## SIEMENS

## Data sheet

## 6AG1136-6BA01-2CA0

SIPLUS ET 200SP F-DI 4/8x24 V DC HF based on 6ES7136-6BA01-0CA0 with conformal coating, -40...+60 °C, fail-safe digital inputs up to PL e (ISO 13849-1), SIL3 (IEC 61508)

General information	13649-1), SILS (IEC 61506)
General information	
Product type designation	F-DI 8x24VDC HF
Firmware version <ul> <li>FW update possible</li> </ul>	Yes
usable BaseUnits	BU type A0
Color code for module-specific color identification plate	CC01
Product function	0001
I&M data	Yes; I&M0 to I&M3
CiR - Configuration in RUN	
Reparameterization possible in RUN	No
· ·	INU
Supply voltage	24.1/
Rated value (DC)	24 V 19.2 V
permissible range, lower limit (DC) permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
power supply according to NEC Class 2 required	No
Input current	
	40 mA; without load
Current consumption, max.	TO TIC, WILLIUGU
Encoder supply	0
Number of outputs	8
24 V encoder supply • 24 V	Yes; min. L+ (-1.5 V)
<ul> <li>Short-circuit protection</li> <li>Output current per channel, max.</li> </ul>	Yes; Electronic (response threshold 0.7 A to 1.8 A) 300 mA
Output current per module, max.	800 mA; Total current of all encoders
Power loss	
	2 W
Power loss, typ. Address area	2 🗤
Address space per module	7 bute: S7 200/400E CDLL 6 bute
Inputs	7 byte; S7-300/400F CPU, 6 byte
Outputs	5 byte; S7-300/400F CPU, 4 byte
Hardware configuration	Vee
Automatic encoding	Yes
Electronic coding element type F	Yes
Digital inputs	
Number of digital inputs	8 Var D median
Source/sink input	Yes; P-reading
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Input voltage	
<ul> <li>Rated value (DC)</li> </ul>	24 V
● for signal "0"	-30 to +5 V
• for signal "1"	+15 to +30 V
Input current	
• for signal "1", typ.	3.7 mA
Input delay (for rated value of input voltage)	
for standard inputs	N
— parameterizable	Yes

		0.4 ms
	at "0" to "1"x	
For technological functions         No           Cable length         1000 m           • anisheded, max.         500 m           Interrupticitig-prostice/status information         Ves           Diagnostics information         Yes           Alarms         •           • Diagnostics indication LED         Yes           • RIV LED         Yes; green LED           • RIV LED         Yes; green LED           • RIV LED         Yes; green PLR LED           • Channel status display         Yes; green PLR LED           • for onlame diagnostics         Yes; green PLR LED           • for module diagnostics         Yes; green PLR LED           • for module diagnostics         Yes; green PLR LED           • for module diagnostics         Yes; green PLR LED           • between the channels         No           • between the channels and backplane bus         Yes           • batotenton         Yes <td< td=""><td></td><td></td></td<>		
		20 113
Cable length            • shelded, max.         1000 m           • unshelded, max.         500 m           Interrupts/diagnostics/status information         Ves           Diagnostics: function         Yes           Alarms         Ves           • Barbaker interrupt         No           Diagnostics: indication LED         Yes; green LED           • RUN LED         Yes; green PKR LED           • RON LED         Yes; green PKR LED           • Anothering of the supply voltage (PWR-LED)         Yes; green PKR LED           • for module diagnostics         Yes; green PKR LED           • for module diagnostics         Yes; green PKR LED           • for module diagnostics         Yes; green LED           • between the channels         No           • between the channels and backplane bus         No           • between the channels and backplane bus         No           • between the channels and the power supply of the electronics         No           Standards, approvals, cartificates         Standards, approvals, cartificates           Standards, approvals, cartificates         Standards, approvals, cartificates           Standards, approvals, cartificates         Standards, approvals, cartificates           Amore theel annels in safety mode         Performa		No
	•	
• unshielded, max.         500 m           Interrupts/diagnostic/situus information         Yes           Alarms         • Vagonostic alarm           • Diagnostic alarm         Yes           • Roth LED         Yes: green LED           • RON Maxing of the supply voltage (PWR-LED)         Yes: green NE LED           • Cor channel status display         Yes: green NE LED           • for mobule diagnostics         Yes: green NE LED           • between the channels         No           • between the channels         No           • between the channels and backplane bus         Yes           • between the channels and backplane bus         Yes           • between the channels and backplane bus         Yes           • between the channels <t< td=""><td>-</td><td>1 000 m</td></t<>	-	1 000 m
Interrupts/diagnostics/status information         Yes           Alarms         •           • Diagnostic stardin         Yes           • Alarms         •           • Diagnostic stardin         Yes           • Hardware interrupt         No           Diagnostic stardin         Yes; green LED           • RON LED         Yes; green LED           • Channel stabu stipping         Yes; green LED           • for intannel diagnostics         Yes; green PWR LED           • for intannel diagnostics         Yes; green RED           • for intannel diagnostics         Yes; green RED           • for intannel diagnostics         Yes; green RED           • for intannel diagnostics         Yes; green red DLAG LED           Potential separation dhannels         No           • between the channels and backplane bus         Yes           • between the channels and backplane bus		
Diagnostics function         Yes           Aimms         •           • Diagnostics darm         Yes           • Hardware interrupt         No           • Reveal (Indexton LED)         Yes; green LED           • RUN LED         Yes; green LED           • Rom LED         Yes; green PM LED           • Channel status display         Yes; green LED           • for channel diagnostics         Yes; green Ved DIAG LED           • for channel diagnostics         Yes; green Ved DIAG LED           • between the channels         No           • between the channels and backplane bus         Yes           • Breformance level according to ISO 13849-1         Peter           • Category according to ISO 13849-1         Cat.4           • SiLa Gat. Line Conditions         SiL 3           Probability of faiture (for serv		
Aarms       Ves         • Diagnostics alarm       Yes         • Hardware interrupt       No         Diagnostics indication LED       • ERROR LED         • RUN LED       Yes; green LED         • ERROR LED       Yes; green PWR LED         • Channel diagnostics       Yes; green PWR LED         • Or channel diagnostics       Yes; green LED         • Or orduide diagnostics       Yes; green PWR LED         • Detween the channels       No         • between the channels       No         • between the channels and backplane bus       Yes         • between the channels       No         • between the channels       Yes         Highest stack, certificates       Suitable for safety functions         Suitable for safety functions       Yes         • Detween the channels in adday mode       • Eetween the decording to ISO 13849-1         • Class on the Closs of ISO 13849-1       Cit. 4         • SiL acc. to IEC 61508       SiL 3         • Probability of faular (tor service life of 20 years and repar time of 100 hours)         Low demand mode		Yes
Diagnostic alarm Yes     Hardware interrupt No     Diagnostic alarm Yes     Hardware interrupt No     Diagnostic alarm Hardware interrupt No     Elagnostic alarm Pupt No     EVALED     ERROR LED     ERROR LED     ERROR LED     Kontoing of the supply voltage (PWR-LED)     Yes; green PWR LED     Yes; red LED     for drahanel diagnostics Yes; red LED     for module diagnostics Yes; red LED     for module diagnostics Yes; green/red DIAG LED     Potential separation Hardware intervent is the channels     for drahanel kingnostics     Yes; red LED     for drahanel kingnostics     Yes     for drahanel kingnostics     Yes     for drahanels     for drahanels		
Hardware interrupt     No       Diagnostics indication LED     Yes; green LED       • RROR LED     Yes; green LED       • Monitoring of the supply voltage (PWR-LED)     Yes; green LED       • Channel status display     Yes; green LED       • Or module diagnostics     Yes; green LED       • Or module diagnostics     Yes; green LED       • Or module diagnostics     Yes; green LED       • Edween the channels     No       • Edween the channels and backplane bus     Yes       • Edween the channels and backplane bus     Yes       • Edween the channels and the power supply of the electronics     No       electwork     Statable for safety functions       Statube for safety functions     Yes       Highest safety class achievable in safety mode     PLe       • Edward cording to 150 13849-1     Cat. 4       • Elever on the for size life of 20 years and repair time of 100 hours)     - Low demand mode: PFDay in accordance with SL3       • Miscard conditions     42 00 E-05       • Miscard conditions     42 00E-05       • Hindemark continuous mode: PFH in accordance with SL3     <100E-09 1/h accordance with SL3		Yes
Diagnostics indication LED       Yes: green LED         • RUN LED       Yes: green LED         • Monitoring of the supply voltage (PWR-LED)       Yes: green PWR LED         • Channel status display       Yes: green VED         • for module diagnostics       Yes: green VED         • for module diagnostics       Yes: green VED         Potential separation       Potential separation channels         • between the channels and backplane bus       Yes         • between the channels and backplane bus       Yes         • between the channels and the power supply of the electronics       No         Isolation       Standards, supprovals, contincates         Sutable for safety functions       Yes         Highest safety class achievable in safety mode       PLe         • Category according to ISO 13840-1       Cat. 4         • Sit, act. to IEC 61508       Subtice (of service life of 20 years and repair time of 100 hours)         - Low demand mode: PFDay in accordance       < 2.00E-05	-	
• RUN LED         Yes; green LED           • ERROR LED         Yes; red LED           • Monitoring of the supply voltage (PWR-LED)         Yes; green PWR LED           • Channel status display         Yes; green PWR LED           • for channel diagnostics         Yes; green LED           • for module diagnostics         Yes; green/ed/DIAG LED           Potential separation         Foldential separation           Potential separation         No           • between the channels and backplane bus         Yes           • between the channels and the power supply of the electronics         Yes           Isolation         Isolation           Isolation tested with         707 V DC (type test)           Standards, approvals, certificates         Standards, approvals, certificates           Stutable for safety functions         Yes           Highest safety class achievable in safety mode         Performance level according to ISO 13849-1           • Cat. a cit DEG 1503         Stil 3           Probability of failure (for service Iffe of 20 years and repair time of 100 hours)         -           - Low demand mode: PFDavg in accordance         < 2.00E-05	·	
• ERROR LED     Yes; red LED       • Monitoring of the supply voltage (PWR-LED)     Yes; green PWR LED       • Channel status display     Yes; green TED       • for channel diagnostics     Yes; green red DIAG LED       • for module diagnostics     Yes; green red DIAG LED       • for module diagnostics     Yes; green red DIAG LED       • for module diagnostics     No       • between the channels and backplane bus     Yes       • between the channels and backplane bus     Yes       • between the channels and the power supply of the electronics     No       • between the channels and the power supply of the electronics     Yes       • between the channels and the power supply of the electronics     Yes       • between the channels and the power supply of the electronics     Yes       • between the channels and the power supply of the electronics     Yes       • Suitable for safety functions     Yes       • Standards, approvals, certificates     Suitable for safety functions       • Suitable for safety functions     Yes       • Alighest safety class achievable in safety mode     FLe       • Orbobality of failure (for service life of 20 years and repair time of 100 hours)     - Low demand mode: PFH in accordance with SIL3       • Ambient conditions     < 2.00E-05		Yes; green LED
Channel status display     Yes; green LED     Yos; red LED     Yos; red LED     Yos; red LED     Potential separation     Potential separation channels     between the channels and backplane bus     Yes     between the channels and backplane bus     Yes     between the channels and backplane bus     Yes     between the channels and the power supply of the     lectoronis     solation     Isolation     Isolation tested with         707 V DC (type test)     Standards, paprovals, certificates     Suitable for safety functions     Yes     Yes     Yes     Suitable for safety functions     Yes     Yes	• ERROR LED	-
Channel status display     Yes; green LED     Yos; red LED     Yos; red LED     Yos; red LED     Potential separation     Potential separation channels     between the channels and backplane bus     Yes     between the channels and backplane bus     Yes     between the channels and backplane bus     Yes     between the channels and the power supply of the     lectoronis     solation     Isolation     Isolation tested with         707 V DC (type test)     Standards, paprovals, certificates     Suitable for safety functions     Yes     Yes     Yes     Suitable for safety functions     Yes     Yes	<ul> <li>Monitoring of the supply voltage (PWR-LED)</li> </ul>	Yes; green PWR LED
<ul> <li>for channel diagnostics</li> <li>Yes; red LED</li> <li>for module diagnostics</li> <li>Yes; green/red DIAG LED</li> <li>Potential separation</li> <li>Detween the channels</li> <li>between the channels and backplane bus</li> <li>between the channels and backplane bus</li> <li>between the channels and the power supply of the electronics</li> <li>solution tested with</li> <li>707 V DC (type test)</li> <li>Standards, approvals, certificates</li> <li>Suitable for safety functions</li> <li>Yes</li> <li>Highest safety class achievable in safety mode</li> <li>Performance level according to ISO 13849-1</li> <li>Cate cording to ISO 13849-1</li> <li>Cate cordination was mode: PFH in accordance with SIL3</li> <li>Probability of failure (for service life of 20 years and repair time of 100 hours)</li> <li>- Low demand mode: PFH in accordance with SIL3</li> <li>Ambient temperature during operation</li> <li>+ horizontal installation, min.</li> <li>+ 0arizontal installation, max.</li> <li>60 °C; = Tmax, +70 °C with configured empty slots to the left and right of the module</li> <li>vertical installation, max.</li> <li>60 °C; = Tmax</li> <li>Attibude during operation relating to sea level</li> <li>installation, max.</li> <li>60 °C; = Tmax</li> <li>Attibude during operation relating to sea level attibute, horizontal installation, max.</li> <li>60 °C; = Tmax</li> <li>Attibude during operation relating to sea level, max.</li> <li>400 °C; = Tmax</li> <li>Aubient ain temperature-barometric</li></ul>		-
• for module diagnostics       Yes; green/red DIAG LED         Potential separation channels       No         • between the channels and backplane bus       Yes         • between the channels and backplane bus       Yes         • between the channels and the power supply of the electronics       No         Isolation       Isolation         Isolation tested with       707 V DC (type test)         Standards, approvals, cortificates       Yes         Subtable for safety functions       Yes         Performance level according to ISO 13849-1       Cat. 4         • Category according to ISO 13849-1       Cat. 4         • Category according to ISO 13849-1       Cat. 4         • Sul acc. to IEC 61508       Sil. 3         Probability of failure (for service life of 20 years and repair time of 100 hours)       -         - Low demand mode: PFDavg in accordance with Sil.3       -         Ambient conditions       < 2.00E-05		-
Potential separation         Potential separation channels         • between the channels and backplane bus         • between the channels and backplane bus         • between the channels and backplane bus         • between the channels and the power supply of the electronics         Isolation         Isolation tested with         Standards, approvals, certificates         Suitable for safety functions         Yes         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • Category according to	_	
Potential separation channels       No         • between the channels and backplane bus       Yes         • between the channels and the power supply of the electronics       No         Isolation       No         Isolation tested with       707 V DC (type test)         Standards, approvals, certificates       Yes         Suitable for safety functions       Yes         Highest safely class achievable in safety mode       Performance level according to ISO 13849-1         • Category according to ISO 13849-1       Cat. 4         • Sil. acc. to IEC 61508       Sil 3         Probability of failure (for service life of 20 years and repair time of 100 hours)       -Low demand mode: PFDavg in accordance with Sil.3         — High demand/continuous mode: PFH in accordance with Sil.3       < 1.00E-09 1/h accordance with Sil.3	0	
• between the channels       No         • between the channels and backplane bus       Yes         • between the channels and the power supply of the electronics       No         Isolation       1         Isolation tested with       707 V DC (type test)         Standards, approvals, cortificates       1         Suitable for safety functions       Yes         Performance level according to ISO 13849-1       Cat. 4         • Category according to ISO 13849-1       Cat. 4         • Category according to ISO 13849-1       Cat. 4         • SIL acc. to IEC 61508       SIL 3         Probability of failure (for service life of 20 years and repair time of 100 hours)       -         - Low demand mode: PFDavg in accordance with SIL3          Ambient conditionos           Ambient temperature during operation           • horizontal installation, min.       -40 °C; = Tmin (incl. condensation/frost)          • vertical installation, min.       -40 °C; = Tmin (incl. condensation/frost)          • vertical installation, min.       -40 °C; = Tmix          • vertical installation, min.       -40 °C; = Tmix          • vertical installation, max.       50 °C; = Tmax          Attitude during ope		
• between the channels and backplane bus       Yes         • between the channels and the power supply of the electronics       No         Isolation       Isolation tested with         Standards, approvals, certificates       707 V DC (type test)         Standards, approvals, certificates       Isolation tested with         Suitable for safety functions       Yes         Highest safety class achievable in safety mode       -         • Performance level according to ISO 13849-1       PLe         • Category according to ISO 13849-1       Cat. 4         • SL acc. to IEC 61508       SL 3         Probability of failure (for service life of 20 years and repair time of 100 hours)       -         - Low demand mode: PFDavg in accordance with SL3       < 1.00E-09 1/h	· · ·	No
• between the channels and the power supply of the electronics       No         Isolation       Isolation         Isolation tested with       707 V DC (type test)         Standards, approvals, certificates       Suitable for safety functions         Ves       Yes         Highest safety class achievable in safety mode       Performance level according to ISO 13849-1         • Category according to ISO 13849-1       Cat. 4         • SIL acc. to IEC 61508       SiL 3         Probability of failure (for service life of 20 years and reparitime of 100 hours)          Low demand mode: PFDavg in accordance with SIL3          Ambient conditions          Ambient temperature during operation          • horizontal installation, min.       -40 °C; = Tmin (incl. condensation/frost)         • horizontal installation, min.       -40 °C; = Tmin         • vertical installation, max.       50 °C; = Tmax         • vertical installation, max.       50 °C; = Tmax         • Noit condensation/frost)       Restrictions for installation altitude above sea level         • vertical installation mint.       -40 °C; = Tmix         • Vertical installation, max.       50 °C; = Tmax         • Noit condensation, tested in accordance with IEC       000 m         • Restrictions for installation of frost		
Isolation         Isolation         Isolation tested with         Suitable for safety functions         Yes         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • Category according to ISO 13849-1         • Cate of EC 61508         Sill acc. to IEC 61508         Probability of failure (for service life of 20 years and repair time of 100 hours)         - Low demand mode: PFDay in accordance with SIL3         Ambient conditions         Ambient temperature during operation         • horizontal installation, min.         • horizontal installation, min.         • vertical installation, max.		
Isolation tested with       707 V DC (type test)         Standards, approvals, certificates         Suitable for safety functions       Yes         Highest safety class achievable in safety mode       Performance level according to ISO 13849-1         • Category according to ISO 13849-1       Cat. 4         • SIL acc. to IEC 61508       SIL 3         Probability of failure (for service life of 20 years and repair time of 100 hours)       -         - Low demand mode: PFDavg in accordance with SIL3       < 2.00E-05		
Standards, approvals, certificates           Suitable for safety functions         Yes           Highest safety class achievable in safety mode         Performance level according to ISO 13849-1         PLe           Category according to ISO 13849-1         Cat. 4         SiL acc. to IEC 61508         SiL 3           Probability of failure (for service life of 20 years and repair time of 100 hours)         -         -           — Low demand mode: PFDavg in accordance with SIL3          2.00E-05           Ambient conditions             Ambient temperature during operation         < 1.00E-09 1/h	Isolation	
Suitable for safety functions       Yes         Highest safety class achievable in safety mode       •         • Performance level according to ISO 13849-1       PLe         • Category according to ISO 13849-1       Cat. 4         • SIL acc. to IEC 61508       SIL 3         Probability of failure (for service life of 20 years and repair time of 100 hours)          - Low demand mode: PFDavg in accordance with SIL3       < 2.00E-05	Isolation tested with	707 V DC (type test)
Highest safety class achievable in safety mode            • Performance level according to ISO 13849-1       PLe            • Category according to ISO 13849-1       Cat. 4            • SIL acc. to IEC 61508       SiL 3            Probability of failure (for service life of 20 years and repair time of 100 hours)               — Low demand mode: PFDayg in accordance           < 2.00E-05	Standards, approvals, certificates	
• Performance level according to ISO 13849-1       PLe         • Category according to ISO 13849-1       Cat. 4         • SIL acc. to IEC 61508       SIL 3         Probability of failure (for service life of 20 years and repair time of 100 hours)       -        Low demand mode: PFDavg in accordance with SIL3       < 2.00E-05	Suitable for safety functions	Yes
• Category according to ISO 13849-1       Cat. 4         • SIL acc. to IEC 61508       SIL 3         Probability of failure (for service life of 20 years and repair time of 100 hours)       -         - Low demand mode: PFDavg in accordance with SIL3          - High demand/continuous mode: PFH in accordance with SIL3          Ambient conditions       <1.00E-09 1/h	Highest safety class achievable in safety mode	
• SIL acc. to IEC 61508       SIL 3         Probability of failure (for service life of 20 years and repair time of 100 hours)          - Low demand mode: PFDavg in accordance with SIL3       < 2.00E-05	<ul> <li>Performance level according to ISO 13849-1</li> </ul>	PLe
Probability of failure (for service life of 20 years and repair time of 100 hours)	<ul> <li>Category according to ISO 13849-1</li> </ul>	Cat. 4
Low demand mode: PFDavg in accordance with SIL3       < 2.00E-05		
with SIL3       High demand/continuous mode: PFH in accordance with SIL3       < 1.00E-09 1/h	<ul> <li>SIL acc. to IEC 61508</li> </ul>	SIL 3
accordance with SIL3         Ambient conditions         Ambient temperature during operation         • horizontal installation, min.         • horizontal installation, max.         60 °C; = Tmin (incl. condensation/frost)         • horizontal installation, max.         • vertical installation, min.         • vertical installation, max.         • vertical installation relating to sea level         • Installation altitude above sea level, max.         • Ambient air temperature-barometric pressure- altitude         Relative humidity         • With condensation, tested in accordance with IEC 60068-2-38, max.         • With condensation, tested in accordance with IEC 60068-2-38, max.         • Resistance         Coolants and lubricants         - Resistant to commercially available coolants and lubricants		
Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module</li> <li>vertical installation, min.</li> <li>-40 °C; = Tmin</li> <li>vertical installation, max.</li> </ul> <li>Vertical installation, max.</li> <li>50 °C; = Tmax</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>Ambient air temperature-barometric pressure-altitude</li> <li>Relative humidity         <ul> <li>With condensation, tested in accordance with IEC 60068-2-38, max.</li> <li>Resistance</li> <li>Coolants and lubricants</li> <li>Resistant to commercially available coolants and lubricants</li> </ul> </li>	Probability of failure (for service life of 20 years and repa — Low demand mode: PFDavg in accordance	air time of 100 hours)
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>horizontal installation, max.</li> <li>of the module</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>vertical installation, max.</li> <li>of the module</li> <li>vertical installation, max.</li> <li>of °C; = Tmin</li> <li>vertical installation attitude above sea level</li> <li>Installation altitude above sea level, max.</li> <li>Ambient air temperature-barometric pressure- altitude</li> <li>Relative humidity</li> <li>With condensation, tested in accordance with IEC 60068-2-38, max.</li> <li>Resistance</li> <li>Coolants and lubricants</li> <li>Resistant to commercially available coolants and lubricants</li> <li>Yes; Incl. diesel and oil droplets in the air</li> </ul>	<ul> <li>Probability of failure (for service life of 20 years and repa</li> <li>— Low demand mode: PFDavg in accordance with SIL3</li> <li>— High demand/continuous mode: PFH in</li> </ul>	air time of 100 hours) < 2.00E-05
<ul> <li>horizontal installation, max.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>vertical installation, max.</li> <li>C; = Tmax; +70 °C with configured empty slots to the left and right of the module</li> <li>vertical installation, max.</li> <li>Vertical installation, max.</li> <li>Vertical installation, max.</li> <li>S0 °C; = Tmax</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>Ambient air temperature-barometric pressure-altitude</li> <li>Relative humidity</li> <li>With condensation, tested in accordance with IEC 60068-2-38, max.</li> <li>Resistance</li> <li>Coolants and lubricants</li> <li>Resistant to commercially available coolants and lubricants</li> <li>Yes; Incl. diesel and oil droplets in the air</li> </ul>	<ul> <li>Probability of failure (for service life of 20 years and repa</li> <li>— Low demand mode: PFDavg in accordance with SIL3</li> <li>— High demand/continuous mode: PFH in accordance with SIL3</li> </ul>	air time of 100 hours) < 2.00E-05
of the module         • vertical installation, min.         • vertical installation, max.         50 °C; = Tmin         Altitude during operation relating to sea level         • Installation altitude above sea level, max.         • Ambient air temperature-barometric pressure- altitude         Relative humidity         • With condensation, tested in accordance with IEC 60068-2-38, max.         Coolants and lubricants         — Resistant to commercially available coolants and lubricants	Probability of failure (for service life of 20 years and repa — Low demand mode: PFDavg in accordance with SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions	air time of 100 hours) < 2.00E-05
• vertical installation, max.       50 °C; = Tmax         Altitude during operation relating to sea level       4000 m         • Installation altitude above sea level, max.       4000 m         • Ambient air temperature-barometric pressure- altitude       Restrictions for installation altitudes > 2000 m, see entry ID: 109771992         Relative humidity       00 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation         Resistance       Coolants and lubricants         — Resistant to commercially available coolants and lubricants       Yes; Incl. diesel and oil droplets in the air	Probability of failure (for service life of 20 years and repa — Low demand mode: PFDavg in accordance with SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation	air time of 100 hours) < 2.00E-05 < 1.00E-09 1/h
Altitude during operation relating to sea level         • Installation altitude above sea level, max.         • Ambient air temperature-barometric pressure- altitude         Relative humidity         • With condensation, tested in accordance with IEC 60068-2-38, max.         Coolants and lubricants         — Resistant to commercially available coolants and lubricants            Yes; Incl. diesel and oil droplets in the air	<ul> <li>Probability of failure (for service life of 20 years and reparation of 20 years)</li> <li>— Low demand mode: PFDavg in accordance with SIL3</li> <li>— High demand/continuous mode: PFH in accordance with SIL3</li> <li>Ambient conditions</li> <li>Ambient temperature during operation</li> <li>horizontal installation, min.</li> </ul>	air time of 100 hours) < 2.00E-05 < 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right
• Installation altitude above sea level, max.       4 000 m         • Ambient air temperature-barometric pressure- altitude       Restrictions for installation altitudes > 2 000 m, see entry ID: 109771992         Relative humidity       • With condensation, tested in accordance with IEC 60068-2-38, max.       100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation         Resistance       Coolants and lubricants       — Resistant to commercially available coolants and lubricants       Yes; Incl. diesel and oil droplets in the air	<ul> <li>Probability of failure (for service life of 20 years and reparation of 20 years)</li> <li>— Low demand mode: PFDavg in accordance with SIL3</li> <li>— High demand/continuous mode: PFH in accordance with SIL3</li> <li>Ambient conditions</li> <li>Ambient temperature during operation</li> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> </ul>	air time of 100 hours) < 2.00E-05 < 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module
• Ambient air temperature-barometric pressure- altitude       Restrictions for installation altitudes > 2 000 m, see entry ID: 109771992         Relative humidity       • With condensation, tested in accordance with IEC 60068-2-38, max.       100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation         Resistance       Coolants and lubricants       — Resistant to commercially available coolants and lubricants       Yes; Incl. diesel and oil droplets in the air	<ul> <li>Probability of failure (for service life of 20 years and reparation of 20 years)</li> <li>— Low demand mode: PFDavg in accordance with SIL3</li> <li>— High demand/continuous mode: PFH in accordance with SIL3</li> <li>Ambient conditions</li> <li>Ambient temperature during operation         <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> </ul> </li> </ul>	air time of 100 hours) < 2.00E-05 < 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin
altitude         Relative humidity         • With condensation, tested in accordance with IEC 60068-2-38, max.         Resistance         Coolants and lubricants         — Resistant to commercially available coolants and lubricants    Yes; Incl. diesel and oil droplets in the air	<ul> <li>Probability of failure (for service life of 20 years and repation of 20 years and r</li></ul>	air time of 100 hours) < 2.00E-05 < 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin
With condensation, tested in accordance with IEC 60068-2-38, max.     100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation     Coolants and lubricants     — Resistant to commercially available coolants and lubricants     Yes; Incl. diesel and oil droplets in the air	<ul> <li>Probability of failure (for service life of 20 years and repation of 20 years and repating and 20 years and repa</li></ul>	<pre>air time of 100 hours) &lt; 2.00E-05 &lt; 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin 50 °C; = Tmax</pre>
60068-2-38, max.     state), horizontal installation       Resistance       Coolants and lubricants       — Resistant to commercially available coolants and lubricants   Yes; Incl. diesel and oil droplets in the air	<ul> <li>Probability of failure (for service life of 20 years and repation of 20 years and 20 years</li></ul>	<pre>air time of 100 hours) &lt; 2.00E-05 &lt; 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin 50 °C; = Tmax</pre>
Coolants and lubricants — Resistant to commercially available coolants and lubricants Yes; Incl. diesel and oil droplets in the air	<ul> <li>Probability of failure (for service life of 20 years and repation of 20 years and repat</li></ul>	<pre>air time of 100 hours) &lt; 2.00E-05 &lt; 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin 50 °C; = Tmax 4 000 m</pre>
— Resistant to commercially available coolants     And lubricants     Yes; Incl. diesel and oil droplets in the air	<ul> <li>Probability of failure (for service life of 20 years and reparation of the service life of 20 years and reparation of the service of the service life of 20 years and reparation of the service of the service</li></ul>	<pre>air time of 100 hours) &lt; 2.00E-05 &lt; 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin 50 °C; = Tmax 4 000 m Restrictions for installation altitudes &gt; 2 000 m, see entry ID: 109771992 100 %; RH incl. condensation / frost (no commissioning in bedewed</pre>
and lubricants	<ul> <li>Probability of failure (for service life of 20 years and repation of the service life of 20 years and repation of the service of the service life of 20 years and repation of the service of the</li></ul>	<pre>air time of 100 hours) &lt; 2.00E-05 &lt; 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin 50 °C; = Tmax 4 000 m Restrictions for installation altitudes &gt; 2 000 m, see entry ID: 109771992 100 %; RH incl. condensation / frost (no commissioning in bedewed</pre>
	<ul> <li>Probability of failure (for service life of 20 years and repation of the service life of 20 years and repation of the service life of 20 years and repation of the service of the service life of 20 years and repation of the service of the service life of 20 years and repation of the service of the</li></ul>	<pre>air time of 100 hours) &lt; 2.00E-05 &lt; 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin 50 °C; = Tmax 4 000 m Restrictions for installation altitudes &gt; 2 000 m, see entry ID: 109771992 100 %; RH incl. condensation / frost (no commissioning in bedewed</pre>
Use in stationary industrial systems	<ul> <li>Probability of failure (for service life of 20 years and repation of the service life of 20 years and repation of the service life of 20 years and repation of the service of the service life of 20 years and repation of the service of the</li></ul>	<pre>air time of 100 hours) &lt; 2.00E-05 &lt; 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin 50 °C; = Tmax 4 000 m Restrictions for installation altitudes &gt; 2 000 m, see entry ID: 109771992 100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation</pre>
<ul> <li>— to biologically active substances according to EN 60721-3-3</li> <li>Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request</li> </ul>	<ul> <li>Probability of failure (for service life of 20 years and repation of the service life of 20 years and repation of the service life of 20 years and repation of the service of the service life of 20 years and repation of the service of the</li></ul>	<pre>air time of 100 hours) &lt; 2.00E-05 &lt; 1.00E-09 1/h -40 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax; +70 °C with configured empty slots to the left and right of the module -40 °C; = Tmin 50 °C; = Tmax 4 000 m Restrictions for installation altitudes &gt; 2 000 m, see entry ID: 109771992 100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation</pre>

last modified:	12/20/2021 🖸	
Weight, approx.	29 g	
Weights		
Depth	58 mm	
Height	73 mm	
Width	15 mm	
Dimensions		
<ul> <li>Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A</li> </ul>	Yes; Conformal coating, Class A	
<ul> <li>Military testing according to MIL-I-46058C, Amendment 7</li> </ul>	Yes; Discoloration of coating possible during service life	
<ul> <li>Coatings for printed circuit board assemblies acc. to EN 61086</li> <li>Protection against fouling acc. to EN 60664-3</li> </ul>	Yes; Class 2 for high reliability Yes; Type 1 protection	
Conformal coating	Ves: Class 2 for high religibility	
conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	interfaces during operation!	
Remark — Note regarding classification of environmental	* The supplied plug covers must remain in place over the unused	
<ul> <li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA- 71.04</li> </ul>	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	
Usage in industrial process technology		
<ul> <li>Against mechanical environmental conditions acc. to EN 60721-3-6</li> </ul>	Yes; Class 6M4 using the SIPLUS Mounting Kit ET 200SP (6AG1193- 6AA00-0AA0)	
<ul> <li>— to mechanically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6S3 incl. sand, dust; *	
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	
Use on ships/at sea — to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)	
<ul> <li>against mechanical environmental conditions in agriculture acc. to ISO 15003</li> </ul>	Yes; level 1 (Location LE) using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)	
<ul> <li>Against mechanical environmental conditions acc. to EN 60721-3-5</li> </ul>	Yes; Class 5M2 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)	
Use on land craft, rail vehicles and special-purpose vehic	· · · · · · · · · · · · · · · · · · ·	
<ul> <li>Against mechanical environmental conditions acc. to EN 60721-3-3</li> </ul>	Yes; Class 3M8 using the SIPLUS Mounting Kit ET 200SP (6AG1193- 6AA00-0AA0)	
<ul> <li>         — to mechanically active substances according to EN 60721-3-3     </li> </ul>	Yes; Class 3S4 incl. sand, dust, *	
<ul> <li>— to chemically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	