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