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INSTRUCTION MANUAL

Encoder Counter Modul

ECM 504

All technical data subject to change without notice.

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Description

The function of this module is to continuously read data from 4 sensors. The sensor data is stored in a dual ported memory. This memory is readable via VME-bus.

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.

Memory 32 x 32 Bit.

For software compatibility of the ECM-504 VME modul with the SSI-550 VME modul, the memory space of both modules is exactly the same. The same EPICS software driver can be used to read both modules.

The VME-address range is selected by a 3x8 Bit-Dip switch (address selector, A31..A12). This address range is accessible via read and write commands (A32, D32; or A24, D32). The extended address range is selected via jumper switch. The occupied memory is always 128K.

VME Interface

The RAM of the ECM-504 is located between baseaddress+0x00..0x0C (4 x 4Byte width).

Access via A24D32 (standard) or
A32D32 (extended) (Dip Switches on ECM-504)

For description of the Dip Switches refer to page 3.

Bit Assignment:

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

Address Assignment:

base address+	offset:	
	0x00	Sensor 1
	0x04	Sensor 2
	0x08	Sensor 3
	0x0C	Sensor 4

The base address can be mapped with the Dip Switches to 128K borders within the VME address space.

ECM-001 SUB-PRINT Dip Switch Settings

SMD-DIP-SWITCH:

Each Channel is controlled by a 4 bit dip-switch.

Function:

S1-ON Enable Z, Counter reset with Z reference mark; default: ON

S2-ON Invert Z polarity; default: OFF

S3-ON Changes counter direction (UP<->DOWN); default: ON

S4-XX Channel select; DON'T change this switch! This switch is locked. Hardware damage is possible.

VME-PRINT Dip Switch Settings

The base address can be mapped with the Dip Switches to 128 Kbyte borders within the VME address space.

Address Decoder: SW2, SW1, STA/EXT Switch

SW1: A31..A24

SW2: A23..A17

The STA/EXT switch is the first Dip Switch on SW2. This switch is marked on the print with „S/E“. Standard address range (A24) is selected with the switch in the Down-position (OFF). The extended address selector switch SW1 is then disabled.

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

Address Modifier:

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



Front Panel Connectors

Encoder IN CH-0

9-pol. SUB-D female RS422 Encoder input, impedance 120 Ohm

Pin -Assignment	Function	Pin -Assignment	Function
1	GND	6	A-
2	A+	7	Z-
3	Z+	8	B-
4	B+	9	GND
5	+5V DC		

RESET

Push-Button, resets the 24- bit encoder counter CH-0

AUX-IN

Reset TTL Schmitt Trigger LEMO Input, impedance 1kOhm pullup

CH 0,1 LED

Shows LSB of the 24-bit encoder counters

Encoder IN CH-1

9-pol. SUB-D female RS422 Encoder input, impedance 120 Ohm

Pin -Assignment	Function	Pin -Assignment	Function
1	GND	6	A-
2	A+	7	Z-
3	Z+	8	B-
4	B+	9	GND
5	+5V DC		

RESET

Push-Button, resets the 24- bit encoder counter CH-1

AUX-IN

Reset TTL Schmitt Trigger LEMO Input, impedance 1kOhm pullup

Encoder IN CH-2

9-pol. SUB-D female RS422 Encoder input, impedance 120 Ohm

Pin -Assignment	Function	Pin -Assignment	Function
1	GND	6	A-
2	A+	7	Z-
3	Z+	8	B-
4	B+	9	GND
5	+5V DC		

RESET

Push-Button, resets the 24- bit encoder counter CH-2

AUX-IN

Reset TTL Schmitt Trigger LEMO Input, impedance 1kOhm pullup

CH 2,3 LED

Shows LSB of the 24-bit encoder counters

Encoder IN CH-3

9-pol. SUB-D female RS422 Encoder input, impedance 120 Ohm

Pin -Assignment	Function	Pin -Assignment	Function
1	GND	6	A-
2	A+	7	Z-
3	Z+	8	B-
4	B+	9	GND
5	+5V DC		

RESET

Push-Button, resets the 24- bit encoder counter CH-3

AUX-IN

Reset TTL Schmitt Trigger LEMO Input, impedance 1kOhm pullup

Temperature Range: Ventilated VME-Crate is required.

Power Requirements: approx. 3 A at +5V

Physical: Single width VME module.