

DS NET Hardware

DS NET A04 ANALOG OUTPUT EXPANSION MODULE

Black line

19 inch



MAIN FEATURES

- **4 galvanic isolated analog output channels**
voltage ± 10 V, current 4...20 mA selectable isolation
Isolation voltage 500 VDC
- **DAC-resolution 16 bit**
100 kHz with 1 channel, 10 kHz with 4 channels
- **4 digital inputs and 2 digital outputs**
configurable as 2 counter, 2 frequency, or 2 PWM
inputs, 1 frequency or PWM output, state in or output
- **Frequency in and outputs**
frequency measurement up to 1 MHz (Chronos method), frequency output up to 10 kHz
- **Counter**
For/backward counter, quadrature counter with reference zero recognition (reset/enable), up to 1 MHz
- **PWM in and output**
measurement of duty cycle and frequency, output with variable frequency and/or duty cycle
- **Outputs freely scalable**
- **Galvanic isolation**
of I/O-signals, power supply and interface
Isolation voltage 500 VDC
- **Electromagnetic Compatibility**
according EN 61000-4 and EN 55011

DS NET Hardware

DS NET A04 ANALOG OUTPUT EXPANSION MODULE

ANALOG OUTPUTS		
Number	4	
Accuracy	0.02 %	
Output type	configurable voltage or current output	
Galvanic isolation	500V channel/channel against power supply and interface	
VOLTAGE		
Output voltage	$\pm 10 V_{DC}$	
Acceptable load resistance	$> 2 k\Omega$	
Long term drift	$< 1 mV/24 h$	
Temperature influence	on zero: $< 2 mV/10 K$	on sensitivity: $< 0.05 \%/10 K$
Noise voltage	on zero: $< 10 mV$ at 1000 Hz bandwidth	on sensitivity: $< 2 mV$ at 10 Hz bandwidth
CURRENT		
Output current	0...20 mA	
Acceptable burden	$< 400 \Omega$	
Long term drift	$< 2 \mu A/24 h$	
Temperature influence	on zero: $< 4 \mu A/10 K$	on sensitivity: $< 0.05 \%/10 K$
Noise current	on zero: $< 20 \mu A$ at 1000 Hz bandwidth	on sensitivity: $< 4 \mu A$ at 10 Hz bandwidth
DIGITAL/ANALOG CONVERSION		
Resolution	16 bit	
Sample rate	100 kHz with 1 channel 10 kHz with 4 channels	
Settling time	3 μs	
Filter	Selectable for 100 kHz, 10 kHz, 1 kHz	
DIGITAL INPUTS		
Number	4	
Input voltage	max. $30 V_{DC}$	
Input current	max. 2 mA	
Threshold (programmable)	TTL or programmable	
Signal voltage „0“	$-3 \dots 5 V_{DC}$ (EN61131-2, Type1)	
Signal voltage „1“	$11 \dots 30 V_{DC}$ (EN61131-2, Type1)	
Galvanic isolation	500 Veff against power supply and interface	
DIGITAL OUTPUTS		
Number	4	
Contact	open drain p-channel MOSFET (short circuit proof)	
Load	$30 V_{DC}/500 mA$ (ohmic Load)	

DS NET Hardware

DS NET A04 ANALOG OUTPUT EXPANSION MODULE

FUNCTION DIGITAL INPUTS	
STATE	
Reaction time	10 μ s
FREQUENCY MEASUREMENT	
Method	Chronos Optimized by combination of time measurement and pulse counting Recognition of the direction of rotation (0°, 90°)
Frequency range	1 Hz up to 1 MHz
Time base	0.001 up to 1 s
Counter frequency (reference)	48 MHz
Resolution	0.002 %
PWM MEASUREMENT	
Input frequency	1 Hz up to 1 MHz
Resolution	21 ns
Configuration of the measurement type	Counter for duty cycle, frequency
COUNTER	
Methods	forward/backward counter (additional direction input), quadrature counter (for rotation direction detection the phasing between two inputs is used), quadrature counter with reference zero and reset/enable (for rotation direction detection the phasing between two inputs is used, additionally inputs for reference zero and reset/enable are used)
Counter resolution	32 bit
Counter frequency	1 MHz
FUNCTION DIGITAL OUTPUT	
STATE	
Reaction time	100 μ s
FREQUENCY OUTPUT	
Frequency range	0.1 Hz up to 10 kHz
Accuracy	0.01 %
PWM OUTPUT	
Input frequency	1 Hz up to 1 MHz
Resolution	21 ns

DS NET Hardware

DS NET A04 ANALOG OUTPUT EXPANSION MODULE

POWER SUPPLY	
Power supply	10 up to 30 V _{DC} , overvoltage and overload protection
Power consumption	approx. 2 W
Influence of the voltage	<0.001 %/V
ENVIRONMENTAL	
Operating temperature	-20°C up to +50°C
Storage temperature	-40°C up to +85°C
Relative humidity	5 % up to 95 % at 50°C, non condensing
Vibration	MIL-STD 810F 514.5, procedure I
Shock	MIL-STD 810F 516.5, procedure I
MECHANICAL	
Case	Aluminum and ABS
Dimensions (W x H x D)	(27 x 120 x 105) mm
Weight	approx. 200 g
Mounting	DIN EN-rail
CONNECTION	
Standard	20 pin screw terminal

Warm up time

All declarations are valid after a warm up time of 45 minutes.