Dipl.-Ing. Kramert GmbH

INSTRUCTION   MANUAL

SSI-INTERFACE

SSI 550

All technical data subject to change without notice.

November 2000   © Dipl.-Ing. Kramert GmbH, CH-5236 Remigen

The function of this module is to continuously read datas from 1 up to 32 sensors. The sensors share one common SSI-bus. The sensor selection is made automatically. The module-controller selects the sensors in upgoing order starting with sensor 1..2..3.. up to the last sensor. After the sensor is selected, the module puts 24 clock-pulses to the clock-bus. With each pulse a databit is read from the data-bus and stored in its dual ported memory. This memory is readable via VME-bus.
The total amount of sensors is adjustable via DIP-Switch on top of the submodul.

SW1-1	SW2-2	SW3	SW4-4	SW5-8	SW6-16	SW7	SW8	SELECTED
on	on	alw off	on	on	on	NC	NC	SENSOR 1
off	on	alw off	on	on	on	NC	NC	SENSOR 1..2
on	off	alw off	on	on	on	NC	NC	SENSOR 1..3
off	off	alw off	on	on	on	NC	NC	SENSOR 1..4

and so on...

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
The 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.

You can also write initial values into the sensor-counters via VME-bus. This is done by writing to the same sensor address. Only 24 bits are transferred to the sensors. The upper 8 bits (D[31:24] are ignored. Writing Data=0 to a sensor has the same result as to reset it.
Because of the serial sensor interface you cannot write directly to the sensor but to a 32x4 byte FIFO.
After a sensor readout the SSI-statemachine looks at the FIFO empty flag. If the FIFO is not empty the FIFO is read and datas are transferred to the sensors as long as the empty flag is not true. Because you are writing to a FIFO you can write only 32 values. It takes 200us to send serialized datas to a sensor. If you overload the FIFO a bus-error is generated. Be aware that if you write three times a value to the same sensor , the values are three times transferred to this sensor and three FIFO spaces are occupied.

VME Interface

The RAM of the SSI-500 is located between baseaddress+0x00..0x80 (32 x 4Byte width).

Access via A24D32 (standard) or
A32D32 (extended) (Dip Switches on SSI550)
For description of the Dip Switches refer to page 3.

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

Address Assignment:
base adress+   offset:
                           0x00   Sensor 1
                           0x04   Sensor 2
                           0x08   Sensor 3
                           0x0C   Sensor 4
                           0x10   Sensor 5
                           0x14   Sensor 6
and so on..

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

Dip Switch Settings

The base address can be mapped with the Dip Switches to 128 Kbyte boarders 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
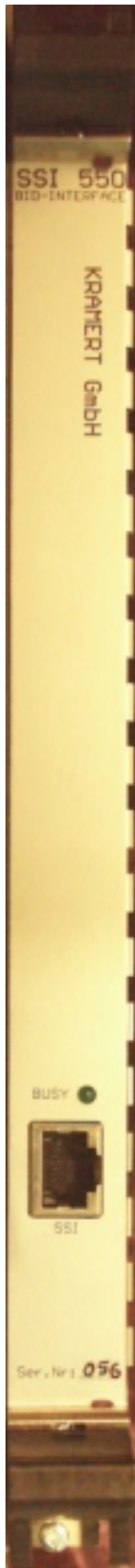
BUSY LED	Shows transferred data bits.	

SSI-IO   RJ45 Connector

Data-Input
RS422 , impedance 120 Ohm

Address/Data-Output
RS422 , into 120 Ohm

Clock-Output
RS422 , into 120 Ohm

Pin Assignment:

1	Data from IO
2	NData from IO
3	Address Data to IO
4	NAddress Data to IO
5	Clock to IO
6	NClock to IO
7	NC
8	Ground

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