## **SIEMENS**

## **Data sheet**

## 6ES7531-7LK00-0AB0



SIMATIC S7-1500, analog input module for cell voltage measurement, AI 24xCVM HF, up to 24 bit resolution, accuracy: 0.1%, 24 channels in groups of 12, insulation voltage: 600 V DC, diagnostics, hardware interrupts, calibrate in RUN mode; delivery including infeed element, shielding bracket and shield terminal: front connector (push-in) included note: Module is not suitable for regular voltage measurement of +/- 5 V!

General information	
Product type designation	AI 24xCVM HF
HW functional status	from FS01
Firmware version	V1.0.0
<ul> <li>FW update possible</li> </ul>	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
Operating mode	
<ul> <li>Oversampling</li> </ul>	No
• MSI	Yes
CiR - Configuration in RUN	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	Yes
Power	
Power consumption from the backplane bus	2.8 W
Power loss	
Power loss, typ.	2.1 W
Analog inputs	
Number of analog inputs	24
For voltage measurement	24; at ±3.5 V; 16 channels at ± 5 V
permissible input voltage for voltage input (destruction limit), max.	160 V
Input ranges (rated values), voltages	
• -5 V to +5 V	Yes
— Input resistance (-5 V to +5 V)	1 $\text{M}\Omega;$ connected to +27 V for open-circuit detection
Cable length	
<ul><li>shielded, max.</li></ul>	200 m
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	16 bit; 24 bits in floating-point format
<ul> <li>Integration time, parameterizable</li> </ul>	Yes
<ul><li>Integration time (ms)</li></ul>	2,5 / 16,67 / 20 / 100 ms
<ul> <li>Basic conversion time, including integration time (ms)</li> </ul>	10 / 24 / 28 / 109 ms
<ul> <li>additional conversion time for wire-break monitoring</li> </ul>	35 ms; once per module cycle
Basic execution time of the module (all channels released)	Channel 0 and 12, 1 and 13, 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> <li>Number of smoothing levels</li> </ul>	4
parameterizable	Yes

Sign Dow Sign Modum S	Step: None	Yes
Sign: High Sign: High Yes Sincotors  Connection of signal encoders  - for voicing measurement -	·	
**Step: High Price   Yes	·	
Encoder Commercian of signal exceders  • for voltage measurement  Yes  Erroria/coursides  • for voltage measurement  Yes  Erroria/coursides  Linearly error (relative to input range), (+/-)  Temperature or relative to input range), (+/-)  Temperature or relative to input range), (+/-)  Temperature error (relative to input range), (+/-)  Temperature error (relative to input range), (+/-)  Rospital excursery in steady state at 25 °C (relative to input range), (+/-)  Rospital excursery in steady state at 25 °C (relative to input range), (+/-)  Postational error limit in overall temperature range  • Voltage, relative to input range, (+/-)  Senia corrol limit (operational limit at 25 °C)  • Voltage, relative to input range, (+/-)  • Voltage, relative to input range, (+/-)  • Senia corrol limit (operational limit at 25 °C)  • Voltage, relative to input range, (+/-)  • Senia corrol limit engine state at 25 °C (relative to input range, (+/-)  • Voltage, relative to input range, (+/-)  • Senia corrol limit engine state at 25 °C (relative to input range, (+/-)  • Voltage, relative to input range, (+/-)  • Senia corrol limit engine state of the 25 °C (relative to input range, (+/-)  • Senia corrol limit engine state of the 25 °C (relative to input range, (+/-)  • Senia corrol limit engine state of the 25 °C (relative to input range, (+/-)  • Senia corrol limit engine state of the 25 °C (relative to input range, (+/-)  • Senia corrol limit engine state of the 25 °C (relative to input range, (+/-)  • Senia corrol limit engine state of the 25 °C (relative to input range, (+/-)  • Senia corrol limit engine state of the 25 °C (relative to input range, (+/-)  • Senia corrol limit engine state of the 25 °C (relative to input range, (+/-)  • Senia corrol limit engine state state state of the 25 °C (relative to input range, (+/-)  • Diagnostic alamm  • Limit volte al	·	
For voltage measurement     Ves     Interarty error (relative to input range), (+/-)     Unough year or (relative to input range), (+/-)     Temperature error (relative to input range), (+/-)     Unough year or (relative to input range), (+/-)     Unough year or (relative to input range), (+/-)     Recept accuracy in steady state at 25 °C (relative to input range), (+/-)     note regarding accuracy     alterior production of the state of	· ·	
For voltage measurement     Ves     Interarty error (relative to input range), (+/-)     Unough year or (relative to input range), (+/-)     Temperature error (relative to input range), (+/-)     Unough year or (relative to input range), (+/-)     Unough year or (relative to input range), (+/-)     Recept accuracy in steady state at 25 °C (relative to input range), (+/-)     note regarding accuracy     alterior production of the state of	Connection of signal encoders	
Linearity error (relative to injunt range), (+-) Temperature error (relative to injunt range), (+-) Consistin between the injunts, may. Repeat accuracy in steady state at 25°C (relative to injunt range), (+-) note regarding accuracy and temperature accuracy in steady state at 25°C (relative to injunt range), (+-) note regarding accuracy and temperature below 0°C, the figures for operating error and temperature error are Goubled  Occurring accuracy  error are Goubled  Occurring accuracy  evolage, relative to injunt range, (+-)  Basic error limit (operational limit at 25°C)  • Voltage, relative to injunt range, (+-)  Series mode interference (pack value of interference requirers)  • Series mode interference (pack value of interference < rarded value of input range), rini)  • Common mode interference, pack value of interference < rarded value of input range), rini)  • Common mode interference, pack value of interference < rarded value of input range), rini)  • Common mode interference, pack value of interference < rarded value of input range), rini)  • Common mode interference, pack value of interference < rarded value of input range), rini)  • Common mode interference, pack value of interference < rarded value of input range), rini)  • Common mode interference, pack value of interference < rarded value of input range), rini)  • Common mode interference, pack value of interference < rarded value of interference, pack value of interference × rarded value of interference value val		Yes
Temperature error (relative to Inputr range), (+/-)	Errors/accuracies	
Crosstalk between the inputs, max.  Repeal accuracy in steady state at 25 °C (relative to input renge), (1/2)  rote regarding accuracy  stemperatures below 0 °C, the figures for operating error and temperature error are Galobed  Operational error limit in overall temperature range  • Voltage, relative to input range, (++)  Basic error limit (operational limit at 25 °C)  • Voltage, relative to input range, (++)  • Voltage, relative to input range,	Linearity error (relative to input range), (+/-)	0.02 %
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) and regarding accuracy at lemperature range accuracy and respect to the regarding accuracy and respect to the respect to the regarding accuracy and respect to the respec	Temperature error (relative to input range), (+/-)	0.005 %/K
trange), (++) note regarding accuracy error are doubled  Operational error limit in overall temperature range  • Voltage, relative to input range, (+-)  ■ Saries mode interference peta k value of interference < rated value of input range), min.  • Common mode interference peta k value of interference < rated value of input range), min.  • Common mode interference, min.  • Common mode interference, min.  • Diagnostics function  Alaims  ■ Diagnostic alaim  • Limit value alaim  • Ves  ■ Uniterrors and two lower limit values in each case  Diagnoses  • Minitoring the supply voltage  • Wire-break  • Wire-break  • Wes  • Overflow/underflow  • Ves  • Overflow/underflow  • Ves  • Wire-break  • Rinning of the supply voltage (PWR-LED)  • Rinning of the supply voltage (PWR-LED)  • Channel status display  • for channel diagnostics  • for module diagnostics  • for module diagnostics  • for module oliganostics  • between the channels  • between the channels and backplane bus  Potential separation channels  • between the channels and backplane bus  Potential separation channels and backplane bus  Standards, approvals, certificates  Standards,	Crosstalk between the inputs, max.	-80 dB
note regarding accuracy at lemperatures below 0 °C, the figures for operating error and temperature error are doubled error are doubled error are doubled  • Voltage, relative to input range, (+/-) • Series mode interference (peak value of interference < relative value of input range) • Series mode interference, min • Common mode interference, min • Common mode interference, min • Diagnostic studies • Diagnostic studies • Diagnostic studies • Limit value alarm • Limit value alarm • Limit value alarm • Ves; two upper and two lower limit values in each case  Diagnoses • Monitoring the supply voltage • Ves • Overflow/underflow • Yes • Overflow/underflow • Yes • Overflow/underflow • Yes • Overflow/underflow • Passible status studies • Channel status display • Or channel status display • Or channel status display • Or channel diagnostics • For channel diagnostics • For module diagnostics • For module diagnostics • Detween the channels • Detween the channels and backplane bus • Detween the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM) • Detween the channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to CQL9  No  Suitable for applications according to CQL9  No  Suitable for applications according to CQL9  No  No  Suitable for applications according to CQL9  No  Forticular institution, min. • Porticular institution, min. • Porticul	Repeat accuracy in steady state at 25 °C (relative to input	0.02 %
error are doubled  Operational error limit in overall temperature range  • Voltage, relative to input range, (+/-)  Basic error limit (operational limit at 25° C)  • Voltage, relative to input range, (+/-)  • Series mode interference, peak value of interference < rated value of input range), min.  • Common mode interference, peak value of interference < rated value of input range), min.  • Common mode interference, min.  * Diagnostics function  Diagnostics function  Ves  • Limit value alarm  • Diagnostic alarm  • Limit value alarm  • Diagnostic alarm  • Use; two upper and two lower limit values in each case  Diagnoses  • Monitoring the supply voltage  • Ves  • Overflow/underflow  Ves  • Overflow/underflow  Ves  Diagnostics indication LED  • RIN LED  • Channel status display  • Channel status display  • Channel status display  • Channel diagnostics  • For module diagnostics  • For module diagnostics  • For module diagnostics  • Detween the channels and backplane bus  Potential separation  Rotential separation seconding to AMS 2750  No  Suitable for applications according to AMS 2750  No  Suitable for applications according to AMS 2750  No  Suitable for applications according to CCI-9  No  Pordouct functions / Security / header  signed firmware update  data integrity  No  Ambient conditions		
Operational error limit in overall temperature range  • Voltage, relative to input range, (+/-)  • Series mode interference (peak value of interference < a 6 6 8 relative value of input range)  • Series mode interference, (peak value of interference < a 7 0 68 relative value of input range)  • Common mode interference, min.  • Common mode interference, min.  • Diagnostic status information  Diagnostic status information  • Limit value alarm  • Limit value alarm  • Limit value alarm  • Ves  • Monitoring the supply voltage  • Wes  • Were-break  • Overflow/underflow  Diagnostics indication LED  • RIN LED  • RIN LED  • RIN LED  • RIN LED  • Channel status display  • Common diagnostics  • Common diagnostics  • For channel diagnostics  • For channel diagnostics  • For channel diagnostics  • Desperation  • Determined status display  • Desperation  Potential separation channels  • Detween the channels and backplane bus  • Detween the channels and backplane bus  * Permissible potential differences  Between the inputs and MANA (LCM)  • Detween the inputs and stander and the inputs  flootation  solution tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to CQL-9  No  Suitable for applications according to CQL-9  No  No  Suitable for applications according to CQL-9  No  No  Ambient conditions	note regarding accuracy	
A Voltage, relative to input range, (+/-)  Pasic error limit (operational limit at 25 °C)  A Voltage, relative to input range, (+/-)  O.05 %  Interference voltage suppression for f = nx (ft +/-1 %), ft = interference frequency  Series mode interference (peak value of interference < rate value of input range), min.  Common mode interference, min.  Pommon mode interference, min.  To dB  Interrupts/diagnostics/status information  Diagnostics function  Pisson	Operational error limit in overall temperature range	5.13. 4.0 4543454
Basic error limit (operational limit at 25 °C)  • Voltage, relative to Input range, (+/-) Interference Voltage, supersistin for f = n x (ft +/-1 %), ft = interference Frequency  • Series mode interference (peak value of interference < 38 d B rated value of interference, min.  • Common mode interference, min.    Pod B	· · · · · · · · · · · · · · · · · · ·	0.1 %
Voltage, relative to input range, (+/-)     Interference voltage suppression for 1 = n.x (ft +/- 1 %), ft = interference frequency     Series mode interference (peak value of interference < rated value of input range), min.     Common mode interference, min.     Pomonom mode interference, min.     To d B  Interrupts/diagnostics/status information  Diagnostics function  Diagnostics function  Alams     Diagnostic alam     Yes     Limit value alam     Yes, two upper and two lower limit values in each case  Diagnostics microtion (peak supply voltage)     Wire-break     Nontioning the supply voltage     Wire-break     Overflowfunderflow     Yes     Overflowfunderflow     Yes     Postpostics indication LED     RINI LED     Yes; green LED     Yes; red LED     Nontioning of the supply voltage (PWR-LED)     No     Channel status display     Yes; green LED     Yes; red LED     Potential separation  Potential separation  Potential separation channels     between the channels, in groups of 12     between the channels in groups of 12     between the channels and backplane bus  Permissible potential difference  Retween the inputs and MNAN (CM)     21 V DC     between the inputs and MnAN (CM)     21 V DC     between the inputs and MnAN (CM)     21 V DC     between the inputs and MnAN (CM)     Suitable for applications according to AMS 2750     No     Suitable for applications according to CQL-9     No     Porduct functions / security / header     specific microlitions     Ambient conditions Ambient conditions Ambient conditions Ambient temperature during operation     horizontal installation, min.		
Interference voltage suppression for f = n x (ft +/-1 %), ft = interference (requency  Series mode interference (peak value of interference < 36 dB reled value of input range), min.  Common mode interference, min. 70 dB Interrupts/diagnostics/status information  Diagnostics function Yes  Alarms  Diagnostic slarm Yes  Diagnostic slarm Yes  Diagnostic slarm Yes  Monitoring the supply voltage Yes  Wire-break Yes  Wire-break Yes  Wire-break Yes  Coverflowinderflow Yes  Diagnostics indication LED  RUN LED  RUN LED  RENOR LED  Yes; green LED  Monitoring of the supply voltage (PWR-LED)  Channel status display Yes; red LED  Monitoring of the supply voltage (PWR-LED)  Channel status display (Yes; red LED  Totalial separation  Potential separation  Potential separation  Potential separation channels  Detween the channels in groups of 12  Detween the channels and backplane bus  Permissible potential difference  Setween the implust and MANA (UCM)  Detween M internally and the inputs  Standards, approvals, certificates  Suitable for applications according to AMS 2750  No  Monitorial installation, min, -30 °C  Honorcolal installation, min, -30 °C  Honorcolal installation, min, -50 °C  Honorcolal in	, ,	0.05 %
rated value of input range), min.  Common mode interference, min.  Diagnostics function  Alarms  Diagnostics function  Limit value alarm  Diagnoses  Diagnoses  Monitoring the supply voltage  Ves  Vire-break  Overflow/underflow  Pes  Permissible potential separation channels  Obetween the channels and backplane bus  Detended in puts and MANA (UCM)  Detween the inputs and MANA (UCM)  Detween the separation channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to AMS 2750  Suitable for applications, min.  Ambient conditions  Ambient temperature during operation  Potential installation, min.  One Common mode installation in well as a common matter and installation, min.  One Common mode installation, min.  One Suppose installation, min.  One Common mode installation, min.  One Common mode installation, min.  One Suppose installation installation, min.  One Common mode installation installation installation installation installation.  One Common mode installation installation installation installation installation.  One Common mode installation installati		erence frequency
Diagnostics function	Series mode interference (peak value of interference <	
Diagnostics function Alarms  • Diagnostes  • Diagnostes  • Limit value alarm  • Limit value alarm  • Limit value alarm  • Ves  • Monitoring the supply voltage  • Wire-break  • Overflow/underflow  Pes  • RUN LED  • RUN LED  • RUN LED  • RROR LED  • Monitoring of the supply voltage (PWR-LED)  • Channel status display  • For channel diagnostics  • for channel diagnostics  • for channel alagnostics  • for channel month of the supply voltage (PWR-LED)  • for module diagnostics  • between the channels  • between the channels, in groups of  • between the channels, in groups of  • between the channels and backplane bus  • between the channels and backplane bus  • between the inputs and MANA (UCM)  between the inputs and MANA (UCM)  21 V DC  between the inputs and MANA (UCM)  between the inputs and MANA (UCM)  21 V DC  between the inputs and backplane bus  **Standards, approvals, contificates  Suitable for applications according to AMS 2750  Suitable for applications according to Coli-9  signed firmware update  4 Yes  Ambient conditions	<ul> <li>Common mode interference, min.</li> </ul>	70 dB
Alarms   Ves   V	Interrupts/diagnostics/status information	
Diagnostic alarm Limit value alarm Ves; two upper and two lower limit values in each case  Diagnoses  Monitoring the supply voltage Ves Vire-break Overflow/underflow Ves  Diagnostics indication LED RUN LED RUN LED REROR LED Serror LED Ves; green LED Channel status display Ves; green LED Ochannel status display Ves; green LED Ves; gre	Diagnostics function	Yes
Limit value alarm	Alarms	
Monitoring the supply voltage  • Monitoring the supply voltage  • Wire-break  • Overflow/underflow  Pes  Diagnostics indication LED  • RUN LED  • RUN LED  • REPOR LED  • Monitoring of the supply voltage (PWR-LED)  • Channel status display  • For channel stagnostics  • For module diagnostics  • for module diagnostics  • for module diagnostics  • between the channels  • between the channels  • between the channels and backplane bus  • between the channels and backplane bus  • Permissible potential difference  Between the inputs and MANA (UCM)  between M internally and the inputs  • both internally and the inputs  • both internally and the inputs  • Souldation tested with  Isolation secording to AMS 2750  No  Suitable for applications according to AMS 2750  No  Suitable for applications according to CQI-9  product functions / security / header  signed firmware update  4 Yes  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • horizontal installation, max.  60 °C	Diagnostic alarm	Yes
Monitoring the supply voltage Wire-break Ves Overflowfunderflow Ves  Diagnostics indication LED  RUN LED RUN LED RERROR LED RERROR LED Monitoring of the supply voltage (PWR-LED) Ochamel status display For channel diagnostics For channel diagnostics For module diagnostics For module diagnostics Potential separation  Potential separation channels  Detween the channels Detween the channels in groups of Detween the channels and backplane bus Permissible potential difference  Between the inputs and MANA (UCM) Detween M internally and the inputs  A700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750 Suitable for applications according to COI-9 Product functions / security / header signed firmware update Ambient conditions  Ambient temperature during operation  For conditions  Ambient temperature during operation For conditions  Ambient temperature during operation For conditions For conditions  Ambient temperature during operation For conditions For condit	Limit value alarm	Yes; two upper and two lower limit values in each case
Wire-break Overflow/underflow Pes Overflow/underflow Pes Diagnostics indication LED  RUN LED REROR LED Ferror the supply voltage (PWR-LED) Ochannel status display Fes; green LED For channel diagnostics Fes; red LED For channel diagnostics Fes; red LED Formula separation Potential separation Setween the channels and backplane bus Pormussible potential difference Between the inputs and MANA (UCM) Potential separation Between M internally and the inputs Seolation Isolation tested with 4700 V DC between channels and backplane bus  Standards, approvals, certificates Suitable for applications according to AMS 2750 No Suitable for applications according to CQL-9 No Porpoduct functions / Security / heador  signed firmware update Yes data integrity No Ambient conditions Ambient temperature during operation • horizontal installation, min.	Diagnoses	
Overflow/underflow Pagnostics indication LED  RUN LED RUN LED REROR LED Reror LED Reror LED Resident Signature Resident Signatu	<ul> <li>Monitoring the supply voltage</li> </ul>	Yes
Diagnostics indication LED  RUN LED  RUN LED  RUN LED  REROR LED  Monitoring of the supply voltage (PWR-LED)  Channel status display  For channel diagnostics  For module diagnostics  For module diagnostics  Potential separation  Potential separation  Potential separation   P	Wire-break	Yes
RUN LED PROR LED Postrict Supply voltage (PWR-LED) Postrict Supply voltage (PWR-LED) Postrict Supply voltage (PWR-LED) Postrict Supply	Overflow/underflow	Yes
ERROR LED  Monitoring of the supply voltage (PWR-LED)  Channel status display  for channel diagnostics  for module diagnostics  Potential separation  Potential separation  Potential separation  Potential separation channels  between the channels, in groups of  between the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and backplane bus  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  No  Product functions / security / header  signed firmware update  data integrity  Ambient conditions  Ambient temperature during operation  horizontal installation, min.  -30 °C  horizontal installation, max.  60 °C	Diagnostics indication LED	
Monitoring of the supply voltage (PWR-LED) Channel status display Channel status display For channel diagnostics For module diagnostics For ed LED For	• RUN LED	Yes; green LED
Channel status display for channel diagnostics for module diagnostics  Potential separation  Potential separation  Potential separation channels between the channels between the channels, in groups of between the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM)  Detween M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation tested with A700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750 Suitable for applications according to CQI-9 No  product functions / security / header signed firmware update data integrity No  Ambient conditions  Ambient temperature during operation horizontal installation, min. horizontal installation, max.  60 °C	• ERROR LED	Yes; red LED
for channel diagnostics     for module diagnostics     for module diagnostics     Yes; red LED  Potential separation  Potential separation channels     between the channels     between the channels, in groups of     between the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to COI-9  Product functions / security / header  signed firmware update  Yes  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C		
For module diagnostics  Potential separation  Potential separation channels      • between the channels     • between the channels in groups of     • between the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  No  product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • horizontal installation, max.  60 °C	Channel status display	Yes; green LED
Potential separation Potential separation channels  • between the channels • between the channels, in groups of • between the channels, in groups of • between the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  No  product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • horizontal installation, max.  60 °C	<ul> <li>for channel diagnostics</li> </ul>	Yes; red LED
Potential separation channels  • between the channels  • between the channels, in groups of  • between the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  No  product functions / security / header  signed firmware update  47es  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C	for module diagnostics	Yes; red LED
between the channels     between the channels, in groups of     between the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  No  product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  horizontal installation, min.  -30 °C  horizontal installation, max.  60 °C	Potential separation	
between the channels, in groups of     between the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  Product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C	Potential separation channels	
between the channels and backplane bus  Permissible potential difference  Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  No  product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C	<ul> <li>between the channels</li> </ul>	No
Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  Product functions / security / header  signed firmware update  data integrity  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  -30 °C  • horizontal installation, max.  60 °C	<ul> <li>between the channels, in groups of</li> </ul>	12
Between the inputs and MANA (UCM)  between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  No  Suitable for applications according to CQI-9  product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  -30 °C  • horizontal installation, max.  60 °C	·	Yes
between M internally and the inputs  600 V DC; insulation rated for 1000 V DC basic insulation: between the channels and the backplane bus  Isolation  Isolation tested with  4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750  No  Suitable for applications according to CQI-9  No  product functions / security / header  signed firmware update	Permissible potential difference	
Isolation  Isolation tested with 4700 V DC between channels and backplane bus  Standards, approvals, certificates  Suitable for applications according to AMS 2750 No Suitable for applications according to CQI-9 No  product functions / security / header  signed firmware update Yes data integrity No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min30 °C  • horizontal installation, max. 60 °C		21 V DC
Isolation tested with  Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  No  Product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C	<u> </u>	
Standards, approvals, certificates  Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  No  product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C	Isolation	
Suitable for applications according to AMS 2750  Suitable for applications according to CQI-9  No  product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C		4700 V DC between channels and backplane bus
Suitable for applications according to CQI-9  Product functions / security / header  signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C		
product functions / security / header signed firmware update data integrity No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min30 °C • horizontal installation, max. 60 °C		
signed firmware update  data integrity  No  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C		No
data integrity  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C	product functions / security / header	
Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  60 °C		
Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  -30 °C  60 °C	<u> </u>	No
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>60 °C</li> </ul>	Ambient conditions	
• horizontal installation, max. 60 °C	Ambient temperature during operation	
•		
• vertical installation, min.		
	<ul> <li>vertical installation, min.</li> </ul>	-30 °C

vertical installation, max.	40 °C				
Altitude during operation relating to sea level					
<ul> <li>Installation altitude above sea level, max.</li> </ul>	4 000 m; Restrictions for installation altitudes > 2 000 m, see entry ID: 109763260				
Dimensions					
Width	25 mm	25 mm			
Height	147 mm				
Depth	129 mm				
Weights					
Weight, approx.	240 g				
Classifications					
		Version	Classification		
	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	9	EC001420		
	ETIM	8	EC001420		
	ETIM	7	EC001420		
Approvals / Certificates					

**General Product Approval** 



<u>KC</u>





<u>KC</u>

EMV

For use in hazardous locations



CCC-Ex

<u>FM</u>



Type Examination Cer-tificate

Miscellaneous

For use in hazardous locations



IECEx

last modified:

1/9/2025

