WAGO I/O SYSTEM 750

Using the library “Serial_Interface_01.lib”

Application note

A110901, English
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WAGO® INNOVATIVE CONNECTIONS

WAGO Kontakttechnik GmbH
Hansastraße 27
D-32423 Minden

Phone: +49 (0) 571/8 87 – 0
Fax: +49 (0) 571/8 87 – 1 69

E-Mail: info@wago.com

Web: http://www.wago.com

Technical Support
Phone: +49 (0) 571/8 87 – 5 55
Fax: +49 (0) 571/8 87 – 85 55

E-Mail: support@wago.com

Every conceivable measure has been taken to ensure the correctness and completeness of this documentation. However, as errors can never be fully excluded we would appreciate any information or ideas at any time.

We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in the present manual are generally trademark or patent protected.

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1 Important comments

To ensure fast installation and start-up of the units described in this manual, we strongly recommend that the following information and explanation is carefully read and adhered to.

1.1 Legal principles

1.1.1 Copyright

1.1.2 Personnel qualification

The use of the product detailed in this manual is exclusively geared to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the valid standards. WAGO Kontakttechnik GmbH declines all liability resulting from improper action and damage to WAGO products and third party products due to non-observance of the information contained in this manual.

1.1.3 Intended use

For each individual application, the components supplied are to work with a dedicated hardware and software configuration. Modifications are only admitted within the framework of the possibilities documented in the manuals. All other changes to the hardware and/or software and the non-conforming use of the components entail the exclusion of liability on part of WAGO Kontakttechnik GmbH.

Please direct any requirements pertaining to a modified and/or new hardware or software configuration directly to WAGO Kontakttechnik GmbH.

1.2 Range of validity

This application note is based on the stated hardware and software of the specific manufacturer as well as the correspondent documentation. This application note is therefore only valid for the described installation.

New hardware and software versions may need to be handled differently. Please note the detailed description in the specific manuals.

1.3 Symbols

Danger
Always observe this information to protect persons from injury.

Warning
Always observe this information to prevent damage to the device.

Attention
Marginal conditions must always be observed to ensure smooth operation.

ESD (Electrostatic Discharge)
Warning of damage to the components by electrostatic discharge. Observe the precautionary measure for handling components at risk.

Note
Routines or advice for efficient use of the device and software optimization.

More information
References to additional literature, manuals, data sheets and INTERNET pages

2 Description

This application example demonstrates the application of the functional module "SERIAL_INTERFACE" from the library "Serial_Interface_01.lib".
It is applicable for all controllers, except Modbus: 750-812, 750-814, 750-815 and 750-816.

In this example, two serial interfaces are connected with each other on a node. The controller detects and assigns the port numbers of the serial port modules, beginning from the left with COM2. (The controller service interface is always COM1.)

If using serial communications module 750-65x/003-000, the communication parameters are configurable by the user.

When using any other serial communications module (750-65x/000-0xx), the module will have a factory preset configuration that cannot be defined by the user.

The transparent data communication of any frame is supported.

The driver does not make a protocol layer available.

2.1 Factory configured modules

These modules have a factory preset configuration that cannot be reconfigured by the user.

When using these modules, the parameters specified above are not to be used, or should only be used with the default values. Incorrect usage of these parameters will result in the following error:
“bError := 0x09: Not supported parameterset”.

2.2 User configurable modules 750-65x/003-000

The following table provides a list of changeable params.

RS232C - 750-650-003-000								
Baud	**Start Bits**	**Data-Bits,-Parity**	**Stop Bits**	**Flow-Control**	**Duplex**	**cont. send**[1]	**int. Data-width**[2]	**int. Data-format**[3]
1200 2400 4800 **9600** 19200	**1**	7 Databits, EVEN-Parity 7 Databits, ODD Parity **8 Databits, NO Parity** 8 Databits, EVEN-Parity 8 Databits, ODD Parity	**1** 2	NONE **RTS/CTS** XON/XOFF	**NONE**	ON **OFF**	3 + 1Byte, **3 + 1Byte**, 5 + 1Byte,	Standard **Alternative** Standard
TTY 20mA Current Loop - 750-651-003-000								
Baud	**Start Bits**	**Data-Bits,-Parity**	**Stop Bits**	**Flow-Control**	**Duplex**	**cont. send**	**int. Data-width**[2]	**int. Data-format**
1200 2400 4800 **9600** 19200	**1**	7 Databits, EVEN-Parity 7 Databits, ODD Parity **8 Databits, NO Parity** 8 Databits, EVEN-Parity 8 Databits, ODD Parity	**1** 2	**NONE**	**FULL**	ON **OFF**	3 + 1Byte, **3 + 1Byte**, 5 + 1Byte,	Standard **Alternative** Standard
RS485 (RS422) - 750-653-003-000								
Baud	**Start Bits**	**Data-Bits,-Parity**	**Stop Bits**	**Flow-Control**	**Duplex**	**cont. send**[1]	**int. Data-width**[2]	**int. Data-format**
1200 2400 4800 **9600** 19200	**1**	7 Databits, EVEN-Parity 7 Databits, ODD Parity **8 Databits, NO Parity** 8 Databits, EVEN-Parity 8 Databits, ODD Parity	**1** 2	NONE XON/XOFF **FULL** HALF	**FULL** HALF	ON **OFF**	3 + 1Byte, **3 + 1Byte**, 5 + 1Byte,	Standard **Alternative** Standard

The following params are changeable by the FB „SERIAL_INTERFACE“:
- Baudrate (cbBAUDRATE),
- Quantity Databits (cbsBYTESIZE),
- Parität (cpPARITY),
- Quantity Stopbits (csSTOPBITS),
- Flowcontrol (cfFLOW_CONTROL).

To change the parameters for:
- continuous send,
- Internal Datawidth und
- Internes Dataformat

use the program „WAGO – I/O-Check“.

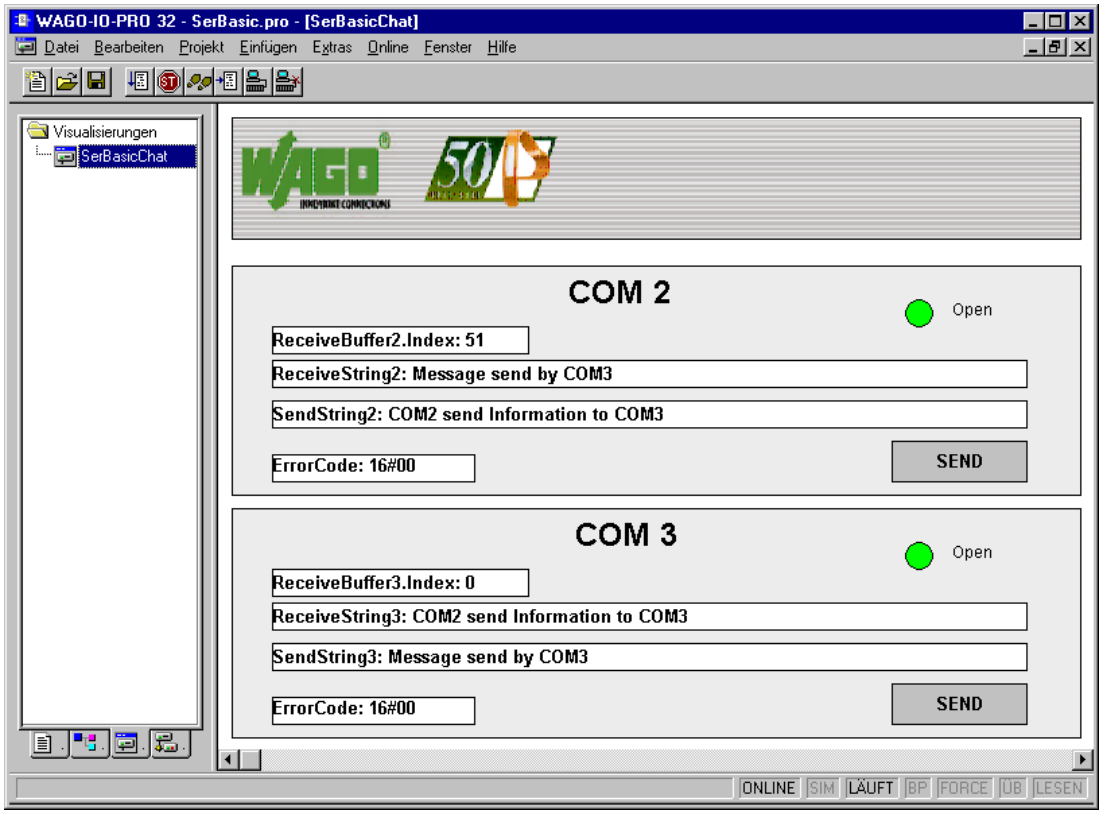
[1] Continuous Send: ON –the complete sendbuffer can be transmitted at once.

[2] Internal Datenwidth: 3 or 5 Byte Inputdata plus 1 State-Byte
3 or 5 Byte Outputdata plus 1 Controle-Byte

[3] Internal Dataformat: Defines the reprasentation in the processimage (memorylyout).

3 Example application

The example application has the following user interface:



The status of the port will be displayed by an indicator:

- green indicates the communication port is open.
- red indicates the communication port is closed.

The port can be opened and closed by clicking the indicator. Error status is displayed.

If the port is open, the message placed in the SendStringX buffer can be transmitted by pressing the send button.

Received data will be shown in the appropriate field.

Received data will be handled in two different ways, to show the general function of the receive buffer. COM2 is designed as a turn around buffer. Therefore the buffer index will be incremented with each received character. A buffer overflow will be handled accordingly.
For COM3, the receive buffer index will be set to zero with each complete data message.

WAGO Kontakttechnik GmbH
Postfach 2880 • D-32385 Minden
Hansastraße 27 • D-32423 Minden
Phone: 05 71/8 87 – 0
Telefax: 05 71/8 87 – 1 69
E-Mail: info@wago.com

Internet: http://www.wago.com