

SIMATIC S7-300, TEMPERATURE CONTROL MODULE FM 355 S, 4 CHANNELS, STEP AND PULSE, 4 AI + 8 DI + 8 DO INCL. MULTI-LANG CONFIG. PACK., MANUAL AND GETTING STARTED (GER/EN/IT) ON CD-ROM



### Supply voltage

#### Load voltage L+

|                                       |        |
|---------------------------------------|--------|
| • Rated value (DC)                    | 24 V   |
| • permissible range, lower limit (DC) | 20.4 V |
| • permissible range, upper limit (DC) | 28.8 V |

### Input current

|   |                     |
|---|---------------------|
| from load voltage L+ (without load), max. | 270 mA; typ. 220 mA |
| from backplane bus 5 V DC, max.           | 75 mA; typ. 50 mA   |

### Power loss

|                  |       |
|------------------|-------|
| Power loss, typ. | 5.5 W |
| Power loss, max. | 6.9 W |

### Digital inputs

|   |     |
|---|-----|
| Number of digital inputs  | 8   |
| Input characteristic curve in accordance with IEC 61131, type 2 | Yes |

#### Input voltage

|                    |           |
|--------------------|-----------|
| • Rated value (DC) | 24 V      |
| • for signal "0"   | -3 to +5V |

|   |                 |
|---|-----------------|
| • for signal "1"  | 13 to 30V       |
| <b>Input current</b>  |                 |
| • for signal "1", typ.  | 7 mA            |
| <b>Cable length</b>   |                 |
| • shielded, max.  | 1 000 m         |
| • unshielded, max.  | 600 m           |
| <b>Digital outputs</b>  |                 |
| Number of digital outputs   | 8               |
| Short-circuit protection  | Yes; Electronic |
| Limitation of inductive shutdown voltage to                           | L+ (-1.5 V)     |
| Controlling a digital input   | Yes             |
| <b>Switching capacity of the outputs</b>                              |                 |
| • on lamp load, max.  | 5 W             |
| <b>Load resistance range</b>  |                 |
| • lower limit   | 240 Ω           |
| • upper limit   | 4 kΩ            |
| <b>Output voltage</b>   |                 |
| • for signal "1", min.  | L+ (-2.5 V)     |
| <b>Output current</b>   |                 |
| • for signal "1" rated value  | 0.1 A           |
| • for signal "1" permissible range for 0 to 60 °C, min.               | 5 mA            |
| • for signal "1" permissible range for 0 to 60 °C, max.               | 150 mA          |
| • for signal "0" residual current, max.                               | 0.5 mA          |
| <b>Parallel switching of two outputs</b>                              |                 |
| • for logic links   | Yes             |
| <b>Switching frequency</b>  |                 |
| • with resistive load, max.   | 100 Hz          |
| • with inductive load, max.   | 0.5 Hz          |
| • on lamp load, max.  | 100 Hz          |
| <b>Total current of the outputs (per group)</b>                       |                 |
| all mounting positions  |                 |
| — up to 60 °C, max.   | 400 mA          |
| <b>Cable length</b>   |                 |
| • shielded, max.  | 1 000 m         |
| • unshielded, max.  | 600 m           |
| <b>Analog inputs</b>  |                 |
| Number of analog inputs   | 4               |
| permissible input voltage for voltage input (destruction limit), max. | 20 V            |

|   |                |
|---|----------------|
| permissible input current for current input (destruction limit), max. | 40 mA          |
| <b>Input ranges</b>   |                |
| • Voltage   | Yes            |
| • Current   | Yes            |
| • Thermocouple  | Yes            |
| • Resistance thermometer  | Yes            |
| <b>Input ranges (rated values), voltages</b>                          |                |
| • 0 to +10 V  | Yes            |
| • Input resistance (0 to 10 V)  | 100 k $\Omega$ |
| • -1.75 V to +11.75 V   | Yes            |
| • Input resistance (-1.75 V to +11.75 V)                              | 100 k $\Omega$ |
| <b>Input ranges (rated values), currents</b>                          |                |
| • 0 to 20 mA  | Yes            |
| • Input resistance (0 to 20 mA)                                       | 50 $\Omega$    |
| • 0 to 23.5 mA  | Yes            |
| • Input resistance (0 to 23.5 mA)                                     | 50 $\Omega$    |
| • -3.5 mA to +23.5 mA   | Yes            |
| • Input resistance (-3.5 mA to +23.5 mA)                              | 50 $\Omega$    |
| • 4 mA to 20 mA   | Yes            |
| • Input resistance (4 mA to 20 mA)                                    | 50 $\Omega$    |
| <b>Input ranges (rated values), thermocouples</b>                     |                |
| • Type B  | Yes            |
| • Input resistance (Type B)   | 10 M $\Omega$  |
| • Type E  | Yes            |
| • Input resistance (Type E)   | 10 M $\Omega$  |
| • Type J  | Yes            |
| • Input resistance (type J)   | 10 M $\Omega$  |
| • Type K  | Yes            |
| • Input resistance (Type K)   | 10 M $\Omega$  |
| • Type R  | Yes            |
| • Input resistance (Type R)   | 10 M $\Omega$  |
| • Type S  | Yes            |
| • Input resistance (Type S)   | 10 M $\Omega$  |
| <b>Input ranges (rated values), resistance thermometer</b>            |                |
| • Pt 100  | Yes            |
| • Input resistance (Pt 100)   | 10 M $\Omega$  |
| <b>Thermocouple (TC)</b>  |                |
| <b>Temperature compensation</b>                                       |                |
| — internal temperature compensation                                   | Yes            |
| — external temperature compensation with Pt100                        | Yes            |

| Characteristic linearization   |  |
|--|--|
| <ul style="list-style-type: none"> <li>parameterizable</li> <li>— for thermocouples</li> <li>— for resistance thermometer</li> </ul>   | Yes<br>Type B, E, J, K, R, S<br>Pt100 (standard)                                       |
| Cable length   |  |
| <ul style="list-style-type: none"> <li>shielded, max.</li> </ul>   | 200 m; 50 m at 80 mV and thermocouples   |
| Analog value generation for the inputs   |  |
| Measurement principle  | integrating  |
| Integration and conversion time/resolution per channel   |  |
| <ul style="list-style-type: none"> <li>Resolution with overrange (bit including sign), max.</li> <li>Conversion time (per channel)</li> </ul>  | 14 bit<br>100 ms; At 50/60 Hz  |
| Encoder  |  |
| Connection of signal encoders  |  |
| <ul style="list-style-type: none"> <li>for voltage measurement</li> <li>for current measurement as 4-wire transducer</li> </ul>  | Yes<br>Yes   |
| Connectable encoders   |  |
| <ul style="list-style-type: none"> <li>2-wire sensor</li> <li>— permissible quiescent current (2-wire sensor), max.</li> </ul>   | Yes<br>1.5 mA  |
| Errors/accuracies  |  |
| Linearity error (relative to input range), (+/-)   | 0.05 %   |
| Temperature error (relative to input range), (+/-)   | 0.005 %/K  |
| Operational error limit in overall temperature range   |  |
| <ul style="list-style-type: none"> <li>Voltage, relative to input range, (+/-)</li> <li>Current, relative to input range, (+/-)</li> <li>Resistance thermometer, relative to input range, (+/-)</li> </ul> | 0.06 %; +/-0.06 to +/-0.7%<br>0.06 %; +/-0.06 to +/-0.7%<br>0.06 %; +/-0.06 to +/-0.7% |
| Basic error limit (operational limit at 25 °C)   |  |
| <ul style="list-style-type: none"> <li>Voltage, relative to input range, (+/-)</li> <li>Current, relative to input range, (+/-)</li> <li>Resistance thermometer, relative to input range, (+/-)</li> </ul> | 0.04 %; +/-0.04 to +/-0.5%<br>0.04 %; +/-0.04 to +/-0.5%<br>0.04 %; +/-0.04 to +/-0.5% |
| Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$ , $f_1$ = interference frequency  |  |
| <ul style="list-style-type: none"> <li>Series mode interference (peak value of interference &lt; rated value of input range), min.</li> <li>Common mode interference (USS &lt; 2.5 V), min.</li> </ul>     | 40 dB<br>70 dB   |
| Interrupts/diagnostics/status information  |  |
| Substitute values connectable  | Yes; Parameterizable   |
| Integrated Functions   |  |

|  |                  |
|--|------------------|
| <b>Control technology</b>                |                  |
| • Number of closed-loop controllers      | 4                |
| <b>Potential separation</b>              |                  |
| <b>Potential separation controller</b>   |                  |
| • between the channels                   | No               |
| • between the channels and backplane bus | Yes; Optocoupler |
| <b>Permissible potential difference</b>  |                  |
| Between the inputs and MANA (UCM)        | 2.5 V DC         |
| <b>Isolation</b>                         |                  |
| Isolation tested with                    | 500 V DC         |
| <b>Connection method</b>                 |                  |
| required front connector                 | 2x 20-pin        |
| <b>Dimensions</b>                        |                  |
| Width                                    | 80 mm            |
| Height                                   | 125 mm           |
| Depth                                    | 120 mm           |
| <b>Weights</b>                           |                  |
| Weight, approx.                          | 470 g            |
| <b>last modified:</b>                    | 03/24/2017       |