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Industrial Control Design AS

Serial Setup

User Manual

Industrial Control Design AS, www.icd.no, support@icd.no, forum.icd.no

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1. Introduction

1.1. About

This document describes how to set up a generic Serial Configuration in XML. This document applies to all I/O Servers requiring a Serial Connection to work, for instance the CDPTouchScreen, SeatexMRUSerialIOServer, Modbus Serial etc.

2. Configuration

Configuration is done by modifying the component .xml file inside the Application\Components\ folder.

2.1. Serial Configuration

2.1.1. Description

The serial configuration is the same in all components using a serial connection. It contains several elements to manipulate the properties of the Serial communication, and has XML similar to this:

2.1.2. Example XML

```
<IRQ>0</IRQ>
<BaudRate>19200</BaudRate>
<Parity>None</Parity>
<StopBits>1</StopBits>
<DataBits>8</DataBits>
<ClockFrequencyMhz>1.8432</ClockFrequencyMhz>
<Protocol>None</Protocol>
<BufferSize>1024</BufferSize>
<MultiDrop>None</MultiDrop>
<ComPort Number="1" BaseAddress="0" NetworkConvert="0"></ComPort>
```

Element Name	Description
IRQ	Serial Port IRQ number. '0' means 'use default' but only works for COM1-COM4. See the system BIOS for which IRQs are used
BaudRate	Serial Port Baudrate to set. Acceptable baudrates are: 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 9600,19200, 38400, 57600, 115200, 230400. Some Serial controllers do not accept baudrates larger than 115200.
Parity	Character Parity. Can be Even, Odd, Mark, Space and None
StopBits	Character Stop bits, can be 1 or 2 bits per character. Note that on RTOS32 you can specify 1.5 stop bits by specifying DataBits to 5 and StopBits to 2
DataBits	Number of Data bits per character. Can be 5,6,7 or 8. Note that DataBits = 8 and StopBits=2 is not allowed.
ClockFrequencyMhz	Clock Frequency of the serial port crystal. If a non-standard crystal frequency is used, specify the frequency here to get correct baud rate calculation. The default clock-frequency on a serial port is 1.8432 MHz. If you specify another clock frequency here, the baudrate is actually recalculated according to the formula: `newBaudRate = ( 1.8432 / ClockFrequencyMhz ) * BaudRate;` Note that on Linux you should not select another ClcockFrequencyMhz than the default value 1.8432.
Protocol	The protocol to use. Supported protocols are: None, XonXoff, RtsCts and DtrDsr. Protocol is incompatible with the 'MultiDrop' setting.
MultiDrop	Valid choices are 'None', 'HalfDuplex' and 'FullDuplex'. This is used to enable RS485 communication, and set whether it should be half duplex (uni-directional) or full duplex (bi-directional).MultiDrop will only function as intended when Protocol is set to None. On RS232, MultiDrop should be set to 'None'. On RS485 2-wire setup, use 'HalfDuplex', and on RS485 4-wire setup use 'FullDuplex'. (Please note that the actual physical wires are actually 3 and 5 respectively). Note that MultiDrop is only supported on RTOS32.
BufferSize	Used On RTOS32 as the BufferSize to use. Default to 1024 bytes.
ComPort	The Com port settings, see table below

ComPort Attributes	Description
Number	The com port number, '1' as in 'COM1'. Must be 1 or bigger. On Linux, Com1 equals 'ttys0'.
BaseAddress	The Base Address for the COM port, typically listed in the BIOS for the controller. A BaseAddress of '0' means 'use default'
NetworkConvert	Set to 1 if you want automatic network byte conversion for values.