

#### Overview



- 16 and 32-channel digital input modules
- For flexible adaptation of the controller to the corresponding task
- For subsequent expansion of the system with additional inputs
- 35 mm wide modules with parameters and diagnostic functions
- 25 mm wide modules for use in tight spaces: particularly economical, without parameters or diagnostic functions

#### Technical specifications

|                                                                 | 6ES7521-1BH00-0AB0<br>DI 16x24 V DC HF           | 6ES7521-1BL00-0AB0<br>DI 32x24 V DC HF           | 6ES7521-1BH50-0AA0<br>DI 16x24 V DC SRC BA | 6ES7521-1FH00-0AA0<br>DI 16x230 V AC BA   |
|-----------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------|-------------------------------------------|
| <b>General information</b>                                      |                                                  |                                                  |                                            |                                           |
| Product function                                                |                                                  |                                                  |                                            |                                           |
| • I&M data                                                      | Yes; I&M0 to I&M3                                | Yes; I&M0 to I&M3                                | Yes; I&M0 to I&M3                          | Yes; I&M0 to I&M3                         |
| Engineering with                                                |                                                  |                                                  |                                            |                                           |
| • STEP 7 TIA Portal can be configured/integrated as of version  | V12 / V12                                        | V12 / V12                                        | V12 / V12                                  | V12 / V12                                 |
| • STEP 7 can be configured/integrated as of version             | V5.5 SP3 / -                                     | V5.5 SP3 / -                                     | V5.5 SP3 / -                               | V5.5 SP3 / -                              |
| • PROFINET as of GSD version/GSD revision                       | V2.3 / -                                         | V2.3 / -                                         | V2.3 / -                                   | V2.3 / -                                  |
| Operating mode                                                  |                                                  |                                                  |                                            |                                           |
| • MSI                                                           | Yes                                              | Yes                                              | Yes                                        | Yes                                       |
| <b>Supply voltage</b>                                           |                                                  |                                                  |                                            |                                           |
| Type of supply voltage                                          | DC                                               | DC                                               |                                            |                                           |
| Rated value (DC)                                                | 24 V                                             | 24 V                                             |                                            |                                           |
| Reverse polarity protection                                     | Yes                                              | Yes                                              |                                            |                                           |
| <b>Digital inputs</b>                                           |                                                  |                                                  |                                            |                                           |
| Number of digital inputs                                        | 16                                               | 32                                               | 16                                         | 16                                        |
| m/p-reading                                                     | p-reading                                        | p-reading                                        | m-reading                                  | p-reading                                 |
| Input characteristic curve in accordance with IEC 61131, type 1 |                                                  |                                                  |                                            | Yes                                       |
| Input characteristic curve in accordance with IEC 61131, type 3 | Yes                                              | Yes                                              | Yes                                        |                                           |
| Input voltage                                                   |                                                  |                                                  |                                            |                                           |
| • Type of input voltage                                         | DC                                               | DC                                               | DC                                         | AC                                        |
| • Rated value, AC                                               |                                                  |                                                  |                                            | 230 V; 120/230 V AC; 60/50 Hz             |
| • Rated value, DC                                               | 24 V                                             | 24 V                                             | 24 V                                       |                                           |
| • for signal "0"                                                | -30 to +5 V                                      | -30 to +5 V                                      | 30 to -5 V                                 | 0 to 40 V AC                              |
| • for signal "1"                                                | 11 to 30 V                                       | 11 to 30 V                                       | -11 to -30 V                               | 79 to 264 V AC                            |
| Input current                                                   |                                                  |                                                  |                                            |                                           |
| • for signal "1", typ.                                          | 2.5 mA                                           | 2.5 mA                                           | 4.5 mA                                     | 11 mA; At 230 V AC and 5.5 mA at 120 V AC |
| Input delay (for rated value of input voltage)                  |                                                  |                                                  |                                            |                                           |
| • for standard inputs                                           |                                                  |                                                  |                                            |                                           |
| - Parameterizable                                               | Yes; 0.05 / 0.1 / 0.4 / 1.6 / 3.2 / 12.8 / 20 ms | Yes; 0.05 / 0.1 / 0.4 / 1.6 / 3.2 / 12.8 / 20 ms | No                                         | No                                        |
| • for interrupt inputs                                          |                                                  |                                                  |                                            |                                           |
| - Parameterizable                                               | Yes                                              | Yes                                              | No                                         | No                                        |

# SIMATIC S7-1500

## Digital modules

### SM 521 digital input modules

#### Technical specifications (continued)

|                                                                 | 6ES7521-1BH00-0AB0<br>DI 16x24 V DC HF | 6ES7521-1BL00-0AB0<br>DI 32x24 V DC HF | 6ES7521-1BH50-0AA0<br>DI 16x24 V DC SRC BA | 6ES7521-1FH00-0AA0<br>DI 16x230 V AC BA |
|-----------------------------------------------------------------|----------------------------------------|----------------------------------------|--------------------------------------------|-----------------------------------------|
| Cable length                                                    |                                        |                                        |                                            |                                         |
| • Cable length, shielded, max.                                  | 1 000 m                                | 1 000 m                                | 1 000 m                                    | 1 000 m                                 |
| • Cable length unshielded, max.                                 | 600 m                                  | 600 m                                  | 600 m                                      | 600 m                                   |
| <b>Encoder</b>                                                  |                                        |                                        |                                            |                                         |
| Connectable encoders                                            |                                        |                                        |                                            |                                         |
| • 2-wire sensor                                                 | Yes                                    | Yes                                    | Yes                                        | Yes                                     |
| - Permissible quiescent current (2-wire sensor), max.           | 1.5 mA                                 | 1.5 mA                                 | 1.5 mA                                     | 2 mA                                    |
| <b>Isochronous mode</b>                                         |                                        |                                        |                                            |                                         |
| Isochronous operation (application synchronized up to terminal) | Yes                                    | Yes                                    | No                                         | No                                      |
| Filtering and processing time (TCI), min.                       | 80 µs; At 50 µs filter time            | 80 µs; At 50 µs filter time            |                                            |                                         |
| Bus cycle time (TDP), min.                                      | 250 µs                                 | 250 µs                                 |                                            |                                         |
| <b>Interrupts/diagnostics/status information</b>                |                                        |                                        |                                            |                                         |
| Alarms                                                          |                                        |                                        |                                            |                                         |
| • Diagnostic alarm                                              | Yes                                    | Yes                                    | No                                         | No                                      |
| • Hardware interrupt                                            | Yes                                    | Yes                                    | No                                         | No                                      |
| Diagnostic messages                                             |                                        |                                        |                                            |                                         |
| • Diagnostics                                                   | Yes                                    | Yes                                    | No                                         |                                         |
| • Monitoring the supply voltage                                 | Yes                                    | Yes                                    | No                                         | No                                      |
| • Wire break                                                    | Yes; to I < 350 µA                     | Yes; to I < 350 µA                     | No                                         | No                                      |
| • Short circuit                                                 | No                                     | No                                     | No                                         | No                                      |
| • Fuse blown                                                    | No                                     | No                                     | No                                         | No                                      |
| Diagnostics indication LED                                      |                                        |                                        |                                            |                                         |
| • RUN LED                                                       | Yes; Green LED                         | Yes; Green LED                         | Yes; Green LED                             | Yes; Green LED                          |
| • ERROR LED                                                     | Yes; Red LED                           | Yes; Red LED                           | Yes; Red LED                               | Yes; Red LED                            |
| • Monitoring the supply voltage                                 | Yes; Green LED                         | Yes; Green LED                         | No                                         | No                                      |
| • Channel status display                                        | Yes; Green LED                         | Yes; Green LED                         | Yes; Green LED                             | Yes; Green LED                          |
| • for channel diagnostics                                       | Yes; Red LED                           | Yes; Red LED                           | No                                         | No                                      |
| • for module diagnostics                                        | Yes; Red LED                           | Yes; Red LED                           | No                                         | Yes; Red LED                            |
| <b>Galvanic isolation</b>                                       |                                        |                                        |                                            |                                         |
| Electrical isolation channels                                   |                                        |                                        |                                            |                                         |
| • between the channels and the backplane bus                    | Yes                                    | Yes                                    | Yes                                        | Yes                                     |
| <b>Isolation</b>                                                |                                        |                                        |                                            |                                         |
| Isolation checked with                                          | 707 V DC (type test)                   | 707 V DC (type test)                   | 707 V DC (type test)                       | 2500 V DC                               |
| <b>Decentralized operation</b>                                  |                                        |                                        |                                            |                                         |
| Prioritized startup                                             | Yes                                    | Yes                                    | Yes                                        | Yes                                     |
| <b>Dimensions</b>                                               |                                        |                                        |                                            |                                         |
| Width                                                           | 35 mm                                  | 35 mm                                  | 35 mm                                      | 35 mm                                   |
| Height                                                          | 147 mm                                 | 147 mm                                 | 147 mm                                     | 147 mm                                  |
| Depth                                                           | 129 mm                                 | 129 mm                                 | 129 mm                                     | 129 mm                                  |
| <b>Weights</b>                                                  |                                        |                                        |                                            |                                         |
| Weight, approx.                                                 | 240 g                                  | 260 g                                  | 230 g                                      | 300 g                                   |