

Siemens  
EcoTech



SIMATIC S7-1500, analog output module AQ 4xU/I ST, 16-bit resolution accuracy 0.3%. 4 channels in groups of 4, diagnostics; substitute value; the module supports the safety-oriented shutdown of load groups up to SIL2 according to EN IEC 62061:2021 and Category 2 / PL c according to EN ISO 13849-1:2015. delivery including infeed element, shielding bracket and shield terminal: front connector (screw terminals or push-in) to be ordered separately

| General information                                      |                             |
|----------------------------------------------------------|-----------------------------|
| Product type designation                                 | AQ 4xU/I ST                 |
| HW functional status                                     | from FS04                   |
| Firmware version                                         | V2.2.0                      |
| • FW update possible                                     | Yes                         |
| Product function                                         |                             |
| • I&M data                                               | Yes; I&M0 to I&M3           |
| • Isochronous mode                                       | No                          |
| • Prioritized startup                                    | No                          |
| • Output range scalable                                  | No                          |
| Engineering with                                         |                             |
| • STEP 7 TIA Portal configurable/integrated from version | V12 / V12                   |
| • STEP 7 configurable/integrated from version            | V5.5 SP3 / -                |
| • PROFIBUS from GSD version/GSD revision                 | V1.0 / V5.1                 |
| • PROFINET from GSD version/GSD revision                 | V2.3 / -                    |
| Operating mode                                           |                             |
| • Oversampling                                           | No                          |
| • MSO                                                    | Yes                         |
| CiR - Configuration in RUN                               |                             |
| Reparameterization possible in RUN                       | Yes                         |
| Calibration possible in RUN                              | Yes                         |
| Supply voltage                                           |                             |
| Rated value (DC)                                         | 24 V                        |
| permissible range, lower limit (DC)                      | 19.2 V                      |
| permissible range, upper limit (DC)                      | 28.8 V                      |
| Reverse polarity protection                              | Yes                         |
| Input current                                            |                             |
| Current consumption, max.                                | 190 mA; with 24 V DC supply |
| Power                                                    |                             |
| Power consumption from the backplane bus                 | 0.6 W                       |
| Power loss                                               |                             |
| Power loss, typ.                                         | 4 W                         |
| Analog outputs                                           |                             |
| Number of analog outputs                                 | 4                           |
| Voltage output, short-circuit protection                 | Yes                         |
| Voltage output, short-circuit current, max.              | 24 mA                       |

|                                                                            |                                                                                               |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Current output, no-load voltage, max.                                      | 22 V                                                                                          |
| Cycle time (all channels), min.                                            | 3.2 ms; independent of number of activated channels                                           |
| Analog output with oversampling                                            | No                                                                                            |
| Output ranges, voltage                                                     |                                                                                               |
| • 0 to 10 V                                                                | Yes                                                                                           |
| • 1 V to 5 V                                                               | Yes                                                                                           |
| • -5 V to +5 V                                                             | No                                                                                            |
| • -10 V to +10 V                                                           | Yes                                                                                           |
| Output ranges, current                                                     |                                                                                               |
| • 0 to 20 mA                                                               | Yes                                                                                           |
| • -20 mA to +20 mA                                                         | Yes                                                                                           |
| • 4 mA to 20 mA                                                            | Yes                                                                                           |
| Connection of actuators                                                    |                                                                                               |
| • for voltage output two-wire connection                                   | Yes                                                                                           |
| • for voltage output four-wire connection                                  | Yes                                                                                           |
| • for current output two-wire connection                                   | Yes                                                                                           |
| Load impedance (in rated range of output)                                  |                                                                                               |
| • with voltage outputs, min.                                               | 1 k $\Omega$ ; 0.5 k $\Omega$ m at 1 to 5 V                                                   |
| • with voltage outputs, capacitive load, max.                              | 1 $\mu$ F                                                                                     |
| • with current outputs, max.                                               | 750 $\Omega$                                                                                  |
| • with current outputs, inductive load, max.                               | 10 mH                                                                                         |
| Cable length                                                               |                                                                                               |
| • shielded, max.                                                           | 800 m; for current, 200 m for voltage                                                         |
| Analog value generation for the outputs                                    |                                                                                               |
| Integration and conversion time/resolution per channel                     |                                                                                               |
| • Resolution with overrange (bit including sign), max.                     | 16 bit                                                                                        |
| • Conversion time (per channel)                                            | 0.5 ms                                                                                        |
| Settling time                                                              |                                                                                               |
| • for resistive load                                                       | 1.5 ms                                                                                        |
| • for capacitive load                                                      | 2.5 ms                                                                                        |
| • for inductive load                                                       | 2.5 ms                                                                                        |
| Errors/accuracies                                                          |                                                                                               |
| Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-)     | 0.02 %                                                                                        |
| Linearity error (relative to output range), (+/-)                          | 0.15 %                                                                                        |
| Temperature error (relative to output range), (+/-)                        | 0.002 %/K                                                                                     |
| Crosstalk between the outputs, max.                                        | -100 dB                                                                                       |
| Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) | 0.05 %                                                                                        |
| note regarding accuracy                                                    | at temperatures below 0 °C, the figures for operating error and temperature error are doubled |
| Operational error limit in overall temperature range                       |                                                                                               |
| • Voltage, relative to output range, (+/-)                                 | 0.3 %                                                                                         |
| • Current, relative to output range, (+/-)                                 | 0.3 %                                                                                         |
| Basic error limit (operational limit at 25 °C)                             |                                                                                               |
| • Voltage, relative to output range, (+/-)                                 | 0.2 %                                                                                         |
| • Current, relative to output range, (+/-)                                 | 0.2 %                                                                                         |
| Interrupts/diagnostics/status information                                  |                                                                                               |
| Diagnostics function                                                       | Yes                                                                                           |
| Substitute values connectable                                              | Yes                                                                                           |
| Alarms                                                                     |                                                                                               |
| • Diagnostic alarm                                                         | Yes                                                                                           |
| Diagnoses                                                                  |                                                                                               |
| • Monitoring the supply voltage                                            | Yes                                                                                           |
| • Wire break                                                               | Yes; Only for output type "current"                                                           |
| • Short-circuit                                                            | Yes; Only for output type "voltage"                                                           |
| • Overflow/Underflow                                                       | Yes                                                                                           |
| Diagnostics indication LED                                                 |                                                                                               |
| • RUN LED                                                                  | Yes; green LED                                                                                |
| • ERROR LED                                                                | Yes; red LED                                                                                  |

|                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                  |         |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------|
| <ul style="list-style-type: none"><li>• Monitoring of the supply voltage (PWR-LED)</li><li>• Channel status display</li><li>• for channel diagnostics</li><li>• for module diagnostics</li></ul>                                                                                                     | Yes; green LED<br>Yes; green LED<br>Yes; red LED<br>Yes; red LED                                                                                                 |         |                |
| Potential separation                                                                                                                                                                                                                                                                                 |                                                                                                                                                                  |         |                |
| Potential separation channels                                                                                                                                                                                                                                                                        |                                                                                                                                                                  |         |                |
| <ul style="list-style-type: none"><li>• between the channels</li><li>• between the channels, in groups of</li><li>• between the channels and backplane bus</li><li>• Between the channels and load voltage L+</li></ul>                                                                              | No<br>4<br>Yes<br>Yes                                                                                                                                            |         |                |
| Permissible potential difference                                                                                                                                                                                                                                                                     |                                                                                                                                                                  |         |                |
| between S- and MANA (UCM)                                                                                                                                                                                                                                                                            | 8 V DC                                                                                                                                                           |         |                |
| Isolation                                                                                                                                                                                                                                                                                            |                                                                                                                                                                  |         |                |
| Isolation tested with                                                                                                                                                                                                                                                                                | 707 V DC (type test)                                                                                                                                             |         |                |
| Standards, approvals, certificates                                                                                                                                                                                                                                                                   |                                                                                                                                                                  |         |                |
| Siemens Eco Profile (SEP)                                                                                                                                                                                                                                                                            | Siemens EcoTech                                                                                                                                                  |         |                |
| Suitable for safety-related tripping of standard modules                                                                                                                                                                                                                                             | Yes; From FS05                                                                                                                                                   |         |                |
| Ecological footprint                                                                                                                                                                                                                                                                                 |                                                                                                                                                                  |         |                |
| <ul style="list-style-type: none"><li>• environmental product declaration</li></ul>                                                                                                                                                                                                                  | Yes                                                                                                                                                              |         |                |
| Global warming potential                                                                                                                                                                                                                                                                             |                                                                                                                                                                  |         |                |
| <ul style="list-style-type: none"><li>— global warming potential, (total) [CO2 eq]</li><li>— global warming potential, (during production) [CO2 eq]</li><li>— global warming potential, (during operation) [CO2 eq]</li><li>— global warming potential, (after end of life cycle) [CO2 eq]</li></ul> | 37.6 kg<br>11.1 kg<br>26.8 kg<br>-0.364 kg                                                                                                                       |         |                |
| Highest safety class achievable for safety-related tripping of standard modules                                                                                                                                                                                                                      |                                                                                                                                                                  |         |                |
| <ul style="list-style-type: none"><li>• Performance level according to ISO 13849-1</li><li>• Category according to ISO 13849-1</li><li>• SIL acc. to IEC 62061</li><li>• remark on safety-oriented shutdown</li></ul>                                                                                | PL d<br>Cat. 3<br>SIL 2<br><a href="https://support.industry.siemens.com/cs/de/en/view/39198632">https://support.industry.siemens.com/cs/de/en/view/39198632</a> |         |                |
| Security                                                                                                                                                                                                                                                                                             |                                                                                                                                                                  |         |                |
| signed firmware update                                                                                                                                                                                                                                                                               | No                                                                                                                                                               |         |                |
| safely removing data                                                                                                                                                                                                                                                                                 | No                                                                                                                                                               |         |                |
| data integrity                                                                                                                                                                                                                                                                                       | No                                                                                                                                                               |         |                |
| Ambient conditions                                                                                                                                                                                                                                                                                   |                                                                                                                                                                  |         |                |
| Ambient temperature during operation                                                                                                                                                                                                                                                                 |                                                                                                                                                                  |         |                |
| <ul style="list-style-type: none"><li>• horizontal installation, min.</li><li>• horizontal installation, max.</li><li>• vertical installation, min.</li><li>• vertical installation, max.</li></ul>                                                                                                  | -30 °C; From FS06<br>60 °C<br>-30 °C; From FS06<br>40 °C                                                                                                         |         |                |
| Altitude during operation relating to sea level                                                                                                                                                                                                                                                      |                                                                                                                                                                  |         |                |
| <ul style="list-style-type: none"><li>• Installation altitude above sea level, max.</li></ul>                                                                                                                                                                                                        | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual                                                                                           |         |                |
| Absolute humidity                                                                                                                                                                                                                                                                                    |                                                                                                                                                                  |         |                |
| <ul style="list-style-type: none"><li>• dew point, min.</li></ul>                                                                                                                                                                                                                                    | -60 °C; suitable for dry room applications                                                                                                                       |         |                |
| Dimensions                                                                                                                                                                                                                                                                                           |                                                                                                                                                                  |         |                |
| Width                                                                                                                                                                                                                                                                                                | 35 mm                                                                                                                                                            |         |                |
| Height                                                                                                                                                                                                                                                                                               | 147 mm                                                                                                                                                           |         |                |
| Depth                                                                                                                                                                                                                                                                                                | 129 mm                                                                                                                                                           |         |                |
| Weights                                                                                                                                                                                                                                                                                              |                                                                                                                                                                  |         |                |
| Weight, approx.                                                                                                                                                                                                                                                                                      | 310 g                                                                                                                                                            |         |                |
| Classifications                                                                                                                                                                                                                                                                                      |                                                                                                                                                                  |         |                |
|                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                  | Version | Classification |
|                                                                                                                                                                                                                                                                                                      | eClass                                                                                                                                                           | 16      | 27-24-22-01    |
|                                                                                                                                                                                                                                                                                                      | eClass                                                                                                                                                           | 14      | 27-24-22-01    |
|                                                                                                                                                                                                                                                                                                      | eClass                                                                                                                                                           | 12      | 27-24-22-01    |
|                                                                                                                                                                                                                                                                                                      | eClass                                                                                                                                                           | 9.1     | 27-24-22-01    |

|        |     |             |
|--------|-----|-------------|
| eClass | 9   | 27-24-22-01 |
| eClass | 8   | 27-24-22-01 |
| eClass | 7.1 | 27-24-22-01 |
| eClass | 6   | 27-24-22-01 |
| ETIM   | 10  | EC001420    |
| ETIM   | 9   | EC001420    |
| ETIM   | 8   | EC001420    |
| ETIM   | 7   | EC001420    |
| IDEA   | 4   | 3562        |
| UNSPSC | 15  | 32-15-17-05 |

## Approvals / Certificates

### General Product Approval

[Miscellaneous](#)

[Manufacturer Declaration](#)



[Metrological Approval](#)

### General Product Approval

### For use in hazardous locations



[China RoHS](#)

[Manufacturer Declaration](#)



### For use in hazardous locations

[FM](#)



[FM](#)

[CCC-Ex](#)



[Type Examination Certificate](#)

### For use in hazardous locations

### Maritime application



[Miscellaneous](#)

[CCC-Ex](#)



### Maritime application



[NK / Nippon Kaiji Kyokai](#)



[CCS \(China Classification Society\)](#)

[KR \(Korean Register of Shipping\)](#)

### Environment



last modified:

5/12/2026