                   |                              |                              |                                  |
| • with resistive load, max.                             | 10 Hz                                              | 10 Hz                                                                             | 100 Hz                       | 100 Hz                       | 100 Hz                           |
| • with inductive load, max.                             | 0.5 Hz                                             |                                                                                   | 0.1 Hz                       | 0.5 Hz                       | 2 Hz                             |
| Aggregate current of the outputs (per group)            |                                                    |                                                                                   |                              |                              |                                  |
| • up to 60 °C, max.                                     | 2 A; 5 A with fan assembly, per 4 adjacent outputs | 5 mA; 10 A with fan subassembly                                                   | 2 A; 2 adjacent outputs each | 2 A; 8 adjacent outputs each | 2 A                              |
| <b>Relay outputs</b>                                    |                                                    |                                                                                   |                              |                              |                                  |
| Number of operating cycles                              |                                                    | 100,000;<br>100,000<br>(AC 15 / DC 13);<br>3,000,000<br>mechanical                |                              |                              |                                  |
| Switching capacity of the contacts                      |                                                    |                                                                                   |                              |                              |                                  |
| • with inductive load, max.                             |                                                    | 5 A;<br>5 A (30 V DC),<br>5 A (230 V AC)                                          |                              |                              |                                  |
| • with resistive load, max.                             |                                                    | 5 A;<br>5 A (DC 30 V),<br>5 A (AC 230 V),<br>1.2 A (DC 60 V),<br>0.2 A (DC 125 V) |                              |                              |                                  |
| <b>Status information/alarms/diagnostics</b>            |                                                    |                                                                                   |                              |                              |                                  |
| Alarms                                                  |                                                    |                                                                                   |                              |                              |                                  |
| • Diagnostic alarm                                      |                                                    |                                                                                   |                              |                              | Yes; parameterizable             |
| Diagnostics                                             |                                                    |                                                                                   |                              |                              |                                  |
| • Diagnostics                                           |                                                    |                                                                                   |                              |                              | Yes; internal/<br>external fault |
| <b>Isolation</b>                                        |                                                    |                                                                                   |                              |                              |                                  |
| Isolation checked with                                  | 1500 V AC                                          | 1500 V AC                                                                         | 500 V DC                     | 500 V DC                     | 500 V DC                         |
| <b>Isolation</b>                                        |                                                    |                                                                                   |                              |                              |                                  |
| Isolation, digital outputs                              |                                                    |                                                                                   |                              |                              |                                  |
| • between the channels, in groups of                    | 4                                                  | 2                                                                                 | 8                            | 32                           | 8                                |
| • between the channels and the backplane bus            | Yes                                                | Yes                                                                               | Yes                          | Yes                          | Yes                              |
| <b>Dimensions and weight</b>                            |                                                    |                                                                                   |                              |                              |                                  |
| Width                                                   | 25 mm                                              | 25 mm                                                                             | 25 mm                        | 25 mm                        | 25 mm                            |
| Height                                                  | 290 mm                                             | 290 mm                                                                            | 290 mm                       | 290 mm                       | 290 mm                           |
| Depth                                                   | 210 mm                                             | 210 mm                                                                            | 210 mm                       | 210 mm                       | 210 mm                           |
| <b>Weights</b>                                          |                                                    |                                                                                   |                              |                              |                                  |
| Weight, approx.                                         | 800 g                                              | 700 g                                                                             | 600 g                        | 600 g                        | 600 g                            |

# SIMATIC S7-400

## Digital modules

### SM 422 digital output module

| Ordering data                                                                  | Order No.                                                                                                                                                                 | Order No.                  |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <b>SM 422 Digital Output Modules</b>                                           |                                                                                                                                                                           |                            |
| 16 outputs, 24 V DC; 2 A                                                       | <b>6ES7 422-1BH11-0AA0</b>                                                                                                                                                |                            |
| 32 outputs, 24 V DC; 0.5 A                                                     | <b>6ES7 422-1BL00-0AA0</b>                                                                                                                                                |                            |
| 32 outputs, 24 V DC, 0.5 A; with diagnostics                                   | <b>6ES7 422-7BL00-0AB0</b>                                                                                                                                                |                            |
| 16 outputs, 120/230 V AC; 2 A                                                  | <b>6ES7 422-1FH00-0AA0</b>                                                                                                                                                |                            |
| 16 outputs, relay contacts                                                     | <b>6ES7 422-1HH00-0AA0</b>                                                                                                                                                |                            |
| <b>Front connectors</b>                                                        |                                                                                                                                                                           |                            |
| 48-pin                                                                         |                                                                                                                                                                           |                            |
| • With screw contacts, 1 unit                                                  | <b>6ES7 492-1AL00-0AA0</b>                                                                                                                                                |                            |
| • With screw contacts, 84 units                                                | <b>6ES7 492-1AL00-1AB0</b>                                                                                                                                                |                            |
| • With spring-loaded clamps, 1 unit                                            | <b>6ES7 492-1BL00-0AA0</b>                                                                                                                                                |                            |
| • With crimp contacts, 1 unit <sup>A)</sup>                                    | <b>6ES7 492-1CL00-0AA0</b>                                                                                                                                                |                            |
| • With crimp contacts, 84 units                                                | <b>6ES7 492-1CL00-1AB0</b>                                                                                                                                                |                            |
| <b>SIMATIC TOP connect</b>                                                     | See page 5/104;<br>Information about which components can be used for the respective module, see A&D Mall or Catalog KT 10.2                                              |                            |
| <b>Cover film for labeling strips</b>                                          | <b>6ES7 492-2XX00-0AA0</b>                                                                                                                                                |                            |
| Spare part                                                                     |                                                                                                                                                                           |                            |
| <b>Fuse cover</b>                                                              | <b>6ES7 422-0XX00-7AA0</b>                                                                                                                                                |                            |
| Spare part, 4 units                                                            |                                                                                                                                                                           |                            |
| <b>S7 SmartLabel</b>                                                           | <b>2XV9 450-1SL01-0YX0</b>                                                                                                                                                |                            |
| Software for automatic labeling of modules based on data of the STEP 7 project |                                                                                                                                                                           |                            |
|                                                                                | <b>Labeling sheets for machine inscription</b>                                                                                                                            |                            |
|                                                                                | DIN A4, for printing using laser printer; pack of 10                                                                                                                      |                            |
|                                                                                | Petrol                                                                                                                                                                    | <b>6ES7 492-2AX00-0AA0</b> |
|                                                                                | Light-beige                                                                                                                                                               | <b>6ES7 492-2BX00-0AA0</b> |
|                                                                                | Yellow                                                                                                                                                                    | <b>6ES7 492-2CX00-0AA0</b> |
|                                                                                | Red                                                                                                                                                                       | <b>6ES7 492-2DX00-0AA0</b> |
|                                                                                | <b>SIMATIC Manual Collection</b> <sup>D)</sup>                                                                                                                            | <b>6ES7 998-8XC01-8YE0</b> |
|                                                                                | Electronic manuals on DVD, five languages: S7-200/300/400, C7, LOGO!, SIMATIC DP, PC, PG, STEP 7, engineering software, runtime software, PCS 7, SIMATIC HMI, SIMATIC NET |                            |
|                                                                                | <b>SIMATIC Manual Collection maintenance service for 1 year</b> <sup>D)</sup>                                                                                             | <b>6ES7 998-8XC01-8YE2</b> |
|                                                                                | Current "Manual Collection" DVD and the three subsequent updates                                                                                                          |                            |
|                                                                                | <b>Manual "SIMATIC S7-400 programmable controller"</b>                                                                                                                    |                            |
|                                                                                | incl. instruction list                                                                                                                                                    |                            |
|                                                                                | German                                                                                                                                                                    | <b>6ES7 498-8AA04-8AA0</b> |
|                                                                                | English                                                                                                                                                                   | <b>6ES7 498-8AA04-8BA0</b> |
|                                                                                | French                                                                                                                                                                    | <b>6ES7 498-8AA04-8CA0</b> |
|                                                                                | Spanish                                                                                                                                                                   | <b>6ES7 498-8AA04-8DA0</b> |
|                                                                                | Italian                                                                                                                                                                   | <b>6ES7 498-8AA04-8EA0</b> |

A) Subject to export regulations: AL: N and ECCN: EAR99H

D) Subject to export regulations: AL: N and ECCN: 5D992B1