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3 ES1302.1 A/D Board

The ES1302.1 A/D Board is used for analog data acquisition in VMEbus systems. The board is designed for medium resolutions and data rates. It includes the following functions:

- A/D converters with 12-bit resolution and a maximum overall sampling rate of 300 kHz
- 16 single-ended or 8 differential analog input channels
- four input voltage ranges and four gain factors which can be set by software
- FIFO memory for measured values and channel numbers

The ES1302.1 can be used anywhere in VMEbus systems where analog input signals with medium resolution are to be acquired.

Examples of areas of implementation are:

- acquisition of analog transducer signals, for example engine temperature, oil temperature, accelerator setting
- valve flow measuring with a primary I/U converter

3.1 ES1302-AD Device

3.1.1 Globals (ES1302-AD Device)

This section describes the global options of the ES1302-AD device.

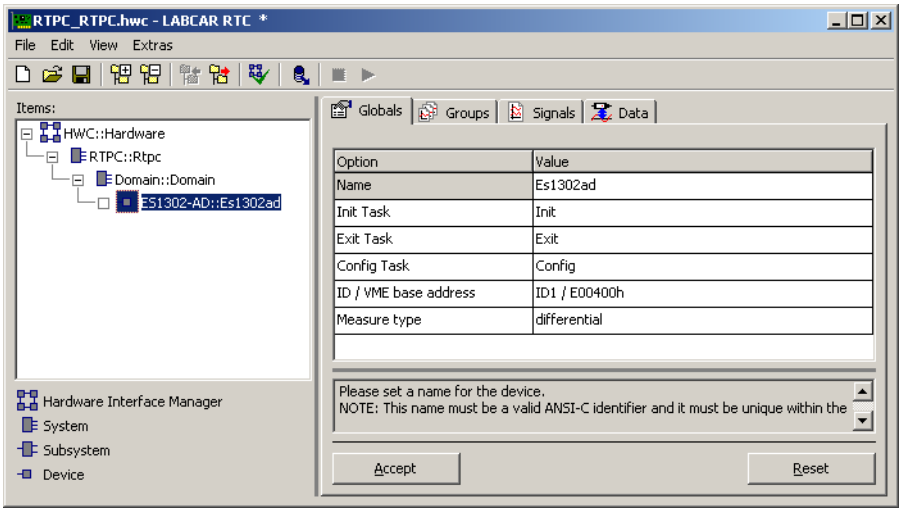


Fig. 3-1 The "Globals" Tab of the ES1302-AD Device

Init Task

The task for initializing the ES1302.1 is assigned in this line (Type: Init / Application Mode: active).

Exit Task

The task to be executed with the ES1302.1 when the experiment stops is assigned in this line (Type: Init / Application Mode: inactive).

Config Task

This task can be used to reconfigure the ES1302.1 during experimentation. Please create a software task (which must *not* be called) in the OS editor when you do not want to reconfigure the ES1302.1.

ID / VME base address

The VMEbus base address of the ES1302.1 is specified in the "ID / VME base address" field. There are 5 different base addresses to choose from (`ID1/E00400h`, `ID2/E00500h`, `ID3/E00600h`, `ID4/FE0100h` and `ID5/FE0200h`).

Measure type

The type of measuring is specified in the "Measure type" field. There are three options:

- single-ended: 16 single-ended analog input channels are measured.
- differential: 8 differential analog input channels are measured.
- reference: the 4 internal reference voltage channels are measured.

Note

To ensure that the input voltages are measured correctly, all unused inputs have to be at a defined potential.

3.1.2 Groups (ES1302-AD Device)

This section describes the signal-group-specific options of the ES1302-AD device.

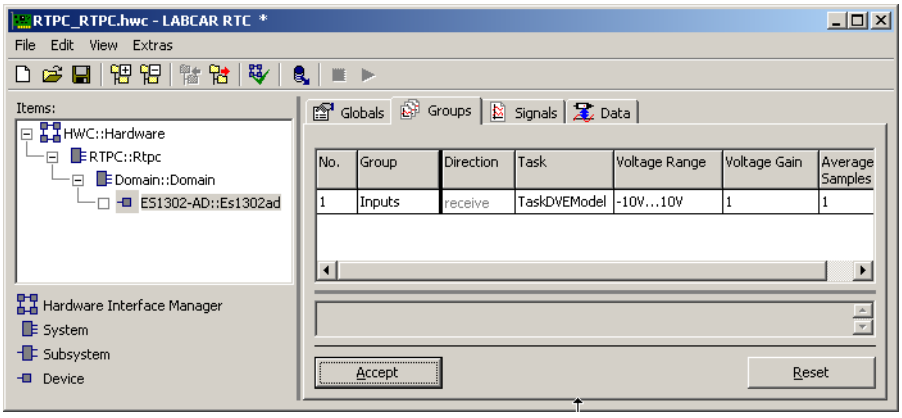


Fig. 3-2 The "Groups" Tab of the ES1302-AD Device

Voltage Range

The input voltage range of the measure channels is specified in the "Voltage Range" field. There are four ranges to choose from (0 V ... 5.0 V, -5.0 V ... 5.0 V, 0 V ... 10.0 V and -10.0 V ... 10.0 V).

Voltage Gain

The "Voltage Gain" field determines an input voltage gain for the measure channels. There are four gain factors to choose from (1, 2, 4, 8). Please note that this does not change the input voltage range, i.e. the voltage gain must be within the voltage range set!

Average Samples

The "Average Samples" field determines how many sample values are used to calculate an average analog voltage value. Averages can ensure interference or noise suppression - please note, however, that approx. 3 µs are required per measure channel and per sampling.

3.1.3 Signals (ES1302-AD Device)

This section describes the signal-specific options of the ES1302-AD device.

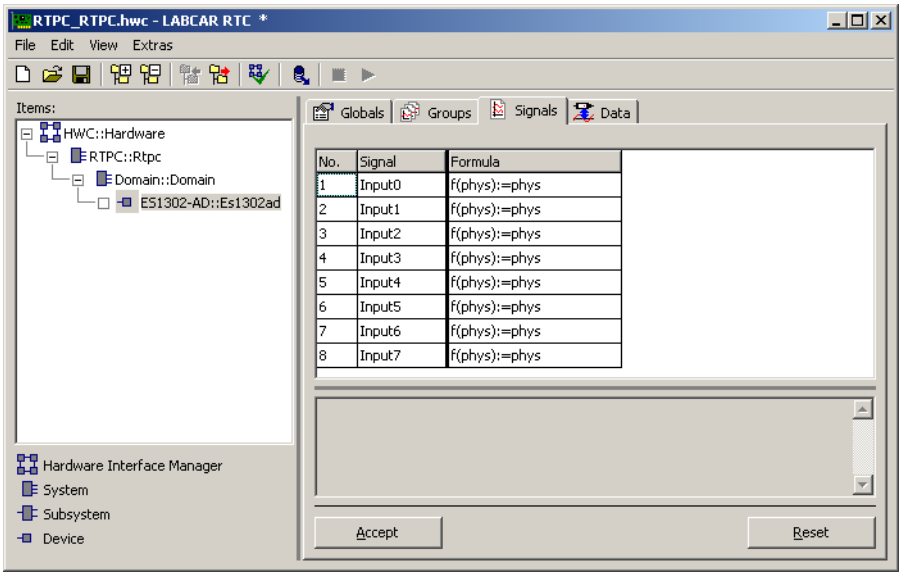


Fig. 3-3 The "Signals" Tab of the ES1302-AD Device

The number of signals depends on the measure type set in the "Measure type" field in the "Globals" tab:

- single-ended: 16 inputs
- differential: 8 inputs
- reference: 4 inputs

The *Inputx* signals are either of data type "float" or "real32". The signals specify the measured voltage at the relevant measure channel in volts.

Note

When data types are specified in this document, they are the data types used internally by the RTIO driver.

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