



SIMATIC ET 200SP, TM SIWAREX WP351 HF, single-channel legal-for-trade weighing module for automatic dosing-, filling-, checkweighing- and totalizing scales with analog load cells / strain gauges (full bridges), 3xDI, 3xDQ, 1xCi, 1xRS485, 1xEthernet, 1xLC load cell interface (1-4mV/V), suitable for BU type U0, packing quantity: 1 unit, attention: for legal-for-trade applications please follow the local laws applying in the country of verification! Detailed load cell diagnostics with digital junction box SIWAREX DB (7MH5001-0AD20 or

General information	
Product type designation	TM SIWAREX WP351 HF
HW functional status	1
Firmware version	V1.0
• FW update possible	Yes
usable BaseUnits	BU type U0
Color code for module-specific color identification plate	CC00
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
• Adjustment of measuring range	Yes; $\pm 0 \dots 4 \text{ mV/V}$
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	V15.1
• STEP 7 configurable/integrated from version	- / -
• PROFIBUS from GSD version/GSD revision	GSD as of Revision 5
• PROFINET from GSD version/GSD revision	GSDML V2.34
Supply voltage	
Rated value (DC)	24 V
Load voltage L+	
• Rated value (DC)	24 V
• permissible range, lower limit (DC)	19.2 V
• permissible range, upper limit (DC)	28.8 V
• Short-circuit protection	Yes
• Reverse polarity protection	Yes
Input current	
Current consumption, max.	140 mA; Without DQ
Power	
Power available from the backplane bus	94.5 mW
Power loss	
Power loss, typ.	1.7 W
Address area	
Address space per module	
• Inputs	32 byte
• Outputs	32 byte
Hardware configuration	
Automatic encoding	Yes
• Mechanical coding element	Yes
• Type of mechanical coding element	type B
Digital inputs	
Number of digital inputs	3

Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131, type 3	Yes
<b>Input voltage</b>	
<ul style="list-style-type: none"> <li>Type of input voltage</li> <li>Rated value (DC)</li> <li>for signal "0"</li> <li>for signal "1"</li> <li>permissible voltage at input, min.</li> <li>permissible voltage at input, max.</li> </ul>	24 V DC 24 V < 5 V DC +11 to +30V -30 V 30 V
<b>Input current</b>	
<ul style="list-style-type: none"> <li>for signal "1", typ.</li> </ul>	1.6 mA
<b>Input delay (for rated value of input voltage)</b>	
for technological functions	
— parameterizable	Yes
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>shielded, max.</li> <li>unshielded, max.</li> </ul>	500 m 150 m
<b>Digital outputs</b>	
Number of digital outputs	3
Current-sourcing	Yes
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes
<b>Digital output functions, parameterizable</b>	
<ul style="list-style-type: none"> <li>Freely usable digital output</li> </ul>	Yes
<b>Switching capacity of the outputs</b>	
<ul style="list-style-type: none"> <li>with resistive load, max.</li> </ul>	0.5 A
<b>Output voltage</b>	
<ul style="list-style-type: none"> <li>Type of output voltage</li> </ul>	DC
<b>Output delay with resistive load</b>	
<ul style="list-style-type: none"> <li>"0" to "1", typ.</li> <li>"1" to "0", typ.</li> </ul>	20 $\mu$ s 30 $\mu$ s
<b>Parallel switching of two outputs</b>	
<ul style="list-style-type: none"> <li>for uprating</li> </ul>	No
<b>Switching frequency</b>	
<ul style="list-style-type: none"> <li>with resistive load, max.</li> </ul>	500 Hz
<b>Total current of the outputs</b>	
<ul style="list-style-type: none"> <li>Current per channel, max.</li> <li>Current per module, max.</li> </ul>	0.5 A; the total current of all outputs $\geq$ 0.6 A, the ambient temperature is reduced by -1 °C per 100 mA 1.5 A; Observe derating
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>shielded, max.</li> <li>unshielded, max.</li> </ul>	500 m 150 m
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
<ul style="list-style-type: none"> <li>For strain gauges (full bridges) with 4-conductor connection</li> <li>For strain gauges (full bridges) with 6-conductor connection</li> <li>Resistance of full bridge, min.</li> <li>Resistance of full bridge, max.</li> </ul>	Yes Yes 56 $\Omega$ ; when using SIWAREX IS 87 ohm for 7MH4710-5BA; 180 ohm when using 7MH4710-5CA 4 100 $\Omega$
<b>Errors/accuracies</b>	
Linearity error (relative to input range), (+/-)	0.001 %
Error limit according to DIN 1319-1	0.002 %; of full-scale value
Accuracy class	III
Temperature coefficient, zero point	$\leq \pm 0.015 \mu\text{V/K}$
Temperature coefficient, span	$\leq \pm 5 \text{ ppm/K}$
<b>1. Interface</b>	
<b>Interface types</b>	
<ul style="list-style-type: none"> <li>RS 485</li> </ul>	Yes; Terminated internally with 390 $\Omega$ / 220 $\Omega$ / 390 $\Omega$
<b>2. Interface</b>	
<b>Interface types</b>	

<ul style="list-style-type: none"> <li>• RJ 45 (Ethernet)</li> <li>• Number of ports</li> </ul>	Yes; 10/100 Mbit/s 1
<b>Protocols</b>	
<ul style="list-style-type: none"> <li>• IP protocol</li> <li>• Web server</li> </ul>	Yes; IPv4 Yes
<b>Interface types</b>	
<b>RJ 45 (Ethernet)</b>	
<ul style="list-style-type: none"> <li>• Autonegotiation</li> <li>• Autocrossing</li> </ul>	Yes Yes
<b>RS 485</b>	
<ul style="list-style-type: none"> <li>• Transmission rate, max.</li> <li>• Cable length, max.</li> </ul>	115.2 kbit/s 1 000 m; ≤ 115 kbps, shielded cable
<b>Protocols</b>	
<b>Web server</b>	
<ul style="list-style-type: none"> <li>• HTTP</li> <li>• HTTPS</li> </ul>	Yes No
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes; Diagnostic alarm
Substitute values connectable	No
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> <li>• Hardware interrupt</li> </ul>	Yes; Parameterizable Yes; Parameterizable
<b>Diagnoses</b>	
<ul style="list-style-type: none"> <li>• Monitoring the supply voltage</li> <li>• Wire-break</li> <li>• Short-circuit</li> <li>• Group error</li> </ul>	Yes Yes Yes Yes; green/red DIAG LED
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• ERROR LED</li> <li>• Monitoring of the supply voltage (PWR-LED)</li> </ul>	Yes; green/red DIAG LED Yes; green PWR LED
<b>Integrated Functions</b>	
<b>Load cell</b>	
<ul style="list-style-type: none"> <li>• Automatic weighing instrument</li> <li>• Non-automatic weighing instrument</li> <li>• fraction of the error limit pi</li> <li>• Number of verification intervals, max.</li> <li>• permissible input signal per verification interval, min.</li> <li>• Sampling rate</li> <li>• Resolution of input signal</li> <li>• Common mode voltage, min.</li> <li>• Common mode voltage, max.</li> <li>• input resistance of signal line, typ.</li> <li>• input resistance of sense line, typ.</li> <li>• Cable length, max.</li> </ul>	SWA/AGFI; SWE/ACI; SKW/SCW; SWT/DTAWI NAWI 0.4 3x 6 000 d (d=e) 0.4 µV/e 1 024 Hz ±20 000 000 parts at 0 ... 4 mV/V 2.8 V 7.7 V 8 MΩ 300 MΩ 500 m; when using the SIWAREX 7MH4702-8AG cable
<b>Measuring functions</b>	
<b>Measuring range</b>	
— -1 mV/V to +1 mV/V	Yes
— -2 mV/V to +2 mV/V	Yes
— -4 mV/V to +4 mV/V	Yes
<b>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<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 60 °C -30 °C 50 °C
<b>Altitude during operation relating to sea level</b>	
<ul style="list-style-type: none"> <li>• Installation altitude above sea level, max.</li> <li>• Ambient air temperature-barometric pressure-altitude</li> </ul>	5 000 m; more than 2 000 m above sea level, the ambient temperature is reduced by -1 °C per 100 m 1 080 ... 533 hPa (-1 000 ... 5 000 m above sea level)

Decentralized operation	
to SIMATIC S7-300	Yes
to SIMATIC S7-400	Yes
to SIMATIC S7-1200	Yes
to SIMATIC S7-1500	Yes
to standard PROFIBUS master	Yes
to standard PROFINET controller	Yes
Dimensions	
Width	20 mm
Height	57 mm
Depth	72 mm
Weights	
Weight, approx.	50 g

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