



SIPLUS S7-1500 AI 8XU/I/RTD/TC -25 ... +70 DEGREES C
WITH CONFORMAL COATING BASED ON 6ES7531-7KF00
-0AB0 . ANALOG INPUT MODULE 16 BITS OF
RESOLUTION,
ACCURACY 0.3 %;
8 CHANNELS IN GROUPS OF 8;
COMMON MODE VOLTAGE APPR. 10 V;
DIAGNOSIS,
PROCESSALARMS INCL. INFEEED ELEMENT,
SHIELD CLAMP AND SHIELD TERMINAL

General information	
Hardware product version	E01
Firmware version	V1.0.0
Product function	
I&M data	Yes ; I&M0 to I&M3
Engineering with	
STEP 7 TIA Portal can be configured/integrated as of version	V12 / V12
STEP 7 can be configured/integrated as of version	V5.5 SP3 / -
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)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Input current	
Current consumption, max.	240 mA ; with 24 V DC supply

Encoder supply	
24 V encoder supply	
short-circuit protection	Yes
Output current, max.	53 mA
Power	
Power available from the backplane bus	0.7 W
Power losses	
Power loss, typ.	2.7 W
Analog inputs	
Number of analog inputs	8
Number of analog inputs with current measurement	8
Number of analog inputs for voltage measurement	8
Number of analog inputs for resistance/resistance thermometer measurement	4
Number of analog inputs with thermocouple measurement	8
permissible input voltage for voltage input (destruction limit), max.	28.8 V
permissible input current for current input (destruction limit), max.	40 mA
Technical unit for temperature measurement adjustable	Yes
Input ranges (rated values), voltages	
1 to 5 V	Yes
Input resistance (1 to 5 V)	100 k Ω
-1 V to +1 V	Yes
Input resistance (-1 V to +1 V)	10 M Ω
-10 V to +10 V	Yes
Input resistance (-10 V to +10 V)	100 k Ω
-2.5 V to +2.5 V	Yes
Input resistance (-2.5 V to +2.5 V)	10 M Ω
-250 mV to +250 mV	Yes
Input resistance (-250 mV to +250 mV)	10 M Ω
-5 V to +5 V	Yes
Input resistance (-5 V to +5 V)	100 k Ω
-50 mV to +50 mV	Yes
Input resistance (-50 mV to +50 mV)	10 M Ω
-500 mV to +500 mV	Yes
Input resistance (-500 mV to +500 mV)	10 M Ω
-80 mV to +80 mV	Yes
Input resistance (-80 mV to +80 mV)	10 M Ω
Input ranges (rated values), currents	
0 to 20 mA	Yes

Input resistance (0 to 20 mA)	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
-20 to +20 mA	Yes
Input resistance (-20 to +20 mA)	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
Input ranges (rated values), thermoelements	
Type B	Yes
Input resistance (Type B)	10 MΩ
Type E	Yes
Input resistance (Type E)	10 MΩ
Type J	Yes
Input resistance (type J)	10 MΩ
Type K	Yes
Input resistance (Type K)	10 MΩ
Type N	Yes
Input resistance (Type N)	10 MΩ
Type R	Yes
Input resistance (Type R)	10 MΩ
Type S	Yes
Input resistance (Type S)	10 MΩ
Type T	Yes
Input resistance (Type T)	10 MΩ
Input ranges (rated values), resistance thermometers	
Ni 100	Yes ; Standard/climate
Input resistance (Ni 100)	10 MΩ
Ni 1000	Yes ; Standard/climate
Input resistance (Ni 1000)	10 MΩ
LG-Ni 1000	Yes ; Standard/climate
Input resistance (LG-Ni 1000)	10 MΩ
Pt 100	Yes ; Standard/climate
Input resistance (Pt 100)	10 MΩ
Pt 1000	Yes ; Standard/climate
Input resistance (Pt 1000)	10 MΩ
Pt 200	Yes ; Standard/climate
Input resistance (Pt 200)	10 MΩ
Pt 500	Yes ; Standard/climate
Input resistance (Pt 500)	10 MΩ
Input ranges (rated values), resistors	
0 to 150 ohms	Yes

Input resistance (0 to 150 ohms)	10 MΩ
0 to 300 ohms	Yes
Input resistance (0 to 300 ohms)	10 MΩ
0 to 600 ohms	Yes
Input resistance (0 to 600 ohms)	10 MΩ
0 to 6000 ohms	Yes
Input resistance (0 to 6000 ohms)	10 MΩ
PTC	Yes
Input resistance (PTC)	10 MΩ
Thermocouple (TC)	
Temperature compensation	
External temperature compensation via RTD	Yes
Compensation for 0 °C reference point temperature	Yes ; fixed value can be set
Cable length	
Cable length, shielded, max.	800 m
Analog value creation	
Integrations and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	16 bit
Integration time, parameterizable	Yes
Integration time, ms	2.5 / 16.67 / 20 / 100
Basic conversion time, including integration time, ms	9 / 23 / 27 / 107 ms
additional conversion time for wire break monitoring	9 ms
additional conversion time for resistance measurement	150 ohm, 300 ohm, 600 ohm, Pt100, Pt200, Ni100: 2 ms 6000 ohm, Pt500, Pt1000, Ni1000, LG-Ni1000, PTC: 4 ms
Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 / 10
Smoothing of measured values	
Parameterizable	Yes
Step: None	Yes
Step: low	Yes
Step: Medium	Yes
Step: High	Yes
Encoder	
Connection of signal encoders	
for voltage measurement	Yes
for current measurement as 2-wire transducer	Yes
Burden of 2-wire transmitter, max.	820 Ω
for current measurement as 4-wire transducer	Yes
for resistance measurement with two-wire connection	Yes ; Only for PTC

for resistance measurement with three-wire connection	Yes ; All measuring ranges except PTC; internal compensation of the cable resistances
for resistance measurement with four-wire connection	Yes ; All measuring ranges except PTC
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.02 %
Temperature error (relative to input range), (+/-)	0.0050 %/K
Crosstalk between the inputs, max.	-80 dB
Repeat accuracy in steady state at 25 °C (relative to input area), (+/-)	0.02 %
Temperature error of internal compensation	+/-6 °C
Operational limit in overall temperature range	
Voltage, relative to input area, (+/-)	0.3 %
Current, relative to input area, (+/-)	0.3 %
Resistance, relative to input area, (+/-)	0.3 %
Resistance thermometer, relative to input area, (+/-)	Pt xxx standard: ± 1.5 K, Pt xxx climate: ± 0.5 K, Ni xxx standard: ± 0.5 K, Ni xxx climate: ± 0.3 K
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area, (+/-)	0.1 %
Current, relative to input area, (+/-)	0.1 %
Resistance, relative to input area, (+/-)	0.1 %
Resistance thermometer, relative to input area, (+/-)	Pt xxx standard: ± 0.7 K, Pt xxx climate: ± 0.2 K, Ni xxx standard: ± 0.3 K, Ni xxx climate: ± 0.15 K
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency	
Series mode interference (peak value of interference < rated value of input range), min.	40 dB
common mode voltage, max.	10 V
Common mode interference, min.	60 dB
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	Yes
Limit value alarm	Yes ; two upper and two lower limit values in each case
Diagnostic messages	
Diagnostics	Yes
Monitoring the supply voltage	Yes
Wire break	Yes ; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD
Overflow/underflow	Yes
Diagnostics indication LED	
RUN LED	Yes ; Green LED
ERROR LED	Yes ; Red LED
Monitoring the supply voltage	Yes ; Green LED

Channel status display	Yes ; Green LED
for channel diagnostics	Yes ; Red LED
for module diagnostics	Yes ; Red LED
Galvanic isolation	
Electrical isolation channels	
between the channels	No
between the channels, in groups of	8
between the channels and the backplane bus	Yes
between the channels and the supply voltage of the electronics	Yes
Permissible potential difference	
between the inputs (UCM)	20 V DC
between inputs and MANA (UCM)	10 V DC
between M internally and the inputs	75 V DC/60 V AC (base isolation)
Ambient conditions	
Operating temperature	
horizontal installation, min.	-25 °C
horizontal installation, max.	70 °C
vertical installation, min.	-25 °C
vertical installation, max.	50 °C
Extended ambient conditions	
Relative to ambient temperature-atmospheric pressure-installation altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m)
Relative humidity	
With condensation, tested in accordance with IEC 60068-2-38, maximum	100 % ; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
to biologically active substances/conformity with EN 60721-3-3	Yes ; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!
to chemically active substances/conformity with EN 60721-3-3	Yes ; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
to mechanically active substances/conformity with EN 60721-3-3	Yes ; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
Decentralized operation	
Supports fast startup	No
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm

Weights

Weight, approx.

310 g

Status

May 9, 2014