# Arduino-based Capacitative Level Sensor Readout

Board based on Arduino Mega, Ethernet Shield, and a custom shield with 6 SmarTec UTI chips to read level sensors. The board provides data through Modbus/TCP to Slow Control.

Chip locations and headers:

Arduino_UTI_Board.pdf

Currently the IP address of the board is hardwired and requires recompiling the Arduino software. Version 1.0 available here: read-uti-1.0.tar.gz

Modbus registers:

6 UTI chips. Each chip has the following registers:

Base+0 (unsigned 16 bit): Mode (0: chip ignored, 1: 2pF range up to 3 caps, 2: 12pF range up to 3 caps, 3: 300pF range 1 cap

Base+1 (unsigned 16 bit): Status (0 invalid, 1 OK, additional bits set if clipped lower or upper, i.e. value would have been <0 or > 65536)

Base+2 (float 32bit) : (C1_measured / C_reference_this_chip)

Base+3 (float 32bit): (C2_measured / C_reference_this_chip) (only for modes 1 and 2)

Base+4(float 32bit) : (C3_measured / C_reference_this_chip) (only for modes 1 and 2)

Status bits (if additional bits are set value is probably OK anyway):

const word STATUS_OK = 0x01; // we have a value

const word STATUS_CLIPPED_LOW = 0x02; // result was clipped to zero

const word STATUS_CLIPPED_HIGH = 0x04; // result was clipped to upper limit (65535)

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const word STATUS_DIVZERO = 0x08; // division by zero in the ratio calculation
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Mode and Scale will be persistent across Arduino resets / power cycles.

No labels