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Data sheet 6AG1138-6CG00-2BA0



SIPLUS ET 200SP TM timer DIDQ 10x24V based on 6ES7138-6CG00-0BA0 with conformal coating, -40…+60 °C, time-controlled digital inputs and outputs 4 DI, 6 DQ with time stamp count, PWM, oversampling

General information	
Product type designation	TM Timer DIDQ 10x24V
based on	6ES7138-6CG00-0BA0
usable BaseUnits	BU type A0
Product function	
● I&M data	Yes; I&M 0
● Isochronous mode	Yes
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
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
● Reverse polarity protection	Yes; against destruction
Input current	
Current consumption, max.	50 mA; without load
Encoder supply	
Number of outputs	1
24 V encoder supply	
● 24 V	Yes; L+ (-0.8 V)
● Short-circuit protection	Yes
● Output current, max.	500 mA; Observe derating
Power loss	
Power loss, typ.	1.5 W
Address area	
Address space per module	
● Inputs	26 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	4
Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Digital input functions, parameterizable	

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● Digital input with time stamp	Yes
— Number, max.	4
● Counter	Yes
— Number, max.	3
● Counter for incremental encoder	Yes
— Number, max.	1
● Digital input with oversampling	Yes
— Number, max.	4
● HW enable for digital input	Yes
— Number, max.	1
● HW enable for digital output	Yes
— Number, max.	3
Input voltage	
● Type of input voltage	DC
● Rated value (DC)	24 V
● for signal "0"	-5 ... +5 V
● for signal "1"	+11 to +30V
● permissible voltage at input, min.	-30 V; -5 V continuous, -30 V brief reverse polarity protection
● permissible voltage at input, max.	30 V
Input current	
● for signal "1", typ.	2.5 mA
Input delay (for rated value of input voltage)	
● Minimum pulse width for program reactions	3 µs for parameterization "none"
for standard inputs	
— parameterizable	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 ms
Cable length	
● shielded, max.	1 000 m; Depending on sensor, cable quality and rate of change
● unshielded, max.	600 m; Depending on sensor, cable quality and rate of change
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	6
Current-sinking	Yes; With High Speed output
Current-sourcing	Yes
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes; electronic/thermal
● Response threshold, typ.	1.7 A with Standard output, 0.5 A with High Speed output
Limitation of inductive shutdown voltage to	-0.8 V
Digital output functions, parameterizable	
● Digital output with time stamp	Yes
— Number, max.	6
● PWM output	Yes
— Number, max.	6
● Digital output with oversampling	Yes
— Number, max.	6
Switching capacity of the outputs	
● with resistive load, max.	0.5 A; 0.1 A with High Speed output
● on lamp load, max.	5 W; 1 W with High Speed output
Load resistance range	
● lower limit	48 Ω; 240 ohm with High Speed output
● upper limit	12 kΩ
Output voltage	
● Type of output voltage	DC
● for signal "0", max.	1 V; With High Speed output
● for signal "1", min.	23.2 V; L+ (-0.8 V)
Output current	
● for signal "1" rated value	0.5 A; 0.1 A with High Speed output, observe derating
● for signal "1" permissible range, max.	0.6 A; 0.12 A with High Speed output, observe derating
● for signal "1" minimum load current	2 mA
● for signal "0" residual current, max.	0.5 mA

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Output delay with resistive load	
● "0" to "1", max.	1 µs; With High Speed output, 5 µs with Standard output
● "1" to "0", max.	1 µs; With High Speed output, 6 µs with Standard output
Switching frequency	
● with resistive load, max.	10 kHz
● on lamp load, max.	10 Hz
Total current of the outputs	
● Current per module, max.	3.5 A; Observe derating
Cable length	
● shielded, max.	1 000 m; depending on load and cable quality
● unshielded, max.	600 m; depending on load and cable quality
Encoder	
Connectable encoders	
● Incremental encoder (asymmetrical)	Yes
● 24 V initiator	Yes
● 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1.5 mA
Encoder signals, incremental encoder (asymmetrical)	
● Input voltage	24 V
● Input frequency, max.	50 kHz
● Counting frequency, max.	200 kHz; with quadruple evaluation
● Cable length, shielded, max.	600 m; Depending on input frequency, encoder and cable quality; max. 200 m at 50 kHz
● Incremental encoder with A/B tracks, 90° phase offset	Yes
● pulse encoder	Yes
Interface types	
● Input characteristic curve in accordance with IEC 61131, type 3	Yes
Interfaces	
Number of RS 485 interfaces	0
Isochronous mode	
Bus cycle time (TDP), min.	375 µs
Jitter, max.	1 µs
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Substitute values connectable	Yes
Alarms	
● Diagnostic alarm	Yes
Diagnoses	
● Monitoring the supply voltage	Yes
● Short-circuit	Yes
Diagnostics indication LED	
● Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
● Channel status display	Yes
● for module diagnostics	Yes; green/red DIAG LED
Integrated Functions	
Counter	Yes
● Number of counters	3
● Counting frequency, max.	200 kHz; with quadruple evaluation
Counting functions	
● Continuous counting	Yes
Potential separation	
Potential separation channels	
● between the channels and backplane bus	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	No
Ambient conditions	

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Ambient temperature during operation			
● horizontal installation, min.	-40 °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.	-40 °C; = Tmin		
● vertical installation, max.	50 °C; = Tmax; see Derating BasedOn (e.g. manual)		
Altitude during operation relating to sea level			
● Installation altitude above sea level, max.	5 000 m		
● Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 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			
— 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)		
Use on ships/at sea			
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request		
— 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)		
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		
Decentralized operation			
to SIMATIC S7-1500	Yes		
Dimensions			
Width	15 mm		
Height	73 mm		
Depth	58 mm		
Weights			
Weight, approx.	45 g		
Classifications			
		Version	**Classification**

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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
IDEA	4	3567
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

Manufacturer Declaration

EG-Konf.

UK CA

China RoHS

UL

EMV

RCM

For use in hazardous locations

IECEx

ATEX

CCC-Ex

Maritime application

DNV

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