Dipl.-Ing. Kramert GmbH

Villigerstrasse 370
CH-5236 Remigen

Tel. 056 284 15 55
Fax 056 284 50 55

www.kramert.ch
E-mail kramert@kramert.ch

Ingenieurbüro for schnelle Elektronik
Engineering office for fast electronics

Instruction Manual

Encoder Counter Module

ECM 505/36

All technical data subject to change without notice.

May 2003

General Features

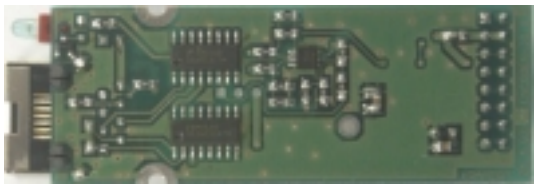
The function of this module is to continuously read datas from 5 SSI absolute encoders (e.g. Baumer BOMH 58S1N05C18/18I25). The controller reads 36 data bits from all 5 encoders in parallel.The readout clock frequency is 250 kHz. One loop takes approx. 150 µs.

The ECM505/36 module is based on the SSI550 module and runs with the same software driver.

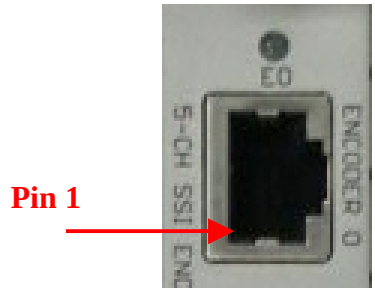
Submodule Description

Encoder-IO:

This submodule communicates with one absolute encoder. The encoder is supplied from this module. Two sense lines sense the encoder voltage. A voltage regulator compensates the voltage drop on the cable. This makes it possible to run the encoder with a cable up to 300 m. Uninet cable 4x2 twisted pair wires are recommended.



SSI-505 RJ45 Connector:



Connector Cable:		
Color	**RJ45 8-pol.**	**function**
bn	1	SSI, Data +
bn/ws	2	SSI, Data -
bl	3	SSI, clock +
bl/ws	4	SSI, clock -
or	5	+5V/150mA-Sense
or/ws	6	GND-Sense
gn	7	+5V/150mA
gn/ws	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	from 5V up to 24V / 150mA Sense lines for power and ground

Recommended encoder connector:

D-SUB male 9 pol. Encoder type: BOMH-58S1N05C18

Encoder Connector:		
Color	**D-SUB male 9 pol.**	**Function**
Pink	1	SSI, clock +
Gray	2	SSI, clock -
Green	3	SSI, Data +
Yellow	4	SSI, Data -
	5	
	6	
Brown	7	+5V / 150mA
White	8	GND
	9	

Extension Cable RJ45 8pol. D-SUB 9 pol. female

Encoder type BOMH-58S1N05C18

Extension Encoder Connector:			
Color	**RJ45 8 pol.**	**D-SUB female 9 pol.**	**Function**
bn	1	1	SSI, Data +
bn/ws	2	2	SSI, Data -
bl	3	3	SSI, clock +
bl/ws	4	4	SSI, clock -
or	5	5	+5V / 150mA-Sense
or/ws	6	6	GND-Sense
gn	7	7	+5V / 150 mA
gn/ws	8	8	GND

VME Interface

Bit Assignment:
The encoder has a resolution of 36 bits. From these 36 encoder bits only the 32 least significant bits are fed to the 32 bit VME dual ported RAM.

D31..D0 Sensor Data (32 Bit)

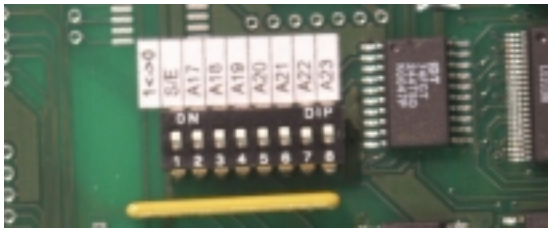
Sensor-Address Assignment:
For compatibility reasons to the SSI550 module the readable memory is 32 x 32 Bit.
The address range is selected by two 8 Bit-Dip switches (address selector, A31..A17). This address range is accessible via read commands (A32D32 or A24D32).

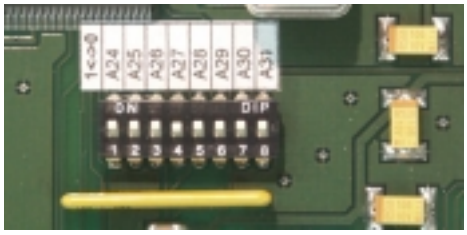
Base address + offset:		
	0x00	Sensor 1
	0x04	Sensor 2
	0x08	Sensor 3
	0x0C	Sensor 4
	0x10	Sensor 5

Base Address Settings

The RAM of the ECM 505/36 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.