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High **S**peed **I**nterface-**88 (HSI-88)**

(Command codes / Version 1.3)
(Software-version 0.40 o higher from 10/06/2000)

Brief description:

The **HSI-88** is an **interface** from the **s88-feedback bus** to the **RS 232**-interface.

The interface contains **three s88-bus plugs**. This provides the **advantage** of a **faster response time** and the possibility to build-up **three bus lines** on the system.

The three plugs are named as **left, middle** and **right bus-plug**. It is possible to control **max. 31*16 feedback contacts**. Each bus-line controls max. **31*16** contacts but as **summary not more as 31*16** contacts can be red.

There will be always **16 feedback inputs** combined into **one module**. The **module** with the **number 1** will be the **first module on the left bus line**. Up to the **last registered module** on the left bus line will be counted now upwards. Then it continuous with the **first module** on the middle line. The module with the highest module number will be the last module on the right line.

RS-232:

Baud rate:	9600 Baud
Format:	8-bit data, 1 start and 1 stop bit, no parity
Handshake:	Hardware-handshake over RTS and CTS
Interface:	Galvanic separated. DTR has to be activated by the PC (high-level).

Command structure:

There will be **commands** and **data** transmitted**.** The **last character** of each command is **carriage return**.

Is the **TerminalMode** switched **off** there will be unsigned hex-bytes transmitted (one value equals to one byte). Is the **TerminalMode** switched **on** there will be ASCII-characters (one value = two bytes), transmitted as hexadecimal values.

TerminalMode:

Command format: "**t**" <CR>

Command length: 2 byte

Response: "**t**" <on ("**1**") or off ("**0**")>
<CR>

Response length: 3 byte

After the start is the TerminalMode switched to off. With "**t**" it can be switched on to control with help of a terminal program the data flow by means of ASCII-characters.

Initialization / Register the feedback module:

Command format: "**s**" <number of modules left>
<number of modules middle>
<number of modules right>
<CR>

Is the maximum number of modules of 31 exceeded there will be the standard value adjusted (2 modules each line).

Command length: TerminalMode **off**: 5 byte
TerminalMode **on**: 8 byte

1. Response: "**s**" <total number of registered modules>
<CR>

The input condition of the registered modules will be red between the 1. and the 2. response.

2. Response: "**i**" <number of modules to be registered>
<module number> <HighByte> <LowByte>
<module number> <HighByte> <LowByte>

<module number> <HighByte> <LowByte>
<CR>

Response length: TerminalMode **off**: (6 + (number of modules) * 3) byte
TerminalMode **on**: (8 + (number of modules) * 6) byte

By the 2. response will be the contents of **all** registered modules transferred.

The module number can be dynamically changed during the program flow by using the "s" command.
After switching on the interface all input changes of the feedback modules (over "**i**") will be registered beginning after the first "s" command.

HSI-88 reports changes:

Response: "**i**" <number of registered modules>
<module number> <HighByte> <LowByte>
<module number> <HighByte> <LowByte>

<module number> <HighByte> <LowByte>
<CR>

Response length: TerminalMode **off**: (3 + (number of modules) * 3) byte
TerminalMode **on**: (4 + (number of modules) * 6) byte

Only the content of modules with **changed** input conditions will be transmitted.

PC query of input conditions:

Command format: "**m**" <CR>

Command legth: 2 byte

Response: "**m**" <number of registered modules>
<module number> <HighByte> <LowByte>
<module number> <HighByte> <LowByte>

<module number> <HighByte> <LowByte>
<CR>

Response length: TerminalMode **off**: (3 + (number of modules) * 3) Byte
TerminalMode **on**: (4 + (number of modules) * 6) byte

The content of **all** registered modules will be transmitted.

Version inquiry:

Command format: "**v**" <CR>

Command length: 2 byte

Response: „ver. x.xx / dd.mm.jj / HSI-88 / (c) LDT" <CR>

Response length: 41 byte

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