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Data sheet 6AG1136-6CB00-2CA0



Figure similar

SIPLUS ET 200SP F-TM Count HF based on 6ES7136-6CB00-0CA0 with conformal coating -25...+60 °C . 1x1 Vpp sin/cos HF, PROFIsafe, 1 channel, for incremental rotary encoders, sin/cos 1 Vpp, suitable for BU type A0, pack quantity: 1 unit

General information	
Product type designation	F-TM Count 1x1Vpp sin/cos HF
Firmware version	
● FW update possible	Yes
based on	6ES7136-6CB00-0CA0
usable BaseUnits	BU type A0
Color code for module-specific color-coded label	CC01
Product function	
● I&M data	Yes; I&M0 to I&M3
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
Supply voltage	
Rated value (DC)	24 V
power supply according to NEC Class 2 required	No
Load voltage L+	
● Rated value (DC)	24 V
● permissible range, lower limit (DC)	20.4 V
● permissible range, upper limit (DC)	28.8 V
● Reverse polarity protection	Yes
Input current	
Current consumption, max.	50 mA; without load, 150 mA with 300 mA encoder load
Encoder supply	
5 V encoder supply	
● 5 V	Yes; 5.1 V ±3.5 %
● Short-circuit protection	Yes; Electronic overload protection; no protection on applying a normal or counter voltage.
● Output current, max.	300 mA
Power loss	
Power loss, typ.	1.25 W
Address area	
Address space per module	
● Inputs	14 byte; S7-300/400F CPU, 13 byte
● Outputs	5 byte; S7-300/400F CPU, 4 byte
Hardware configuration	
Automatic encoding	Yes
● Electronic coding element type H	Yes
Digital inputs	
Number of digital inputs	1; (counter input)

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Digital inputs, parameterizable	Yes
Digital input functions, parameterizable	
● Gate start/stop	Yes
● Counter for incremental encoder	Yes
— Number, max.	1
Input voltage	
● Type of input voltage	sin/cos 1 Vpp
Input delay (for rated value of input voltage)	
● Minimum pulse width for program reactions	2.5 µs
for technological functions	
— Parameterizable	Yes
Cable length	
● shielded, max.	150 m
Encoder	
Connectable encoders	
● Incremental encoder (symmetrical)	Yes; up to 200 kHz depending on cable type and length
Encoder signals, incremental encoder (symmetrical)	
● Input voltage	1 Vpp, centered at 2.5 V offset
● Input frequency, max.	200 kHz
● Counting frequency, max.	800 kHz; with quadruple evaluation
● Cable length, shielded, max.	150 m
● Incremental encoder with A/B tracks, 90° phase offset	Yes; sin/cos
● Incremental encoder with A/B tracks, 90° phase offset and zero track	Yes; sin/cos/zero
Interfaces	
Number of RS 485 interfaces	0
Interrupts/diagnostics/status information	
Diagnostics function	Yes; see chapter "Diagnostic Messages" in the manual
Alarms	
● Diagnostic alarm	Yes
● Hardware interrupt	No
Diagnoses	
● Monitoring the supply voltage	Yes
● Wire break	Yes
● short-circuit	Yes
● A/B transition error at incremental encoder	Yes
Diagnostics indication LED	
● RUN LED	Yes; green LED
● ERROR LED	Yes; red LED
● 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; green/red DIAG LED
Integrated Functions	
Counter	Yes
● Number of counters	1
● Counting frequency, max.	800 kHz; with quadruple evaluation
Safety monitoring functions	
● Safe Operating Stop (SOS)	Yes
● Safely-Limited Speed (SLS)	Yes
● Safe Direction (SDI)	Yes
● Safe Speed Monitor (SSM)	Yes
Counting functions	
● Continuous counting	Yes
● Counter response parameterizable	Yes
● Software gate	Yes
● Counting range, parameterizable	Yes
Measuring functions	
Measuring range	

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— Frequency measurement, min.	0.04 Hz
— Frequency measurement, max.	800 kHz; with quadruple evaluation
— Cycle duration measurement, min.	1 µs
— Cycle duration measurement, max.	25 s
— Velocity measurement, min.	0 (speed in configured units per selected time basis - speed*1 000)
— Velocity measurement, max.	2 147 483 (speed in configured units per selected time basis - speed*1 000)
Accuracy	
— Frequency measurement	up to 100 ppm; depending on measuring interval and signal evaluation; at low frequency external noise may have an effect on accuracy (reference the graph in 2.2.3)
— Cycle duration measurement	up to 100 ppm; depending on measuring interval and signal evaluation; at low frequency external noise may have an effect on accuracy (reference the graph in 2.2.3)
— Velocity measurement	up to 100 ppm; depending on measuring interval and signal evaluation; at low frequency external noise may have an effect on accuracy (reference the graph in 2.2.3)
Potential separation	
Potential separation channels	
● between the channels	No; Only one channel is available
● between the channels and backplane bus	Yes
● Between the channels and load voltage L+	No
● between the channels and the power supply of the electronics	No
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	Yes
Ecological footprint	
● environmental product declaration	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	88.3 kg
— global warming potential, (during production) [CO2 eq]	13.1 kg
— global warming potential, (during operation) [CO2 eq]	76.6 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-1.37 kg
Highest safety class achievable in safety mode	
● Performance level according to ISO 13849-1	Cat. 4, PLe
● 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 SIL1	< 2.00E-03 signal monitoring disabled
— Low demand mode: PFDavg in accordance with SIL3	< 3.00E-05
— high demand/continuous mode: PFH in accordance with SIL1	< 3.00E-08 1/h signal monitoring disabled
— High demand/continuous mode: PFH in accordance with SIL3	< 1.00E-09 1/h
Ambient conditions	
Ambient temperature during operation	
● horizontal installation, min.	-25 °C; = Tmin (incl. condensation/frost)
● horizontal installation, max.	60 °C; = Tmax; +70 °C with spacing modules (6AG1193-6BN00-7BA0) or configured slots to the left and right of the module
● vertical installation, min.	-25 °C; = Tmin
● vertical installation, max.	55 °C; = Tmax
Altitude during operation relating to sea level	
● Installation altitude above sea level, max.	2 000 m
● Ambient air temperature-barometric pressure-altitude	On request: Installation altitudes greater than 2 000 m
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	

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— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
— Against mechanical environmental conditions acc. to EN 60721-3-3	Yes; Class 3M8 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0//6AG1193-6AB00-0AA0)
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)
— 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); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
— Against mechanical environmental conditions acc. to EN 60721-3-6	Yes; class 6M4 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0/6AG1193-6AB00-0AA0)
Usage in industrial process technology	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	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)
Remark	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
● Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability
● Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection
● Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
● Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A	Yes; Conformal coating, Class A
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	42 g

Classifications

	Version	Classification
eClass	16	27-24-26-05
eClass	14	27-24-26-05
eClass	12	27-24-26-05
eClass	9.1	27-24-26-05
eClass	9	27-24-26-05
eClass	8	27-24-26-05
eClass	7.1	27-24-26-05
eClass	6	27-24-26-05
ETIM	10	EC001601
ETIM	9	EC001601
ETIM	8	EC001601
ETIM	7	EC001601

Approvals / Certificates

General Product Approval

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Manufacturer Declaration			China RoHS		

General Product Approval			EMV	For use in hazardous locations	
China RoHS					

Functional Saftey		Environment
TUEV	TUEV	

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