DATASHEET - EASY512-DC-TC



Control relay, 24 V DC, 8DI(2AI), 4DO-Trans, display, time

Powering Business Worldwide

EASY512-DC-TC Part no. Catalog No. 274111

EL-Nummer (Norway)

4519760

Delivery program

zomor, program		
Basic function		easy500
Description		Stand alone customized laser inscription or delivery with user program possible with EASY-COMBINATION-* product (article No. 2010781)
Inputs		
Digital		8
of which can be used as analog		2
Outputs		
Quantity of outputs		Transistor: 4
Outputs	Num	ber 4
Transistor		4
Additional features		
Real time clock		#
Display & keypad		#
Supply voltage		24 V DC
Software		EASY-SOFT-BASIC/-PRO
Connection type		screw terminal

Toohnical data

Mounting position

Technical data			
General			
Standards			EN 55011, EN 55022, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27
Approvals			CSA UL EAC
Dimensions (W x H x D)		mm	71.5 x 90 x 58 (4 PE)
Weight		kg	0.2
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories)
Terminal capacities			
Solid		mm^2	0.2/4 (AWG 22 - 12)
Flexible with ferrule		mm ²	0.2/2.5 (AWG 22 - 12)
Standard screwdriver		mm	0.8 x 3.5
Max. tightening torque		Nm	0.6
Climatic environmental conditions			
Operating ambient temperature		°C	In accordance with IEC 60068-2-1, -25 - +55
Condensation			Take appropriate measures to prevent condensation
LCD display (clearly legible)		°C	0 - 55
Storage	8	°C	-40 - +70
relative humidity		%	in accordance with IEC 60068-2-30, IEC 60068-2-78 5 - 95
Air pressure (operation)		hPa	795 - 1080
Ambient conditions, mechanical			
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20
Vibrations		Hz	In accordance with IEC 60068-2-6 constant amplitude 0.15 mm: 10 - 57 constant acceleration 2 g: 57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1

Vertical or horizontal

Electromagnetic compatibility (EMC) III/2 Overvoltage category/pollution degree Electrostatic discharge (ESD) nach IEC/EN 61000-4-2 applied standard Air discharge kV 8 kV Contact discharge 6 Electromagnetic fields (RFI) to IEC EN 61000-4-3 V/m 10 Radio interference suppression EN 55011 Class B, EN 55022 Class B Burst kV according to IEC/EN 61000-4-4 Supply cables: 2 Signal cables: 2 according to IEC/EN 61000-4-5 power pulses (Surge) 1 kV (supply cables, symmetrical) ٧ Immunity to line-conducted interference to (IEC/EN 61000-4-6) 10 **Insulation resistance** EN 50178, UL 508, CSA C22.2, No. 142 Clearance in air and creepage distances Insulation resistance EN 50178 Back-up of real-time clock Back-up of real-time clock (1) Backup time (hours) with fully charged double layer capacitor 2 Service life (years) s/day Accuracy of real-time clock to inputs typ. ± 2 (± 0.2 h/Year) depending on ambient air temperature fluctuations of up to \pm 5 s/day (\pm 0.5 h/year) are possible Repetition accuracy of timing relays Accuracy of timing relays (of values) % ± 1 Resolution 10 Range "S' ms Range "M:S" Range "H:M" min **Retentive memory** Write cycles of the retentive memory 1000000 (10⁶) **Power supply** 24 DC (-15/+20%) Rated operational voltage U_e ٧ Ue Permissible range 20.4 - 28.8 V DC Residual ripple % Protection against polarity reversal yes (Notice: A short-circuit will result if 0 V or earth is applied to the outputs in the event that the supply voltage is connected to the wrong poles.) Input current normally 80 mA at U_e Voltage dips ms ≤ In accordance with IEC 61131-2 ≤ 10 Fuse Α ≥ 1A (T) Power loss W Normally 2 **Digital inputs 24 V DC** Number 8 Inputs can be used as analog inputs 2 (17,18) Status Display LCD-Display Potential isolation from power supply: no between digital inputs: no from the outputs: yes to interface/memory card: no Ue V DC 24 Rated operational voltage Input voltage V DC Signal 0: ≤ 5 (I1 - I8) Signal 1: ≥ 15 (I1 - I6), ≥ 8 (I7, I8)

Number			2 (13, 14)
Counter frequency		kHz	≦1
Pulse shape			Square
Pulse pause ratio			1:1
Cable length		m	≤ 20 (screened)
Rapid counter inputs			
Number			2 (11, 12)
Cable length		m	≤ 20 (screened)
Counter frequency		kHz	≦1
Pulse shape			Square
Pulse pause ratio			1:1
Digital inputs 24 V AC			
Status Display			LCD-Display
Analog inputs			2.02.12
Number			2 (17, 18)
Potential isolation			from power supply: no between digital inputs: no from the outputs: yes to interface/memory card: no
Input type			DC voltage
Signal range			0-10 V DC
Resolution			0.01 V analog 0.01 V digital 10 Bit (value 0 - 1023)
Input impedance		kΩ	11.2
Accuracy of actual value			
two devices from series		%	±3
Within a single device		%	± 2, (I7, I8, I11, I12) ± 0.12 V
Conversion time, analog/digital		ms	Input delay ON: 20; Input delay OFF: each cycle time
Input current		mA	<1
Cable length		m	≦ 30, screened
Transistor outputs Number			4
Rated operational voltage	U _e	V DC	24
Permissible range	U _e	V DC	20.4 - 28.8 V DC
	Ue	0/	
Residual ripple		%	5 Norm./max. 9/16 at signal 0
Supply current Protection against polarity reversel.		mA	12/22 at signal 1 yes (Notice: A short-circuit will result if 0 V or earth is applied to the outputs in the
Protection against polarity reversal			event that the supply voltage is connected to the wrong poles.)
Potential isolation			from power supply: yes From the inputs: yes to the interface: yes to the memory card: yes
Rated operational current at signal "1" DC per channel	le	Α	Max. 0.5
Residual current on 0 signal per channel		mA	< 0.1
Max. output voltage		V	2.5 (signal 0 at external load $<$ 10 MΩ) U = Ue - 1 V (signal 1 at Ie = 0.5 A)
Short-circuit protection			Yes, thermal (analysis via diagnostics input I16, I15; R15, R16)
Short-circuit tripping current for $R_a \leqq 10 \text{ m}\Omega$		Α	$0.7 \le I_e \le 2 \text{ per output}$
Total short-circuit current		Α	8
Peak short-circuit current		Α	16
Thermal cutout			Yes
Max. operating frequency with constant resistive load		Operation h	\$ 0000
Parallel connection of outputs			
With resistive load, inductive load with external suppressor circuit, combination within a group			Group 1: Q1 to Q4
Number of outputs	max.		4
Max. total current		Α	2 (Caution! Outputs must be actuated simultaneously and for the same length of time.)

Output status indication	LCD-display
Inductive load to EN 60947-5-1	
Without external suppressor circuit	
$T_{0.95 = 1 \text{ ms}}$, R = 48 Ω , L = 16 mH	
Utilization factor	g 0.25
Duty factor	% DF 100
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)	Operation 9 500
DC-13, $T_{0.95} = 72 \text{ ms}$, $R = 48 \Omega$, $L = 1.15 \text{ H}$	
Utilization factor	g 0.25
Duty factor	% DF 100
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)	Operation \$500
$T_{0.95}$ = 15 ms, R = 48 Ω , L = 0.24 H	
Utilization factor	g 0.25
Duty factor	% DF 100
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)	Operation 9500
With external suppressor circuit	
Utilization factor	g 1
Duty factor	% DF 100
Max. switching frequency, max. duty factor	Operation Depending on the suppressor circuit

Supply voltage $\mathbf{U}_{\mathrm{Aux}}$

Protection against polarity reversal			yes (Notice: A short-circuit will result if 0 V or earth is applied to the outputs in the event that the supply voltage is connected to the wrong poles.)
Power loss	Р	W	2

Design verification as per IEC/EN 61439

Jesign verification as per IEC/EN 61439			
echnical data for design verification			
Rated operational current for specified heat dissipation	In	Α	0
Heat dissipation per pole, current-dependent	P _{vid}	W	0
Equipment heat dissipation, current-dependent	P _{vid}	W	0
Static heat dissipation, non-current-dependent	P _{vs}	W	2
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	55
C/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects $$			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Meets the product standard's requirements.
10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
10.10 Temperature rise			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.

10.11 Short-circuit rating	Is the panel builder's responsibility.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility.
10.13 Mechanical function	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 7.0

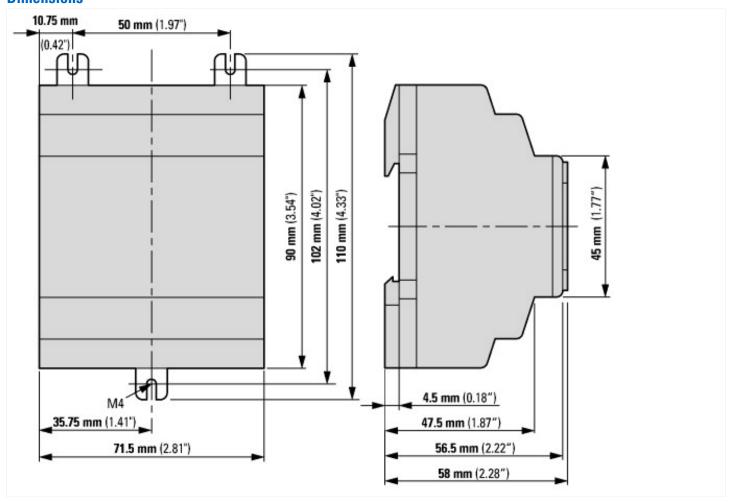
DLC's (FC000004) / Loris module (FC001417)		
PLC's (EG000024) / Logic module (EC001417)		CV/ Large and the Assignment of THE ASSIGNMENT O
Electric engineering, automation, process control engineering / Control / Programm	nable logic control (SP	0 - 0
Supply voltage AC 50 Hz	V	
Supply voltage AC 60 Hz Supply voltage DC	V	0 - 0 20.4 - 28.8
.,,	V	
Voltage type of supply voltage		DC
Switching current	А	0.5
Number of analogue inputs		2
Number of analogue outputs		0
Number of digital inputs		8
Number of digital outputs		4
With relay output		No
Number of HW-interfaces industrial Ethernet		0
Number of interfaces PROFINET		0
Number of HW-interfaces RS-232		0
Number of HW-interfaces RS-422		0
Number of HW-interfaces RS-485		0
Number of HW-interfaces serial TTY		0
Number of HW-interfaces USB		0
Number of HW-interfaces parallel		0
Number of HW-interfaces Wireless		0
Number of HW-interfaces other		1
With optical interface		No
Supporting protocol for TCP/IP		No
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		No
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for KNX		No
Supporting protocol for MODBUS		No
Supporting protocol for Data-Highway		No
Supporting protocol for DeviceNet		No
Supporting protocol for SUCONET		No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No
Supporting protocol for Foundation Fieldbus		No
Supporting protocol for EtherNet/IP		No
Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for DeviceNet Safety		No
Supporting protocol for INTERBUS-Safety		No
Supporting protocol for PROFIsafe		No
Supporting protocol for SafetyBUS p		No
Supporting protocol for other bus systems		No
Radio standard Bluetooth		No
Radio standard WLAN 802.11		No
Radio standard GPRS		No
Radio standard GSM		No
Radio standard UMTS		No

	No
	No
	Yes
	IP20
	Yes
	No
	No
	Yes
	Yes
	Yes
	No
	No
	No
	None
	None
	None
	No
	No
	None
	None
mm	71.5
mm	90
mm	58
	mm

Approvals

Product Standards	IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking
UL File No.	E135462
UL Category Control No.	NRAQ
CSA File No.	012528
CSA Class No.	2252-01 + 2258-02
North America Certification	UL listed, CSA certified
Degree of Protection	IEC: IP20, UL/CSA Type: -

Dimensions



Additional product information (links)

Additional product information (ninks)		
Instruction leaflet "easy control relays" IL05013015Z (AWA2528-2105)		
Instruction leaflet "easy control relays" IL05013015Z (AWA2528-2105)	https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL05013015Z2018_02.pdf	
Manual "easy500, easy700 control relays" MN05013003Z (AWB2528-1508)		
Handbuch "Steuerrelais easy500, easy700" MN05013003Z (AWB2528-1508) - Deutsch	https://es-assets.eaton.com/D0CUMENTATION/AWB_MANUALS/MN05013003Z_DE.pdf	
Manual "easy500, easy700 control relays" MN05013003Z (AWB2528-1508) - English	https://es-assets.eaton.com/D0CUMENTATION/AWB_MANUALS/MN05013003Z_EN.pdf	
f1=1454&f2=1179;Labeleditor	http://applications.eaton.eu/sdlc?LX=11&	