

METER

via MODBUS communication S/W

825B117B



applied solutions for the applications

1 Serial port settings

Baud rate 9600
N° bit dato 8
N° bit stop 1
No Parity

2 Software description

The communications software allows showing and setting the main METER transducers operation parameters (4 wire).

The main panel (see fig. 1) shows the main measures:

- Distance [mm] (measured by the transducer)
- Level [mm] (calculated according to the 4mA and 20mA output calibration)
- Level [%] (calculated as a level in mm percentage)
- Output [mA] (current system output)
- Temperature [° C] (measured by the METER inside sensor)
- Emission frequency [kHz] (from transducer)
- Measure Status / Gain of the system (expressed as a dimensionless number between 0 and 255 dimensionless)

It also shows the basic parameters that the user can modify to make the calibration instrument:

- 4mA distance [mm] (measured distance to which it is associated with an output equal to 4mA)
- 20mA distance [mm] (measured distance to which it is associated with an output equal to 20mA)
- Blind distance [mm] (minimum distance measurable by the system, can not be less than 250mm)
- UID (transducer identifier, from 1 to 128)
- Slave Address (transducer UID address with which it wants to communicate)



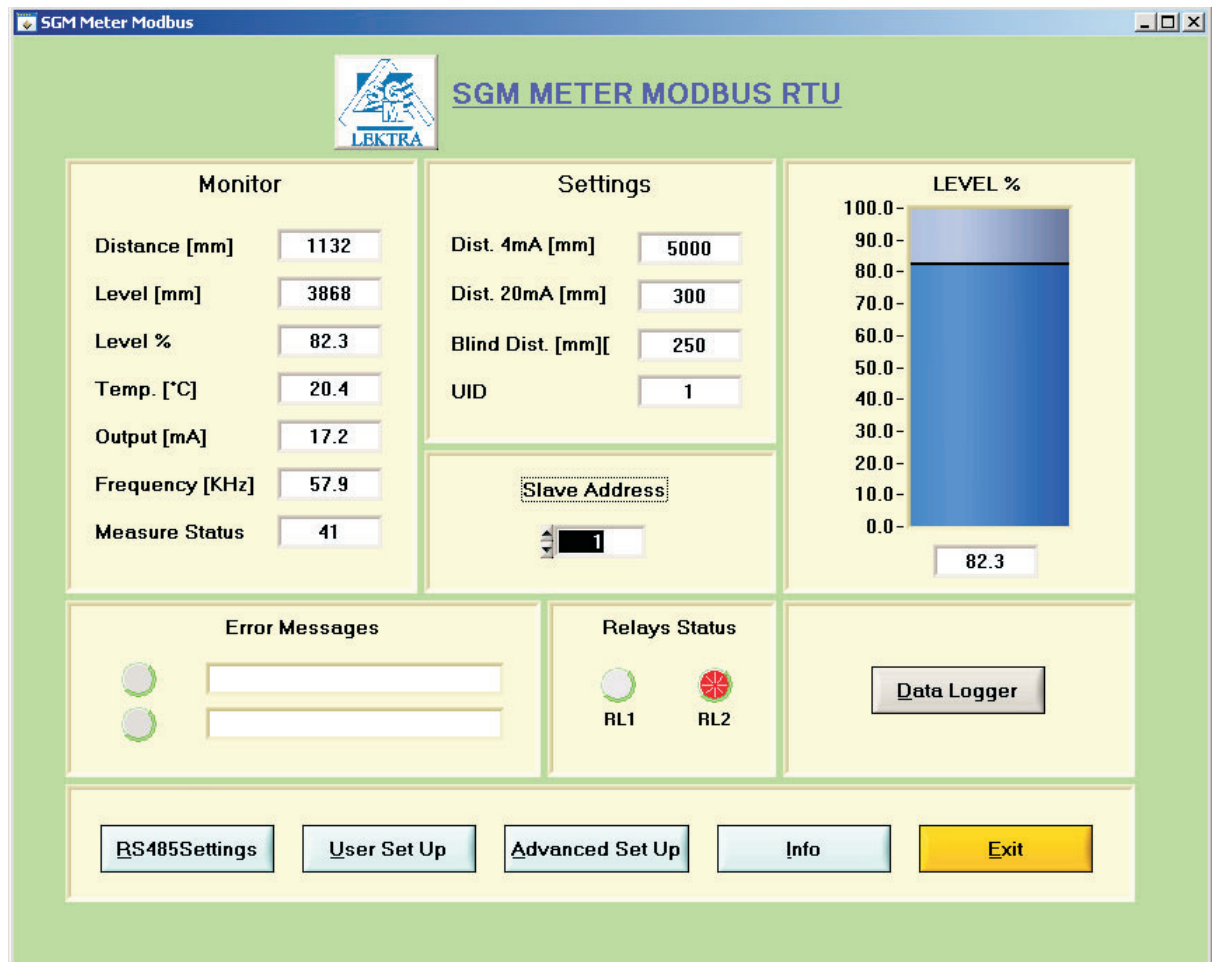


Fig. 1

The change of these parameters is done by double clicking on their display window: panel input value appears to change and confirm the parameter text (see fig. 2)

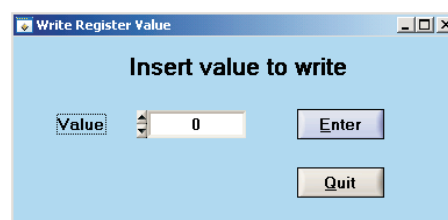


Fig. 2

There are also 2 LEDs for the relays status (energized / not energized) and 2 LEDs for errors in the transducer, with a corresponding explanatory message:

- Lack receiving echo
- Temperature outside the use range -30°C ~ + 80°C
- Distance outside range (120% of the maximum distance calibration)
- Gain above the threshold (refer to the advanced parameters: Max Gain TH)
- Serial line error communication

This is also the image of a tank that simulates the measured level evolution.

From the main panel you can switch to the user setup panels, advanced setup, configuration, serial port, datalogger and info simply by clicking on the corresponding.

3 User setup panel

This panel (see fig. 3) contains all the configuration parameters for the relays operation and some service parameters, which is not frequent for the end user.

RL1_TH: parameters for the functioning as a relay threshold (threshold value [%], Delay [s], Max / Min, Security, Enable)

RL2_TH: parameters for the functioning as a relay threshold (threshold value [%], Delay [s], Max / Min, Security, Enable)

RL1_PUMP: parameters for the functioning as a control pumps relay (upper threshold value [%], lower threshold value [%], Delay [s], filling / emptying, Enable)

RL2_Diagnostic: Enabling the diagnostic report for relè2 (4 error reporting types in the main panel, except the error communication)

MaxGain TH: is the system gain value, in normal operation, should not be exceeded, the default value is the maximum allowable gain (255)

Frozen Gain: parameter that "freezes" the gain of the system with a set value, excluding automatic control. To unlock system you must write "000" (such as default parameter that is 000)

Filter Coefficient: parameter which makes it more or less rapidly the sensor to detect changes in the level (10 as default)

Medium: parameter which selects the surface type on which will be ultrasound reflected (Liquid / Solid)

Output Safe Mode: parameter which selects the output current in internal system malfunction case (3.85mA, 21.5mA, or "hold the last valid value")

Filter Coefficient: agitators filter system configuration parameters, where "Dist.Ag1 [mm]" is the first (or only) blades agitator distance (disabled function with value 0); "*Dist.Ag2 [mm]*" is the second blades agitator upper distance (disabled function with value 0); "*Dist.Ag3 [mm]*" is the second blades agitator lower distance (disabled function with value 0); "*Null Dist.[mm]*" Is the band distance, with ± 50 mm amplitude, in which the returning echoes are not considered valid (disabled function with value 0); "*Width*" Is the consecutive echoes number to be detected so that the measure is considered valid, within a agitators filter band. If you don't set the agitators filtering, this parameter represents the static filter width increase/decrease rate (disabled function with value 0)

4 Serial port configuration panel

This panel (see fig.4) contains parameters for configuring the serial port used in MODBUS communication

COM: PC port used choice (COM1 default)

Baud Rate: 9600 (Fixed)

N° bit: 8 (Fixed)

Stop Bit: 1 (Fixed)

Parity: No parity (Fixed)

5 INFO panel

This panel (see fig. 5) contains relevant information about the software and the SGM LEKTRA.



User Set Up

RL1 Set Up

RL1 TH Value

RL1 TH Delay

RL1_TH_Enable ☐ Enable ☐ Disable

RL1_TH_Safety ☐ Yes ☐ No

RL1_TH_MinMax ☐ Min ☐ Max

RL2 Set Up

RL2 TH Value

RL2 TH Delay

RL2_TH_Enable ☐ Enable ☐ Disable

RL2_TH_Safety ☐ Yes ☐ No

RL2_TH_MinMax ☐ Min ☐ Max

RL1 Pump Set Up

RL1 Pump Upper

RL1 Pump Lower

RL1 Pump Delay

RL1 Pump Enable ☐ Enable ☐ Disable

RL1 Pump Safety ☐ Yes ☐ No

RL1 Pump Fill/Empty ☐ Filling ☐ Emptying

RL2 Diagnostic Enable

☐ Enable ☐ Disable

Service Set Up

Max Gain TH Medium ☐ Liquid ☐ Solid

Frozen Gain

Filter Coefficient Output Safe Mode ☐ HLVL ☐ 3.85 mA ☐ 21.5 mA

Agitators

Dist. Ag1 [mm]

Dist. Ag2 [mm]

Dist. Ag3 [mm]

Null Dist. [mm]

Width

Quit

Fig. 3

RS485 Settings

Serial Com Settings

COM PORT

Baud Rate

Data Bits

Bit Stop

Parity

Quit

Info

SGM Meter Modbus Rev. 1.00

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Quit

Fig. 5

Fig. 4



6 Advanced setup panel

This panel (see fig. 7) is protected by a password (see fig.6), as there are parameters for the SGM technical exclusive use

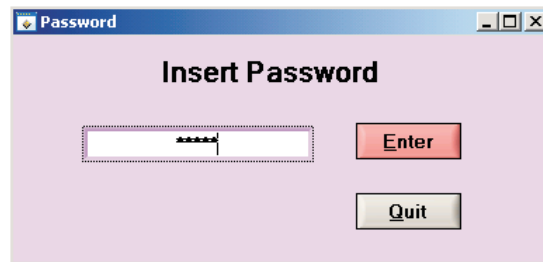


Fig. 6

You can view and edit:

DAC_4mA: is the digital value corresponding to a DAC output to 4mA

DAC_20mA: is the digital value corresponding to a DAC output to 20mA

Z value: is the “delay electronic” value (in mm)

V0: is the speed of sound in air at 0 ° C, expressed in mm/μs

Alpha: is the sound speed variation coefficient in air, depending on the temperature

Epot_20C: is the digital potentiometer numerical value which adjusts the crystal emission frequency, depending on the temperature (between 0 and 255)

Emission Time: is the emission time duration, expressed in microseconds

Cycles Number: represents the basic timer cycles number (65,535 microseconds) between a release and the subsequent

Min. Delta: is the minimum received echo duration time value, so that it can be considered valid

Config. Index: is the instrument configuration index

Configuration Index: boxes for entering a new configuration index (under construction)

7 Data logger panel

In this panel (see fig. 9) can be saved to file (see fig.8), with predetermined time intervals, the measures reported by METER:

Insert file name to open or create: enter the file name to create (default extension .xls)

Open/Create: opens or creates the storing file

Start writing: starts data storage

Stop writing: stops data storage

Writing time interval: you select the range of data storage (see Fig.10)

Date	Time	Dist[mm]	Level[mm]	Level[%]	Temp[°C]	Output[mA]	Measure status	RL1 Status	RL2 Status
05/05/09	9.36.28	996	4004	85,2	23	17,6	29	OFF	OFF
05/05/09	9.36.33	996	4004	85,2	23	17,6	29	OFF	OFF
05/05/09	9.36.38	996	4004	85,2	23	17,6	29	OFF	OFF

Fig. 8



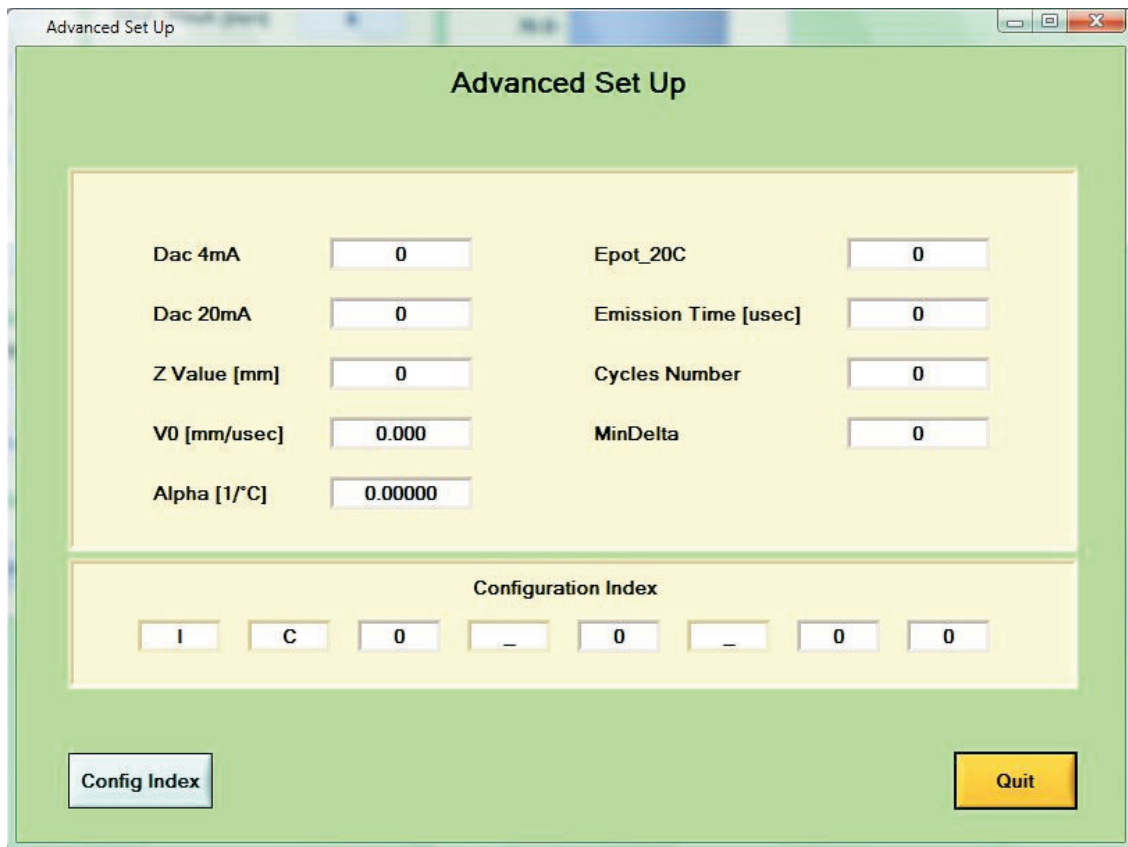


Fig. 7

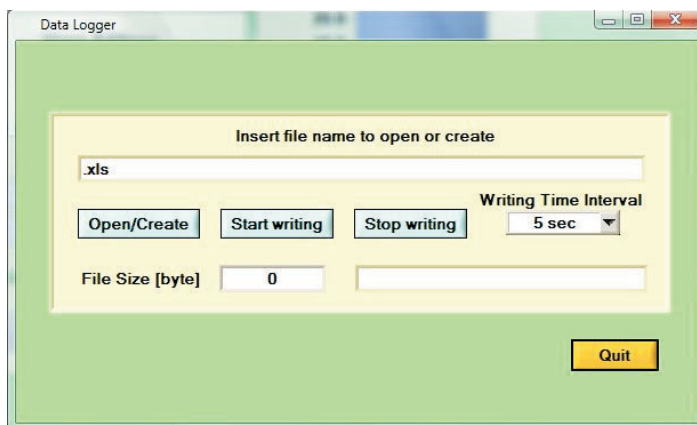


Fig. 9

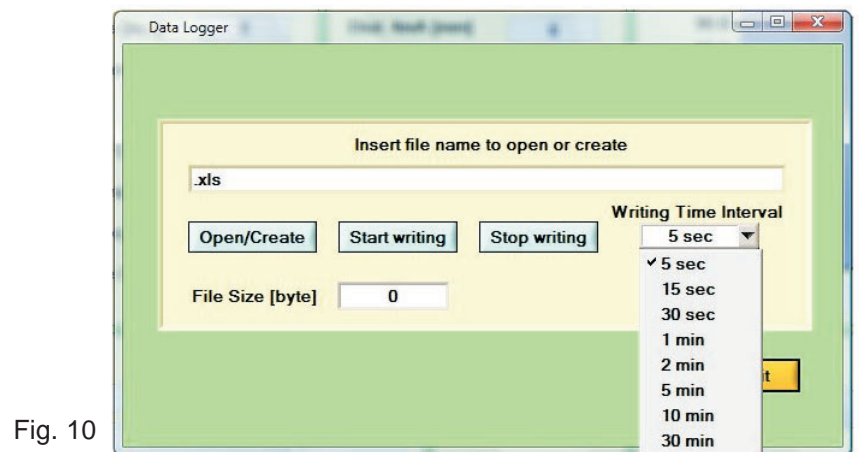


Fig. 10

METER - protocollo MODBUS



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