

# TEI0015 - Communication Interface and Commands

The modules TEI0015, TEI0016 and TEI0023 implement a handler for executing commands. The serial interface speed must be set to 115200 bits, commands consists of a single character in UTF-8 encoding. Each command must be transmitted individually.

All commands are identical for all tree modules, except commands for setting the gain.

The modules **TEI0015** and **TEI0016** recognizes the following gain commands since module revision 02:

- "1" Sets the pre-amplification of the ADC's input to 1
- "2" Sets the pre-amplification of the ADC's input to 2
- "4" Sets the pre-amplification of the ADC's input to 4
- "8" Sets the pre-amplification of the ADC's input to 8

The following gain commands are recognized by all **TEI0023** modules in every module revision:

- "0" Deactivates the pre-amplifier
- "1" Sets the pre-amplification of the ADC's input to 0.25
- "2" Sets the pre-amplification of the ADC's input to 0.5
- "3" Sets the pre-amplification of the ADC's input to 1
- "4" Sets the pre-amplification of the ADC's input to 2
- "5" Sets the pre-amplification of the ADC's input to 4
- "6" Sets the pre-amplification of the ADC's input to 8
- "8" Sets the pre-amplification of the ADC's input to 16

The modules **TEI0015** and **TEI0023** have an ADC with additional features since revision 02 for **TEI0015** and revision 03 for **TEI0023**:

- "S" Activates the Input Span Compression
- "s" Deactivates the Input Span Compression
- "H" Activates the High-Z Mode
- "h" Deactivates the High-Z Mode

These commands are recognized by **every module**:

- "t" The ADC measures 1 mega samples and saves the values into its SD-RAM
- "x" Instead of ADC values, the value "12345" is stored 1M times into its SD-RAM, values are transmitted via ".", "+" and ""
- "y" Instead of ADC value, hexadecimal values, in ascending order, are generated and stored into the SD-RAM, the values are transmitted in via ".", "+" and ""
- "z" The value "12345" is generated and direct transmitted 256 times

"**r**" The ADC measure once and transmits this value

"**.**" A single value of stored ADC or generated measurement is transmitted

"**+**" 128 values of stored ADC or generated measurements are transmitted

"**\*\***" 16 kbit values of stored ADC or generated measurements are transmitted

"**?**" The module returns its ID:

TEI0015 with ADC AD4003 / 2 MSps returns "1"

TEI0016-0x-08-C8**A** with ADC ADAQ7988 / 0.5 MSps returns "2"

TEI0016-0x-08-C8**B** with ADC ADAQ7980 / 1 MSps returns "3"

TEI0023A with ADC AD4003 / 2 MSps returns "4"

"**F**" The module activates a square wave signal,  
frequency = 10 kHz and amplitude is +3,3 V / ground  
the signal is accessible on the pads  
- D5 in normal mode and  
- D6 in time inverted mode

"**f**" Deactivation of the square wave signal