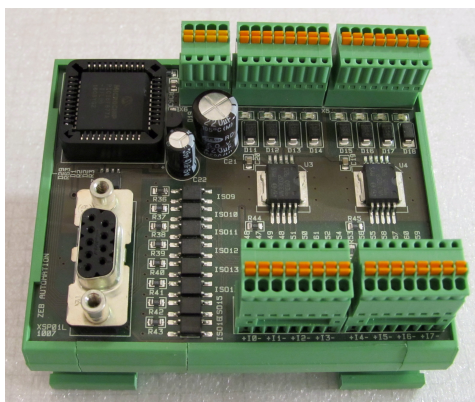



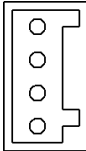
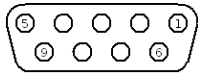
## RS232-Interface and MultiFunctionRelay Module XSP01L

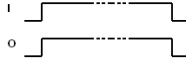
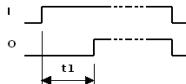


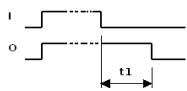
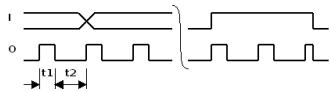
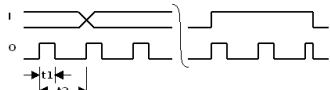
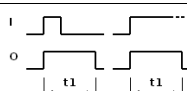

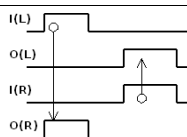
The interface module offers a simple method to connect and control up to eight digital inputs and outputs through a serial RS232 port. Since inputs and outputs are separated from the remaining circuitry by optical couplers, signals of industrial controls can be easily connected to a PC or a terminal or other devices with serial RS232 ports. The digital inputs and outputs are designed for 24VDC. Logic and decoupled outputs may be separately powered. The component is easy-to-mount on common used mounting rails. The electrical connection of digital inputs and outputs is made by pluggable cage clamp terminals.

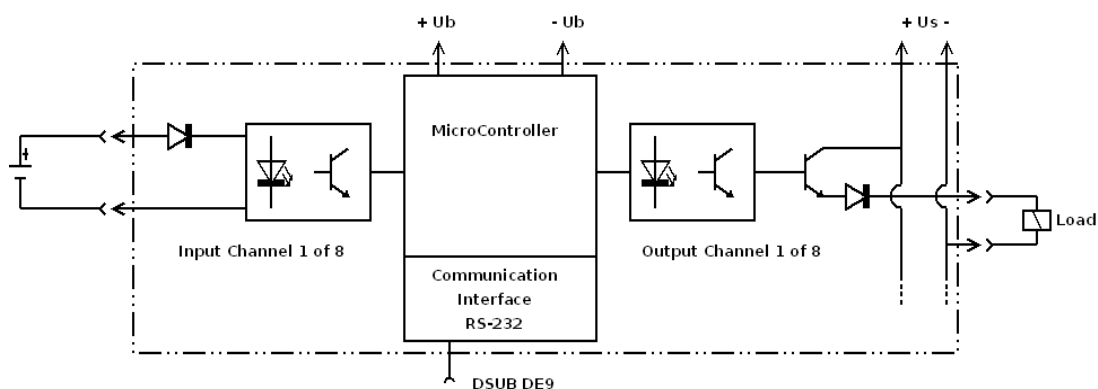
Technical Data	
<b>Digital Inputs (8) I0 .. I7</b> Voltage Current Trigger Level	Optical couplers 0 .. 30VDC per input channel 4mA @ 24VDC approx. 4VDC
<b>Digital Outputs (8) O0 .. O7</b> Voltage Current	Solid-State-Switch, high side switching 12 .. 30VDC (see supply voltage - 'Load') per output channel max. 600mA (Resistive Load)
<b>Supply - Logic (Ub)</b> Voltage Current Power Consumption	Rated Voltage 24VDC 8 .. 30VDC 12mA @ 24VDC 280mW @ 24VDC
<b>Supply - Load (Us)</b> Voltage Current	Rated Voltage 24VDC 12 .. 30VDC Sum ( $I_{O0} .. I_{O7}$ ) + 4mA @ 24VDC
<b>Status Indicators</b> Inputs (8) Outputs (8) Supply (1) Heart-Beat (1) Command (1)	LED indicates an input voltage >2V LED, connected to the load terminals, indicates the 'ON' state LED indicates presence of supply voltage (Logic) LED flashes (Normal: 1Hz, Programming: 2.5Hz, Remote: 0.5Hz) LED flashes at receipt of a known command
<b>Module Identification</b>	Besides the possibility, to assign an individual name, each module contains a unique, unalterable, 12-digit serial number in hexadecimal notation.
<b>Dimensions</b>	90mm(L) x 77mm(B) x 40mm(H) Outer packaging: 115mm(L) x 85mm(B) x 50mm(H)
<b>Fixing</b>	Click-on mounting rails TS15 / TS35 / G32
<b>Mounting Position</b>	Any desired
<b>Weight</b>	0,175kg
<b>Protecting Type</b>	IP00
<b>Ambient Conditions</b>	-5 ° C .. +65 ° C under normal installation conditions (cabinet). In constricted spaces a sufficient ventilation (forced air flow) or any other cooling method is necessary. In outdoor activities the module should be protected with a suitable housing, furthermore with protection against direct sunlight, frost and condensation.
<b>RoHS - Conformity</b>	The relevant directives will be observed. However, no own analysis will be carried out. We trust the related statements of suppliers.

Technical Data	
<b>Certifications</b>	CE in preparation
<b>Communication Parameters</b> (fixed)	9600bps, 8 data bit, 1 stop bit, no parity
<b>Technology</b>	Microcontroller and discrete components placed on double-layer PCB. By means of an integrated bootloader, the existing firmware can be updated at any time via the communication interface.
<b>Connectors</b> Supply Inputs/Outputs RS232	Pluggable Connectors Pin Header 4pol MCV 0,5/ 4-G-2,5 Pin Header 8pol MCV 0,5/ 8-G-2,5 DSUB9-Socket DE9S (Locking Thread UNC 4/40)
<b>Delivery Contents</b>	MFR-Module (configured as I/O-Interface for 8 Channels) 4 Connector 8pol (FK-MC 0,5/8-ST-2,5) 1 Connector 4pol (FK-MC 0,5/4-ST-2,5) CD 'MFR Tools' Operating Instructions
<b>Customs Tariff Number (TARIC)</b>	85364110
<b>Country of Origin</b>	Germany
<div>  <p><b>Safety Notes</b> This product is not fail-safe and should not be used in life-supporting systems and other applications which are critical for safety, without a new risk assessment and evaluation of the conformity! If the module is intended to be installed into a machine or a system, for which the EC machinery directive 98/37 or its amendment is valid, it is necessary to make sure that the product, after its application, complies with all relevant regulations.</p> </div>	

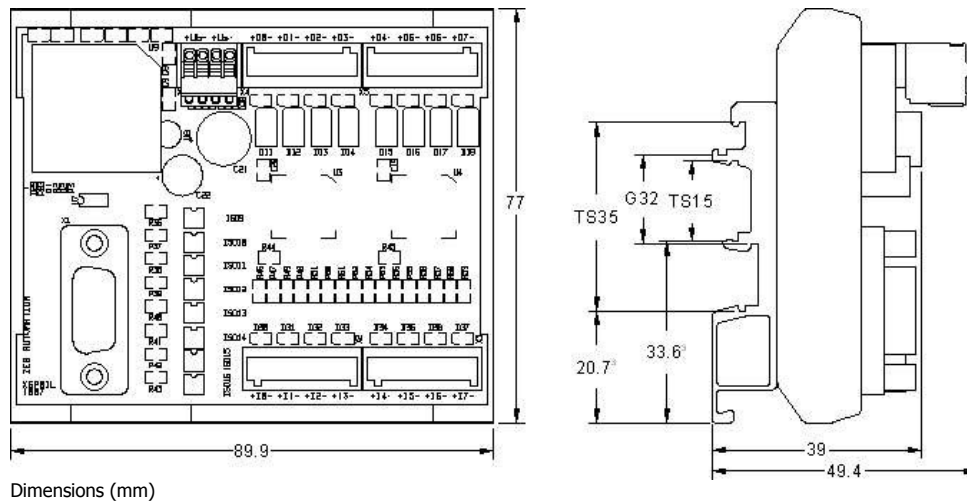
Pin Assignment										
MCV .. 4 / 8	X6		X4		X5		X2		X3	
	+	Logic Ub	+	Output O0	+	Output O4	-	Input I3	-	Input I7
	-		-		-		+		+	
	+	Load Us	+	Output O1	+	Output O5	-	Input I2	-	Input I6
	-		-		-		+		+	
			+	Output O2	+	Output O6	-	Input I1	-	Input I5
			-		-		+		+	
			+	Output O3	+	Output O7	-	Input I0	-	Input I4
			-		-		+		+	
DSUB DE9S			X1							
			2	TxD Transmitted Data						
			3	RxD Received Data						
			5	Gnd Ground 0V						

Functions	
<p>The following functions pertain to each one channel, ie each of the existing eight channels can perform a different function. The functions can be combined. In any case, all input and output signals will transferred to the master control unit via the communication interface, regardless if they will received and evaluated. The module can be used as a pure serial interface for processing of inputs and outputs, or operated as stand-alone multi-functional and multi-channel relay or in combination..</p> <p>The times are derived by a divider from a 8-MHz crystal. The accuracy should be sufficient for most technical processes</p>	
<b>I/O – Interface</b> (Factory default settings)	Inputs I0 .. I7 are read and Outputs O0 .. O7 are controlled by an external unit via the existing communication port. All timing functions are suspended.
<b>Direct</b>	 <p>The output directly follows the input. All timing functions are suspended.</p>
<b>On-Delay</b>	 <p>Applying a voltage to the input, the output will be active after the configured delay <b>t1</b>. With removing the input voltage the output will be immediately inactive.</p>

Functions		
<b>Off-Delay</b>		Applying a voltage to the input, the output will be active immediately. With removing the input voltage, the output will be inactive after the configured delay <b>t1</b> . The delay is only guaranteed if during this time, the supply voltage of the module is maintained.
<b>Clock Pulse / Pause</b>		The output acts as clock generator. Either free-running or controlled via a corresponding input. The duration of pulse <b>t1</b> and pause <b>t2</b> is configurable.
<b>Clock Pulse / Cycle</b>		The output acts as clock generator. Either free-running or controlled via a corresponding input. The duration of pulse <b>t1</b> and cycle <b>t2</b> is configurable.
<b>Switching-On Wipe Pulse</b>		On applying a voltage to the input, the output generates a single pulse of configurable duration <b>t1</b> , independent from the duration of the input signal.
<b>Switching-Off Wipe Pulse</b>		On removing the voltage from an input, the output generates a single pulse of configurable duration <b>t1</b> . The pulse duration is only guaranteed if during this time, the supply voltage of the module is maintained.
<b>Remote Terminal Unit (RTU)</b>		The output follows the appropriate input of the remote device. The input of this channel is transferred to the appropriate output of the remote device. For this mode, two modules have to be connected via a 'crossed' cable or a suited transmission path (modem).
<b>Selection of Functions and Timing Values</b>	By means of the supplied setup program (Windows), the functions and timing values can be changed.	
<b>Timer / Time Ranges</b> Milliseconds Seconds Minutes Hours	Derived from 8-MHz-Quartz, I/O-Cycle 100ms 100 .. 2000 milliseconds in steps of 100 milliseconds 1 .. 120 seconds in steps of 1 second 1 .. 120 minutes in steps of 1 minute 1 .. 100 hours in steps of 1 hour	



Schematic Diagram

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