

Software Setup and Hardware Installation

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**Rockwell
Automation**
Heavy Industry & Drive Systems

Project LED25 Process Display
with ControlLogix

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To Experienced RSLogix5000 Users

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1. Summary

Set-up instructions for the serial port for communication with the 1761-NET-AIC and a series of the LED25 process display.

Related documents:

LED25-PP001B-EN-D	Product Profile LED25 Process Display
LED25_TD001B-EN-D	Technical Data LED25 Process Display
1761-UM004_-en-p.pdf	User Manual 1761-NET-AIC

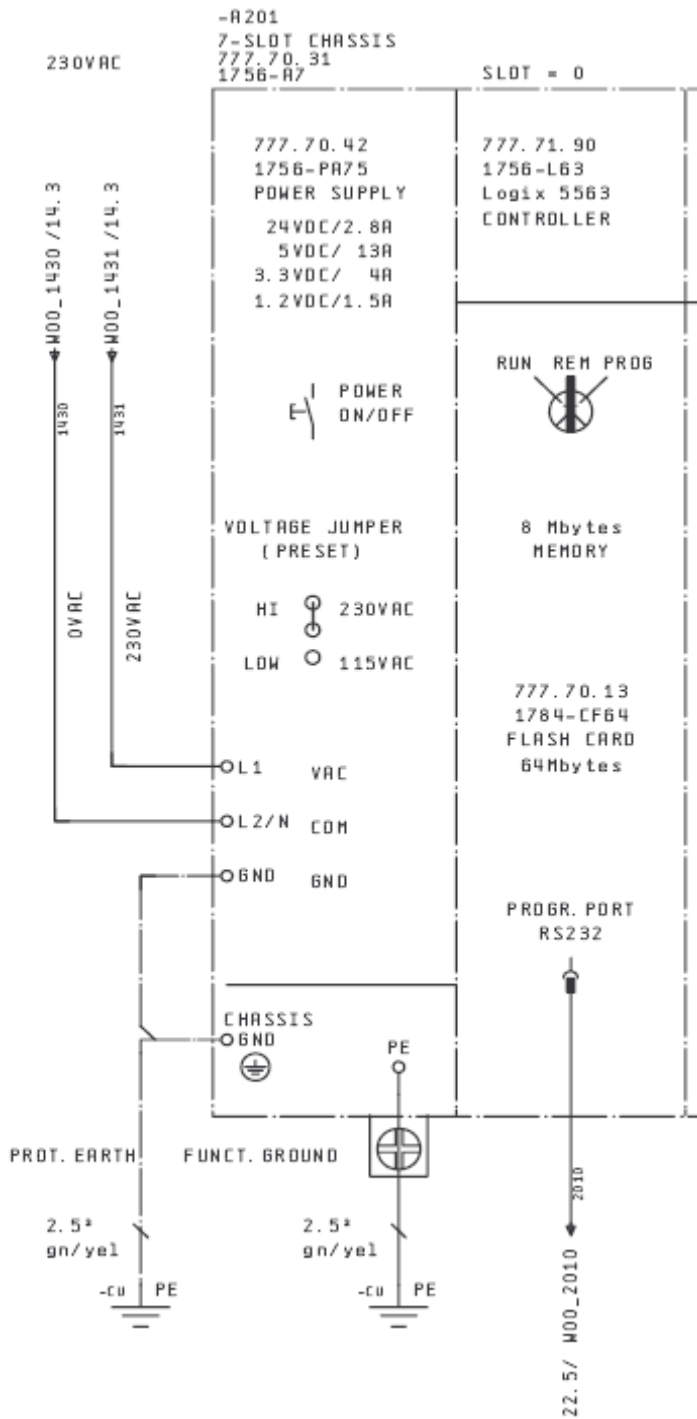
Program example for ControlLogix:

LED25_Setup.ACD

2. Hardware and Communication Settings

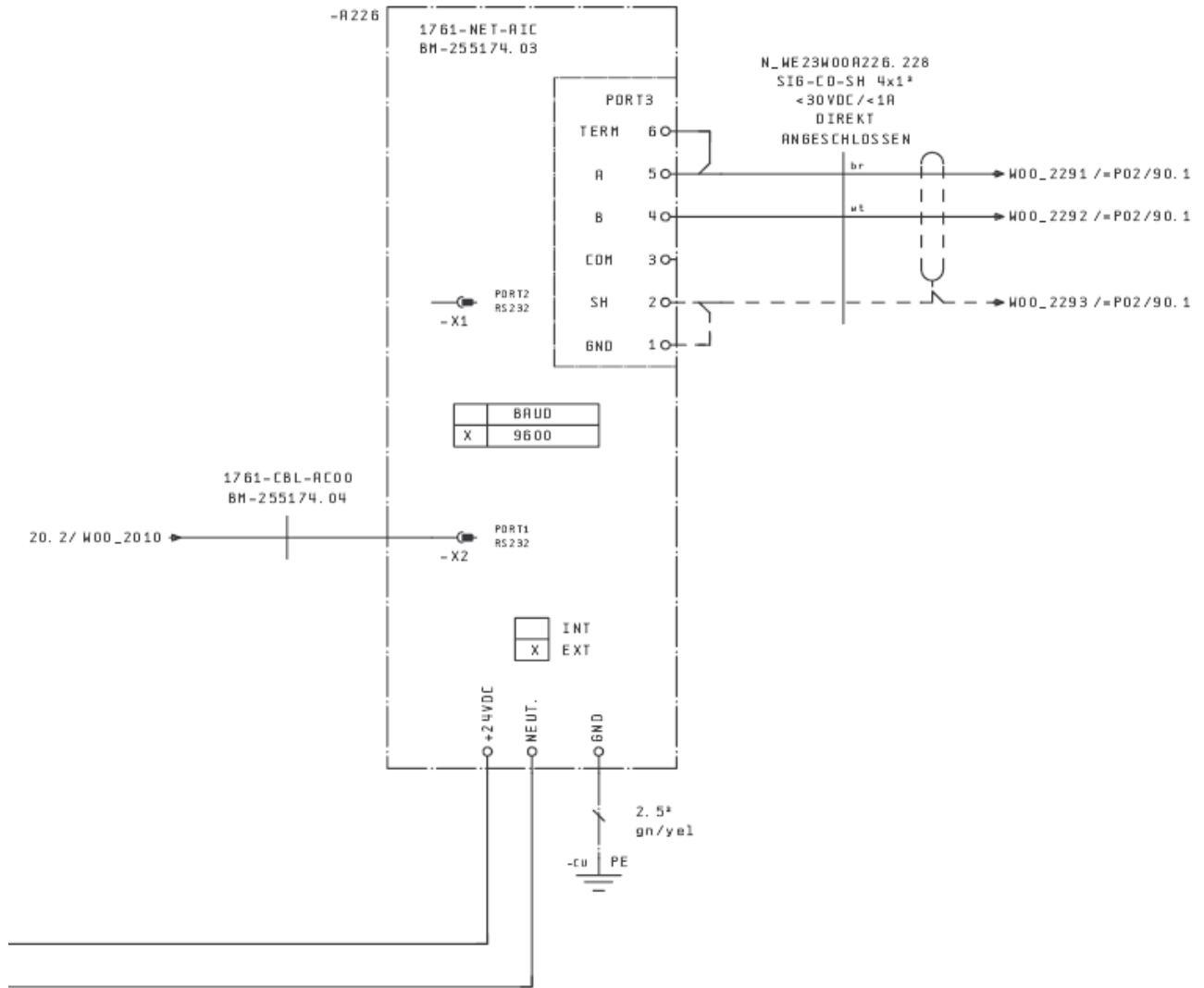
Logix Processor

The RS-232 port of the interface converter is connected by means of the cable 1761-CBLAC00 to the serial port of the Logix processor.



On the NET-AIC:

Set the baud rate to 9600 (not Autobaud)
for the RS-485 Network.



Field-Bus RS-485 communication cable:

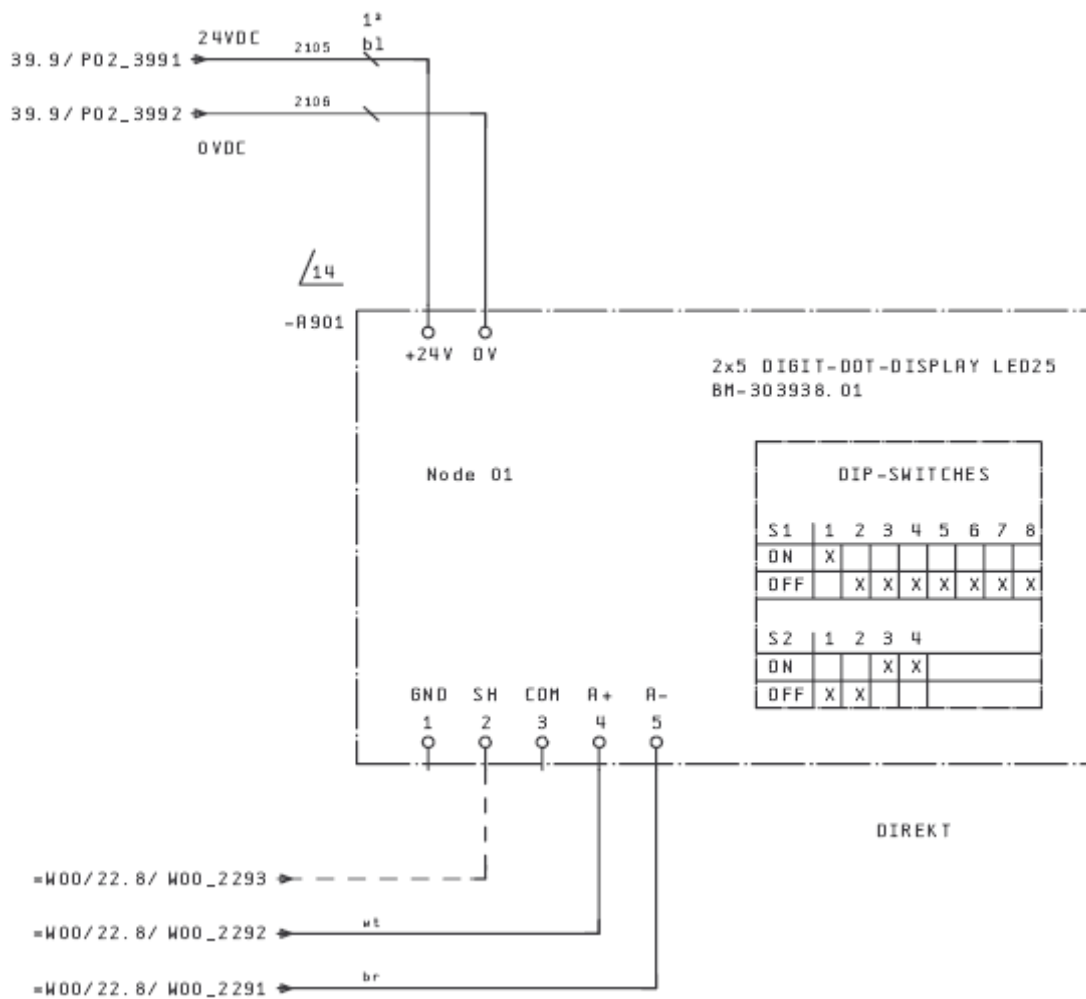
A daisy-chain network is recommended. See 1761-NET-AIC manual.
Use Belden #3106A or (#9842 max. length 40m) communication cable or
Unitronic BUS CAN 1x2x0.34mm² (AWG22) up to 500m length, above use bigger cross section.

LED25 Process display

Software Setup and
Hardware Installation

LED25 Display settings

Dip switches	S1/1 and S1/2	“Off”	
Dip switches	S1/3 and S1/2	“ON”	for the last display in the communication
Dip switches	S1/3 and S1/2	“Off”	for all others display
Dip switches	S2/1 to S2/5	“xx”	according the application
Dip switches	S2/6, S2/7 and S2/8	“Off”	fixed-point setting



3. ControlLogix Software

The standard software allows to configure and to run up to 20 displays on the same network.

Typically the setup does not need to be changed while it was set-up once for the modes below:

One or two values written on two lines with
5 characters (5x7 dots each).



One value and one fixed text written on two lines with
5 characters (5x7 dots each).



One value or one fixed text written on one line with
4 characters (5x7 dots each).



One value on one line (5 characters). Text with
background light through a template.



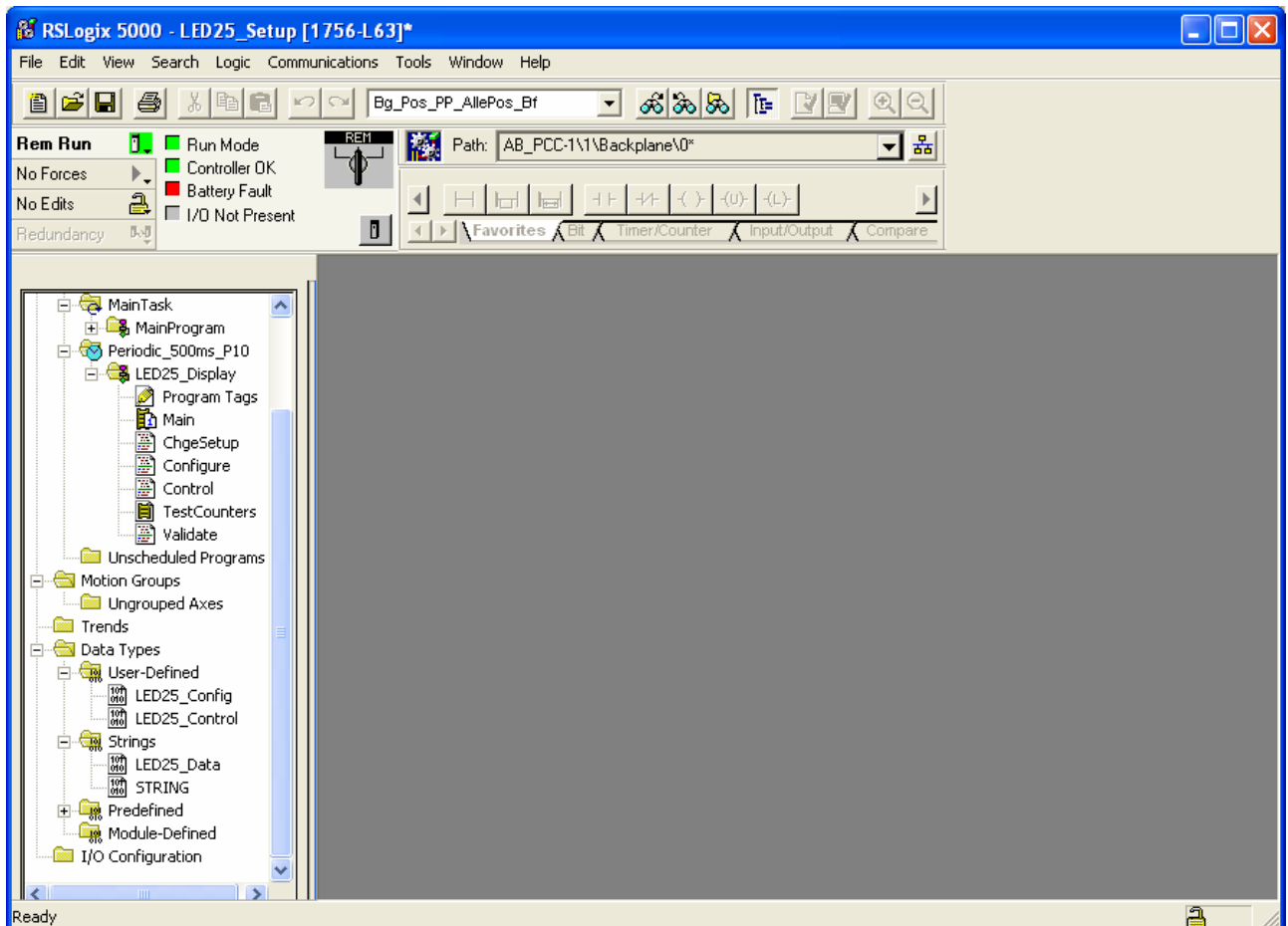
There are 3 control bits which allow changing the mode during running if required:

- Change between the two font sizes, meaning one or two lines (values)
- Turn the blinking of the display "On" and "Off"
- Turn a fixed text on line 1 "On" or "Off"

4. Copy the ControlLogix Program.

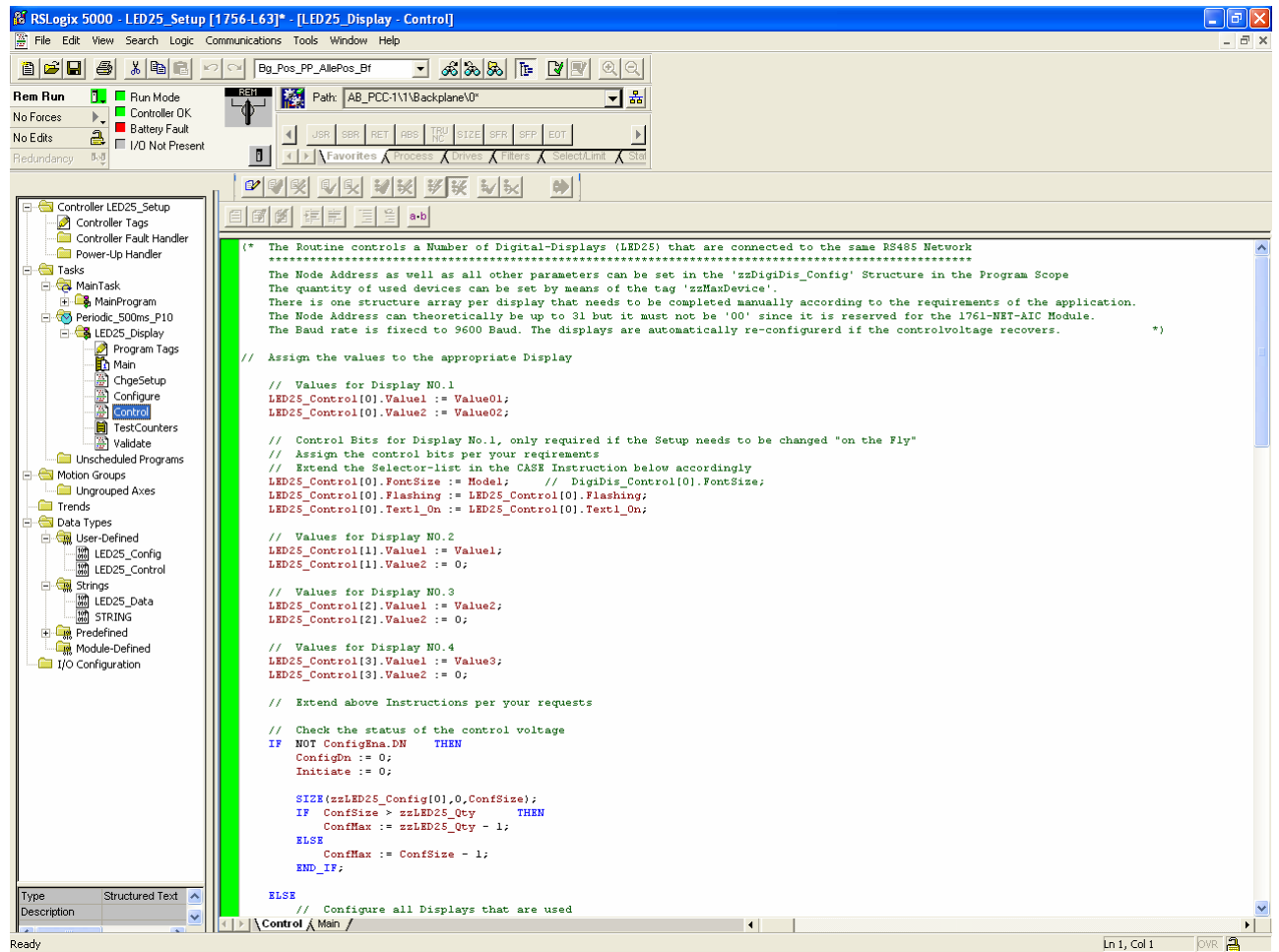
Open the file “LED25_Setup.ACD” with RSLogix.

You may copy the whole program “Periodic_500ms_P10” into another project, but before you need to copy the 2 user defined Data Types as well as the user defined String.



You may delete the ladder routine “Test Counters” and the associated JSR instruction in the main routine since this is only for test purposes.

Read carefully the instructions at the beginning of the routine "Control".
Map the values of each display to your source.



The screenshot shows the RSLogix 5000 software interface. The left pane displays a project tree with the following structure:

- Controller LED25_Setup
 - Controller Tags
 - Controller Fault Handler
 - Power-Up Handler
 - Tasks
 - MainTask
 - MainProgram
 - Periodic_500ms_P10
 - LED25_Display
 - Program Tags
 - Main
 - ChgeSetup
 - Configure
 - Control
 - TestCounters
 - Validate
 - Unscheduled Programs
 - Motion Groups
 - Ungrouped Axes
 - Trends
 - Data Types
 - User-Defined
 - LED25_Config
 - LED25_Control
 - Strings
 - LED25_Data
 - STRING
 - Predefined
 - Module-Defined
 - I/O Configuration

The main window displays the following ladder logic code for the 'Control' routine:

```
(* The Routine controls a Number of Digital-Displays (LED25) that are connected to the same RS485 Network
*****
The Node Address as well as all other parameters can be set in the 'szDigiDis_Config' Structure in the Program Scope
The quantity of used Devices can be set by means of the tag 'zzMaxDevices'.
There is one structure array per display that needs to be completed manually according to the requirements of the application.
The Node Address can theoretically be up to 31 but it must not be '00' since it is reserved for the 1761-NET-AIC Module.
The Baud rate is fixed to 9600 Baud. The displays are automatically re-configured if the controlvoltage recovers.
*)

// Assign the values to the appropriate Display

// Values for Display NO.1
LED25_Control[0].Value1 := Value01;
LED25_Control[0].Value2 := Value02;

// Control Bits for Display No.1, only required if the Setup needs to be changed "on the Fly"
// Assign the control bits per your requirements
// Extend the Selector-list in the CASE Instruction below accordingly
LED25_Control[0].FontSize := Model; // DigiDis_Control[0].FontSize;
LED25_Control[0].Flashing := LED25_Control[0].Flashing;
LED25_Control[0].Text1_On := LED25_Control[0].Text1_On;

// Values for Display NO.2
LED25_Control[1].Value1 := Value1;
LED25_Control[1].Value2 := 0;

// Values for Display NO.3
LED25_Control[2].Value1 := Value2;
LED25_Control[2].Value2 := 0;

// Values for Display NO.4
LED25_Control[3].Value1 := Value3;
LED25_Control[3].Value2 := 0;

// Extend above Instructions per your requests

// Check the status of the control voltage
IF NOT ConfigEna.DN THEN
  ConfigDn := 0;
  Initiate := 0;

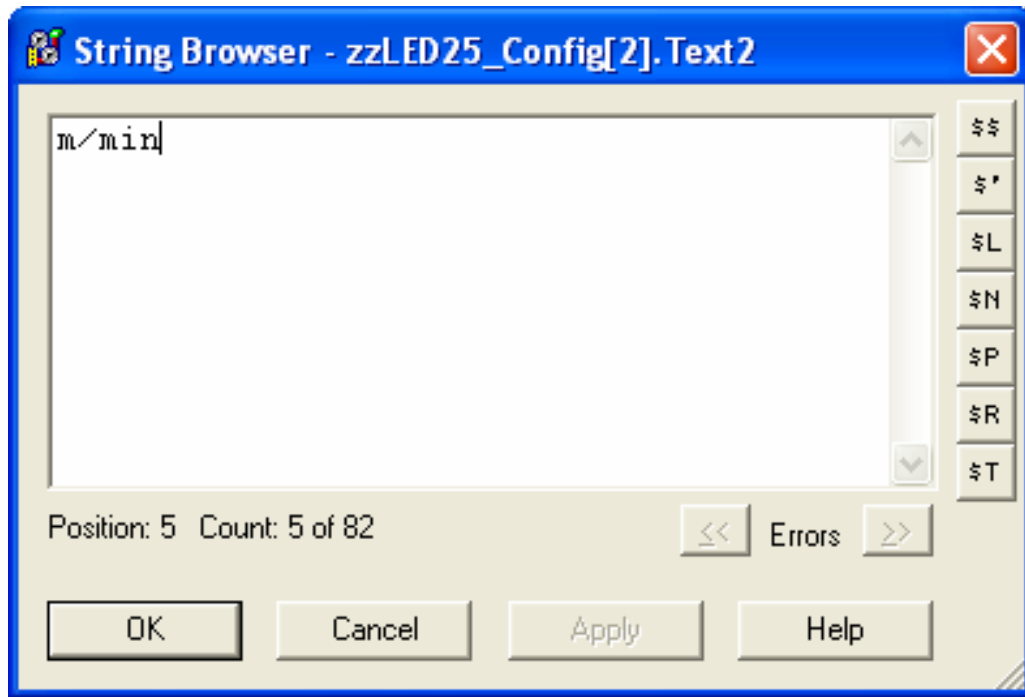
  SIZE(zzLED25_Config[0],0,ConfSize);
  IF ConfSize > zzLED25_Qty THEN
    ConfMax := zzLED25_Qty - 1;
  ELSE
    ConfMax := ConfSize - 1;
  END_IF;
ELSE
  // Configure all Displays that are used
```

Set the tag “zzLED25_Qty” to the number of connected displays.
Fill the tag array “zzLED25_Config” for the desired operation of the individual display.
Address, Font Size, Display Intensity, Backlight, Flashing, FixedPoint1 and fixedPoint2.

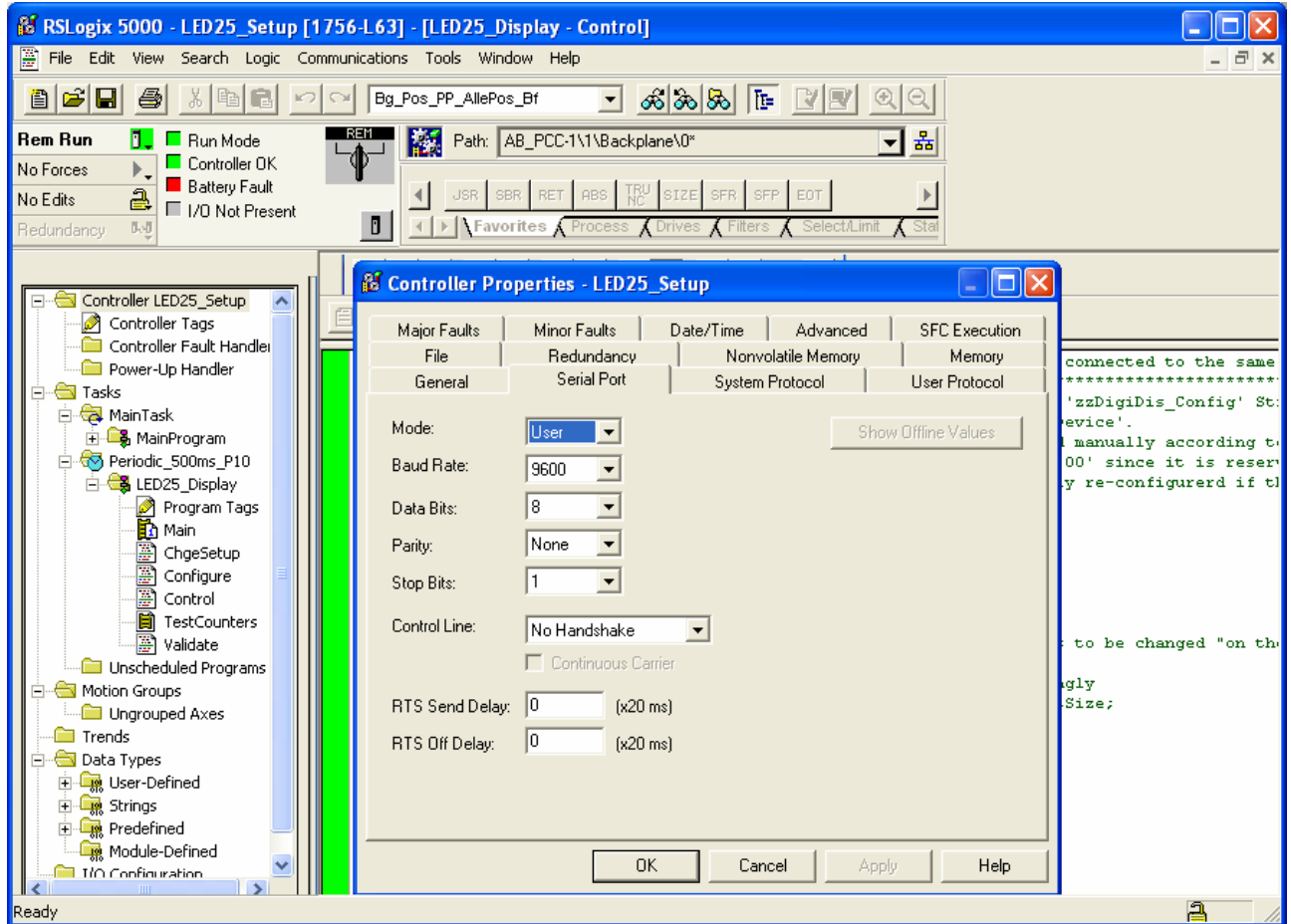
Scope: LED25_Display Shgw: Show All Sort: Tag Name

Tag Name	Value	Force Mask	Style	Type	Description
zCmdSteady	'\t'	(...)		STRING	Control Command Display Steady (not Flashing)
zCmdString	':A'	(...)		STRING	Control Characters String
zEmpty	' '	(...)		STRING	ASCII Empty String
zIntensity	'\L'	(...)		STRING	Control Command Display Intensity
zNull	'0'	(...)		STRING	ASCII Null Character
zzLED25_Config	(...)	(...)		LED25_Config[20]	Digital Display Configuration Structure
zzLED25_Config[0]	(...)	(...)		LED25_Config	#P10-A901+P10 Aufrollhaspel Durchmesser [mm]
zzLED25_Config[1]	(...)	(...)		LED25_Config	Display No.2
zzLED25_Config[2]	(...)	(...)		LED25_Config	Display No.3
zzLED25_Config[2].Address	3		Decimal	SINT	Display No.3 Node Address
zzLED25_Config[2].FontSize	0		Decimal	BOOL	Display No.3 Font Size (0 for 2 Lines 5 Char, 1 for 1 Line 4 Char)
zzLED25_Config[2].Intensity	6		Decimal	SINT	Display No.3 Intensity of the Display (0..9)
zzLED25_Config[2].Backlight	0		Decimal	BOOL	Display No.3 Backlight Line 2 On
zzLED25_Config[2].Flashing	0		Decimal	BOOL	Display No.3 Flashing On for entire Display
zzLED25_Config[2].FixedPoint1	2		Decimal	SINT	Display No.3 Fixed Decimal Point on Line 1 (Places after Point)
zzLED25_Config[2].FixedPoint2	0		Decimal	SINT	Display No.3 Fixed Decimal Point on Line 2 (Places after Point)
zzLED25_Config[2].Text2_On	1		Decimal	BOOL	Display No.3 Text instead of Value on Line 2
zzLED25_Config[2].Text1	' '	(...)		STRING	Display No.3 Fixed Text on Line 1 (5 Characters)
zzLED25_Config[2].Text2	'a/min'	(...)		STRING	Display No.3 Fixed Text on Line 2 (5 Characters)
zzLED25_Config[3]	(...)	(...)		LED25_Config	Display No.4
zzLED25_Config[4]	(...)	(...)		LED25_Config	Display No.5
zzLED25_Config[5]	(...)	(...)		LED25_Config	Display No.6
zzLED25_Config[6]	(...)	(...)		LED25_Config	Display No.7
zzLED25_Config[7]	(...)	(...)		LED25_Config	Display No.8
zzLED25_Config[8]	(...)	(...)		LED25_Config	Display No.9
zzLED25_Config[9]	(...)	(...)		LED25_Config	Display No.10
zzLED25_Config[10]	(...)	(...)		LED25_Config	Display No.11
zzLED25_Config[11]	(...)	(...)		LED25_Config	Display No.12
zzLED25_Config[12]	(...)	(...)		LED25_Config	Display No.13
zzLED25_Config[13]	(...)	(...)		LED25_Config	Display No.14
zzLED25_Config[14]	(...)	(...)		LED25_Config	Display No.15
zzLED25_Config[15]	(...)	(...)		LED25_Config	Display No.16
zzLED25_Config[16]	(...)	(...)		LED25_Config	Display No.17
zzLED25_Config[17]	(...)	(...)		LED25_Config	Display No.18
zzLED25_Config[18]	(...)	(...)		LED25_Config	Display No.19
zzLED25_Config[19]	(...)	(...)		LED25_Config	Display No.20
zzLED25_Qty	7		Decimal	DINT	Number of Devices used for Display

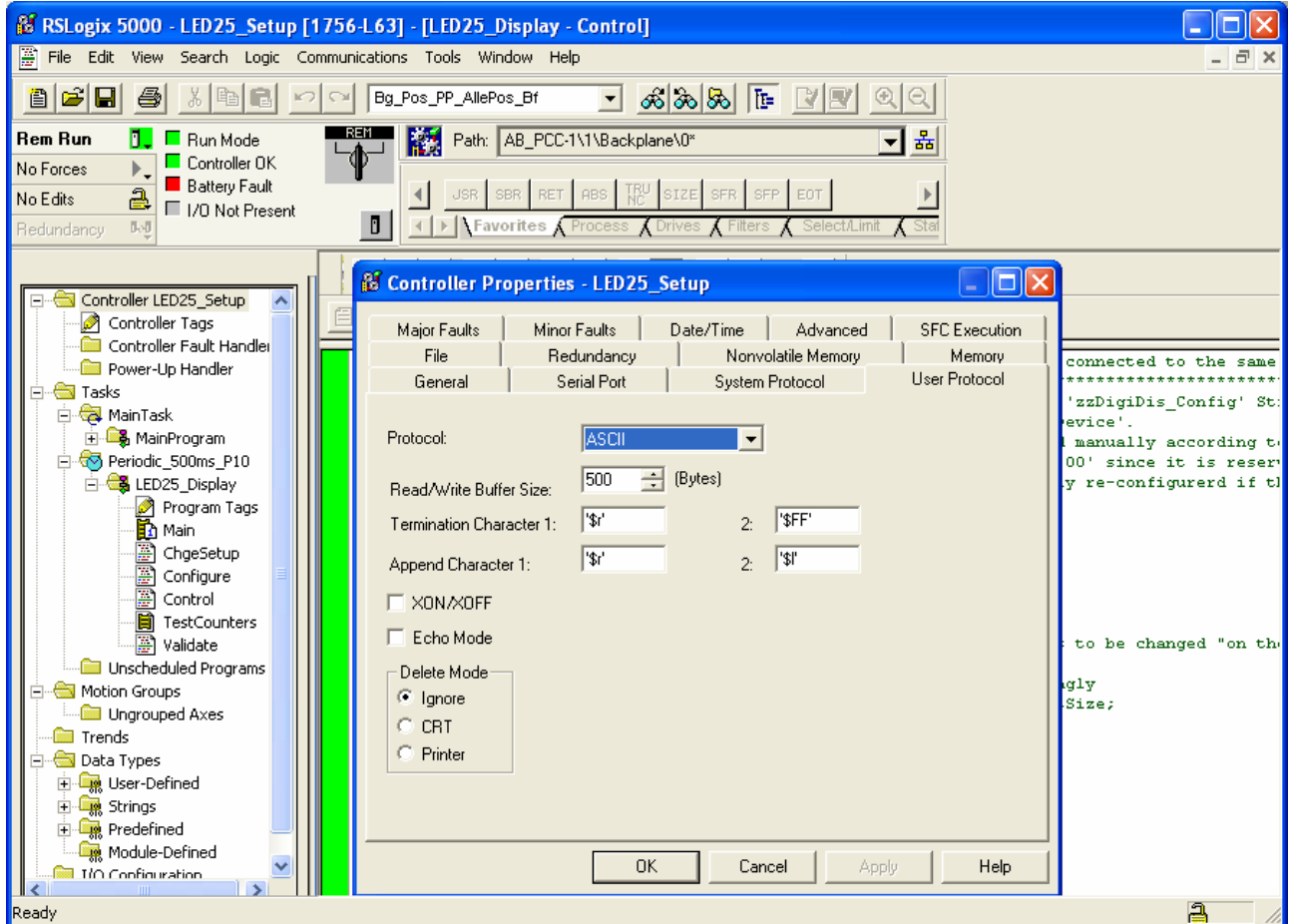
Change the fixed texts in the tag array “zzLED25_Config” by means of the String browser.
Respect the number of characters (4 or 5) depending on the font size.



Change the settings for the Serial Port of the processor.



Change the settings for the Serial User Protocol port of the processor.



Load the application program and set the processor to "Run"

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