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Ingenieurbüro for schnelle Elektronik
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Instruction Manual

Encoder Counter Module

ECM 505/24

All technical data subject to change without notice.

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General Features

The function of this module is to continuously read datas from 5 SSI absolute encoders (e.g. CRE 65-4096 R24 C E01 from TWK-Elektronik GmbH). The controller reads 24 data bits from all 5 encoders in parallel.The readout clock frequency is 250 kHz. One loop takes approx. 150 µs.

The ECM505/24 module is based on the SSI550 module and runs with the same software driver.

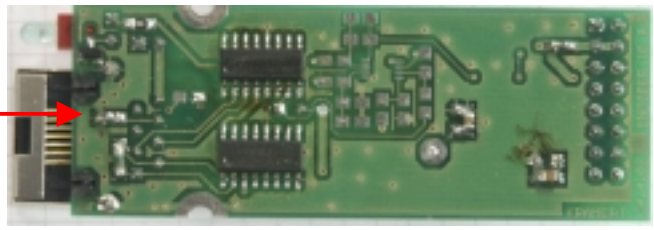
Submodule Description

Encoder-IO:

This submodule communicates with one absolute encoder. The encoder is supplied from this module. The supply voltage is fixed to 24V. Uninet cable 4x2 twisted pair wires are recommended.

(neues Foto)

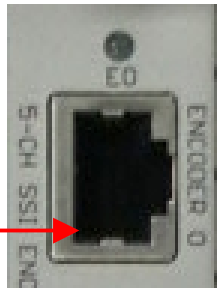
Code sense programming resistor



Removing this Resistor changes counter direction to CCW (counter clockwise).

SSI-505 RJ45 Connector:

Pin 1



Connector Cable:		
Color	**RJ45 8-pol.**	**function**
brown	1	SSI, Data +
brown/white	2	SSI, Data -
blue	3	SSI, clock +
blue/white	4	SSI, clock -
organge	5	nc
orange/white	6	Code sense
green	7	+24V/90mA
green/white	8	GND

E0..E4 LED	Shows the least significant bit of the encoder	
SSI-IO	Data-Input RS422 , impedance 120 Ohm	
	Clock-Output RS422 , into 120 Ohm	
Encoder supply	24V / 90mA	
Code sense	CW at Vi = “Log 0”	(Log 0 < 0.8V)
	CCW at Vi = “Log 1”	(Log 1 > 3.2V or not connected)

Recommended encoder connector:

Extension cable for Encoder type: CRE 65-4096 R24 C E01

Connector:			
Color	RJ45 8-pol.	Binder 423 EMC	Function
brown	1	2	SSI, Data +
brown/white	2	3	SSI, Data -
blue	3	4	SSI, clock +
blue/white	4	5	SSI, clock -
organge	5		nc
orange/white	6	6	Code sense
green	7	7	+24V/90mA
green/white	8	1	GND

VME Interface

Bit Assignment:

With each loop (read-out of all sensors) an 8 bit event counter is incremented. This event counter is placed on the MSByte of the 32 bit sensor data.

The encoder has a resolution of 24 bits.

Bit Assignment:

D23..D0	Sensor Data (24 Bit)
D31..D24	Event-Counter

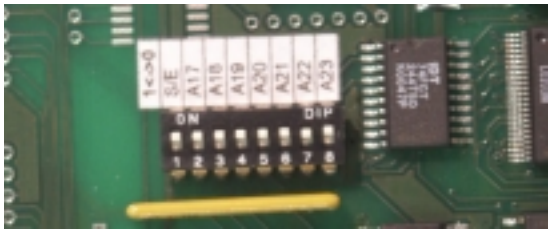
Sensor-Address Assignment:
For compatibility reasons to the SSI550 module the readable memory is 32 x 32 Bit.
The address range is selected by two 8 Bit-Dip switches (address selector, A31..A17). This address range is accessible via read commands (A32D32 or A24D32).

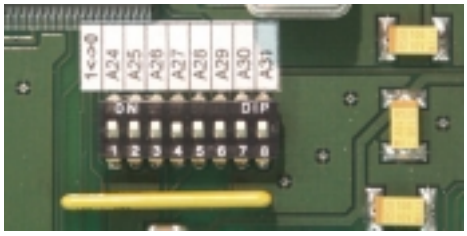
Base address + offset:		
	0x00	Sensor 1
	0x04	Sensor 2
	0x08	Sensor 3
	0x0C	Sensor 4
	0x10	Sensor 5

Base Address Settings

The RAM of the ECM 505/24 is located between baseaddress+0x00..0x10 (5 x 4Byte width).
The base address can be mapped with the Dip Switches to 128 Kbyte boarders within the VME address space.

Access via A24D32 Standard
A32D32 Extended





This Standard/Extended address range switch is marked on the print with „S/E“. Standard address range (A24) is selected with the switch in the Down-position. The extended address selector switch (A31..A24) is then disabled.

Base address	A31 ... A24	A23	A22	A21	A20	A19	A18	A17		A24/A32 Switch
with the STA/EXT-Switch = 1: STANDARD										
0x000000	x	0	0	0	0	0	0	0		**1**
0x020000	x	0	0	0	0	0	0	**1**		**1**
0x040000	x	0	0	0	0	0	**1**	0		**1**
0x060000	x	0	0	0	0	0	**1**	**1**		**1**
with the STA/EXT-Switch = 0: EXTENDED										
0x00000000	0	0	0	0	0	0	0	0		**0**
0x00020000	0	0	0	0	0	0	0	**1**		**0**
0x00040000	0	0	0	0	0	0	**1**	0		**0**

a.s.o.

Address Modifier:

	Addressing Space	AM-Codes
STA	STANDARD A2..A23	3D, 39
EXT	EXTENDED A2..A31	0D, 09

Temperature Range: Ventilated VME-Crate is required.
Power Requirements: approx. 1 A at +5V
Physical: Single width VME module.