



SIMATIC S7-1500, analog input module AI 8xHART HF, accuracy 0.1%, 8 channels in groups of 4, common mode voltage: 30 V AC/60 V DC, diagnostics; hardware interrupts calibrate in RUN; delivery including infeed element, shielding bracket and shield terminal

General information	
Product type designation	AI 8xHART HF
HW functional status	from FS01
Firmware version	V1.0.0
<ul style="list-style-type: none"> FW update possible 	Yes
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> Isochronous mode 	No
<ul style="list-style-type: none"> Prioritized startup 	No
<ul style="list-style-type: none"> Measuring range scalable 	No
<ul style="list-style-type: none"> Scalable measured values 	No
<ul style="list-style-type: none"> Adjustment of measuring range 	No
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version 	V17/V18 with HSP 383
<ul style="list-style-type: none"> STEP 7 configurable/integrated from version 	V5.5 SP3 / -
<ul style="list-style-type: none"> PROFIBUS from GSD version/GSD revision 	V1.0 / V5.1
<ul style="list-style-type: none"> PROFINET from GSD version/GSD revision 	V2.42 / -
Operating mode	
<ul style="list-style-type: none"> Oversampling 	No
<ul style="list-style-type: none"> MSI 	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.	163 mA
Encoder supply	
24 V encoder supply	
<ul style="list-style-type: none"> Short-circuit protection 	Yes
<ul style="list-style-type: none"> Output current, max. 	20 mA; Max. 47 mA per channel for a duration < 10 s
Power	
Power consumption from the backplane bus	1.15 W

Power loss	
Power loss, typ.	1.8 W
Address area	
Address space per module	
<ul style="list-style-type: none"> Address space per module with HART, max. Inputs Outputs 	57 byte 16 byte 0 byte
Analog inputs	
Number of analog inputs	8
<ul style="list-style-type: none"> For current measurement 	8
permissible input current for current input (destruction limit), max.	40 mA
Analog input with oversampling	No
Standardization of measured values	No
Input ranges (rated values), currents	
<ul style="list-style-type: none"> 0 to 20 mA <ul style="list-style-type: none"> Input resistance (0 to 20 mA) -20 mA to +20 mA <ul style="list-style-type: none"> Input resistance (-20 mA to +20 mA) 4 mA to 20 mA <ul style="list-style-type: none"> Input resistance (4 mA to 20 mA) 	Yes 125 Ω Yes 125 Ω Yes 125 Ω; plus approx. 17 Ohm when using the switch against M
Cable length	
<ul style="list-style-type: none"> shielded, max. 	800 m
Analog value generation for the inputs	
Measurement principle	integrating
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> Resolution with overrange (bit including sign), max. Integration time, parameterizable Integration time (ms) Basic conversion time, including integration time (ms) Interference voltage suppression for interference frequency f_1 in Hz Basic execution time of the module (all channels released) 	16 bit Yes Fast mode: 2.5 / 16.67 / 20 / 100 ms, standard mode: 7.5 / 50 / 60 / 300 ms Fast Mode: 7 / 22 / 25 / 106 ms; Standard Mode: 12 / 55 / 65 / 308 ms 10 / 50 / 60 / 400 Hz channel 0 and 4, 1 and 5, etc. measure in pairs simultaneously. The slower channel of each pair determines the basic execution time of the channel pair. The basic execution time of the module is calculated by adding the basic conversion times of the channel pairs.
Smoothing of measured values	
<ul style="list-style-type: none"> Number of smoothing levels parameterizable Step: None Step: low Step: Medium Step: High 	4 Yes Yes Yes Yes Yes
Encoder	
Connection of signal encoders	
<ul style="list-style-type: none"> for voltage measurement for current measurement as 2-wire transducer <ul style="list-style-type: none"> Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire connection 	No Yes 820 Ω; at 24 V input voltage Yes No No No
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.02 %
Temperature error (relative to input range), (+/-)	0.005 %/K
Crosstalk between the inputs, max.	-80 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.02 %
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	

• Current, relative to input range, (+/-)	0.1 %; without HART communication
Basic error limit (operational limit at 25 °C)	
• Current, relative to input range, (+/-)	0.05 %; without HART communication
Influence of a HART signal modulated on the input signal in relation to input range	
• error occurred at interference frequency suppression: 400 Hz	0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode
• error occurred at interference frequency suppression: 60 Hz	0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode
• error occurred at interference frequency suppression: 50 Hz	0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode
• error occurred at interference frequency suppression: 10 Hz	0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode
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.	80 dB; in the Standard operating mode, 40 dB in the Fast operating mode
• Common mode voltage, max.	60 V DC/30 V AC
• Common mode interference, min.	80 dB
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnoses	
• Monitoring the supply voltage	Yes
• Wire break	Yes; With 4 mA to 20 mA, channel by channel
• Short-circuit	No
• Group error	No
• Overflow/Underflow	Yes
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• MAINT LED	No
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• for module diagnostics	Yes; red LED
Potential separation	
Potential separation analog inputs	
• between the channels	No; however, increased permissible potential difference between the inputs.
• between the channels, in groups of	8
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	No
Potential separation channels	
• between the channels	No
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	No
Permissible potential difference	
between different circuits	60 V DC/30 V AC
between the inputs (UCM)	60 V DC/30 V AC
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Siemens Eco Profile (SEP)	Siemens EcoTech
Suitable for applications according to AMS 2750	No
Suitable for applications according to CQI-9	No
Ecological footprint	
• environmental product declaration	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	38.6 kg

— global warming potential, (during production) [CO2 eq]	14.4 kg
— global warming potential, (during operation) [CO2 eq]	24.6 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-0.44 kg

Security

signed firmware update	No
safely removing data	No
data integrity	No

Ambient conditions

Ambient temperature during operation

• horizontal installation, min.	-30 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °C
• vertical installation, max.	40 °C

Altitude during operation relating to sea level

• Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
---	--

Absolute humidity

• dew point, min.	-60 °C; suitable for dry room applications
-------------------	--

Dimensions

Width	35 mm
Height	147 mm
Depth	129 mm

Weights

Weight, approx.	270 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

Approvals / Certificates

General Product Approval



[Miscellaneous](#)



General Product Approval

EMV

For use in hazardous locations



[China RoHS](#)

[Manufacturer Declaration](#)



[FM](#)

For use in hazardous locations

[CCC-Ex](#)



[Type Examination Certificate](#)



[Miscellaneous](#)

[CCC-Ex](#)

Maritime application



[NK / Nippon Kaiji Kyokai](#)



Maritime application

Environment



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

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



last modified:

5/12/2026