



SpiderControl™
MICROBROWSER

**Embedded
Edition**

LPC4357

tcj-Artikel-Nr.: 15693



iniNet . Erfolgreiche Kunden

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Introduction

This manual applies to the embedded version of the MicroBrowser running on LPC4357 controller.

The SpiderControl™ MicroBrowser is able to run Web-HMI's that are directly loaded from an embedded Web-server on a PLC or another controller device.

The MicroBrowser is compatible with projects designed with the SpiderControl™ editor, a compatible OEM version of the SpiderControl™ editor or with CoDeSys WebVisu 2.x and CoDeSys 3.x. This device can also be configured as a VNC client.

First Steps

Right after the device is powered on a view appears to calibrate the touch-screen. Press the screen to start the touch-screen calibration routine. This option is shown first and makes sure that this feature can be selected even if the calibration is completely odd.

If the calibration routine was started by mistake don't press anything. The routine will stop after 10 seconds automatically.

Next the Ethernet adapter is initialized.

Shortly after the next view appears:



Press on 'Settings' to access the configuration menu of the panel.

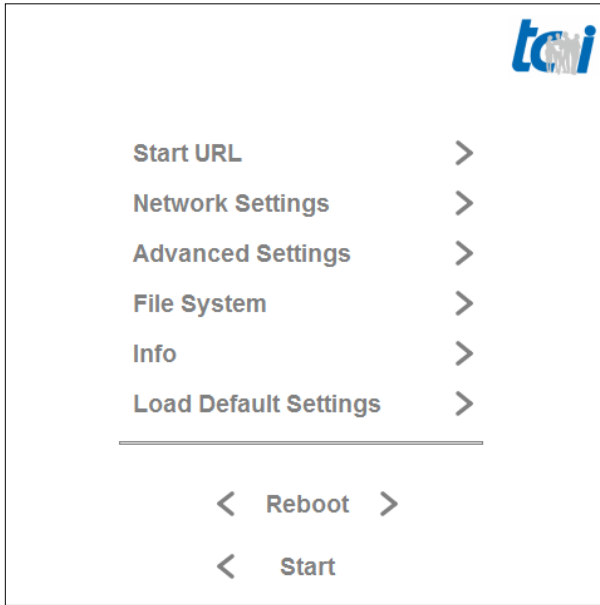
Press on the URL to directly go to the configuration page of the PLC's URL.

If no action is taken, the panel will automatically continue by loading the URL that has been previously configured. If this URL cannot be found, this page will be shown again and the system will try to reconnect again.

Press 'Load' to directly load the URL without waiting for the timeout.

If you don't see this page than the option Skip setup page under Settings/Advanced Settings/ may be enabled. Try to unplug the Ethernet cable and restart the device.

Page: Settings Menu



Start URL

Page to enter the URL of the PLC.

Network Settings

Page to enter the network configuration of the panel.

Advanced Settings

Page to set advanced settings.

File System

Shows content of file system.

Info

Show various information about the panel.

Load Default Settings

This can be used to restore the default settings.

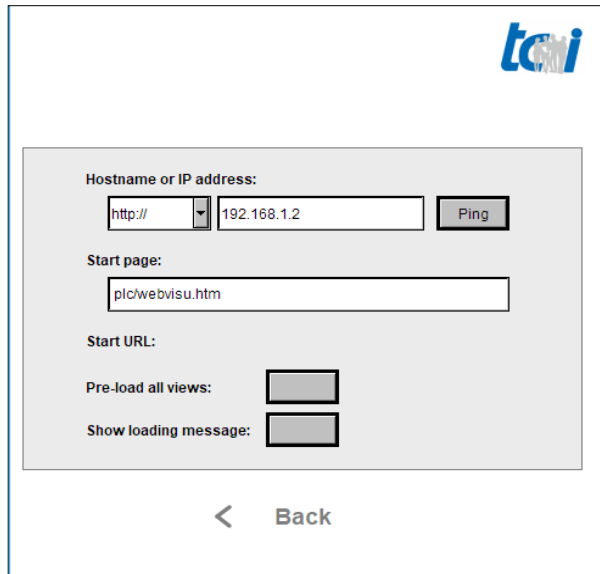
Reboot

Press this button to reboot the panel. This may be needed to reinitialize the Ethernet setting.

Start

Go back to the previous page.

Page: Start URL



Hostname or IP address

The first line asks for the IP-Address or host name of the target system where the HMI is located. Alternatively to an IP address a symbolic host name can be entered. With the drop-down menu on the left a different protocol can be selected. If "VNC:// " is selected the device acts as a VNC client compatible with Real VNC Server V5.0.3.

Start Page

The 'Start Page' field should contain the HTML-file name of the HMI including the path information. Please use '/' as separator. In the VNC case this field can be used to enter the authentication password. Examples: "start.html" or "plc/webvisu.htm"

Start URL

In this read-only field the composed URL is shown.

Ping

By clicking on this button a ping command is sent to the host.

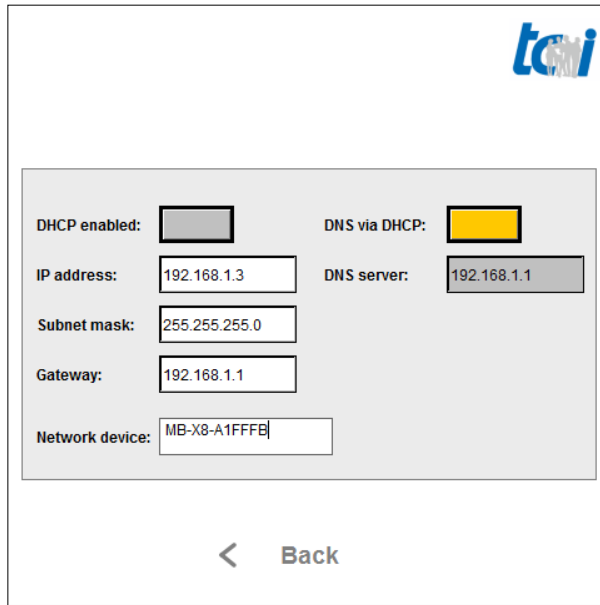
Pre-load all views

By selecting this option all views and image files are pre-loaded. This will increase the loading time, but reduce the time between page jumps.

Show loading message

If enabled system shows loading messages during file load process.

Page: Network Settings



The screenshot shows a network configuration interface with the 'tci' logo in the top right corner. The settings are as follows:

DHCP enabled:	<input type="checkbox"/>	DNS via DHCP:	<input checked="" type="checkbox"/>
IP address:	<input type="text" value="192.168.1.3"/>	DNS server:	<input type="text" value="192.168.1.1"/>
Subnet mask:	<input type="text" value="255.255.255.0"/>		
Gateway:	<input type="text" value="192.168.1.1"/>		
Network device:	<input type="text" value="MB-X8-A1FFFFB"/>		

At the bottom center, there is a '< Back' button.

IP address, DHCP, subnet mask and gateway

Choose whether the IP address of the panel should be static or dynamic. For static (DHCP disabled) enter the desired IP address, subnet mask and, optionally, a gateway in the corresponding field.

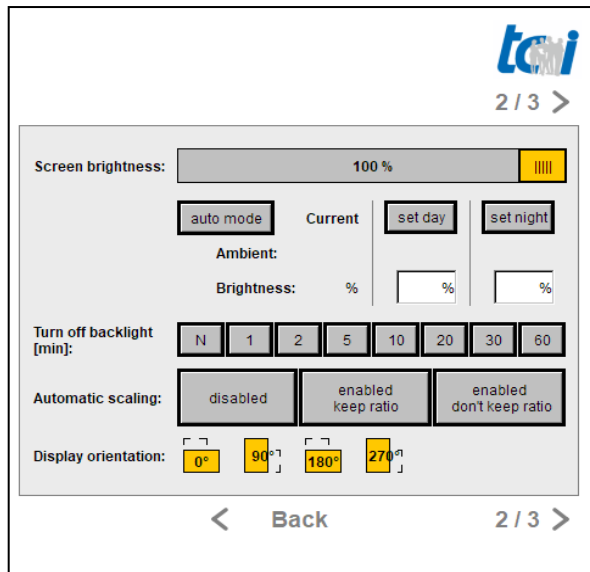
DNS

Enable 'DNS via DHCP' if there is a DHCP server in your network, that tells the address of the DNS server. Disable it if you have a DNS server but no DHCP server. In this case enter the address in the 'DNS server' field.

Network device

This field contains the network name which helps to identify the device in network.

Page: Advanced Settings I



Screen brightness

Change here the screen brightness. This value is used when the “auto mode” is not set.

Auto mode

In auto mode the screen brightness is set automatically according to the ambient brightness. Push “set day” or “set night” to read the actual value of the ambient sensor if available and set the desired screen brightness.

Turn off backlight

This sets a time constant, after which the backlight is automatically switched off if the display is not in use (no touch events are registered). This setting is set in minutes. 'N' means never / disabled.

Automatic scaling

If disabled the HMI is drawn 1:1 (scale factor 1) on the panel. Elements positioned outside the screen resolution are omitted.

'enabled, keep ratio' scales the HMI to the screen resolution. The view will be stretched or shrunk and the ratio is kept.

'enabled, don't keep ratio' scales the HMI to the screen resolution. The view will be stretched or shrunk and the ratio is not kept.

Display orientation

Display content can be rotated for 90°, 180° or 270°.

Page: Advanced Settings II

Return to setup page after touching screen for [s]: N 5 10

Enable undo:

Skip setup page:

Check for project update [min]: N 1 2 5 10 20 30 60

Ethernet speed: read-only 100 Mbit Full-Dupl. 100Mbit Half-Dupl. 10 Mbit Full-Dupl. 10 Mbit Half-Dupl.

Show analysis info: Touch calibration: start

Return to setup page

If enabled, when touching the screen for the given value the panel jumps back to the setup menu.

This setting is set in seconds. 'N' means never / disabled.

Enable undo

If disabled, the actions defined on an element are always executed, even if the touch (mouse UP event) is released outside this element.

If enabled, the actions of an element are only executed, if the touch (mouse UP event) is released inside this element.

Skip setup page

Enable this option if you want to skip the setup page.

If neither the HMI nor the settings gives you the possibility to return to the setup page, unplug the Ethernet cable and restart the device.

Check for project update

The panel is able to check, whether a HMI has been updated. In this case the HMI is re-loaded automatically. This sets the interval between the checks. The time must be at least as long as the time needed to upload the whole project.

This setting is set in minutes. 'N' means never / disabled.

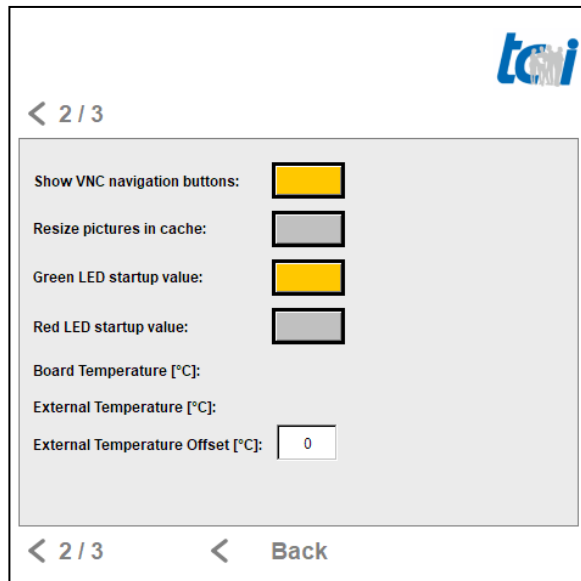
Ethernet Speed

Shows the Ethernet speed.

Touch calibration

Press this button to start the calibration routine of the touch-screen.

Page: Advanced Settings III



The screenshot shows a settings interface with the 'tci' logo in the top right corner. A navigation bar at the top left shows a back arrow and '2 / 3'. The settings are listed as follows:

- Show VNC navigation buttons:
- Resize pictures in cache:
- Green LED startup value:
- Red LED startup value:
- Board Temperature [°C]:
- External Temperature [°C]:
- External Temperature Offset [°C]:

At the bottom, there is another navigation bar with a back arrow, '2 / 3', and a 'Back' button.

Show VNC navigation buttons

If enabled system shows navigation options pen and shift buttons in VNC window.

Resize pictures in cache

Changes size of pictures in cache to avoid resizing during every screen redraw. This function optimizes speed of system.

Green LED startup value

Startup value of green status led after panel software reboot.

Red LED startup value

Startup value of red status led after panel software reboot.

Board Temperature [°C]

Temperature of PCB processor board.

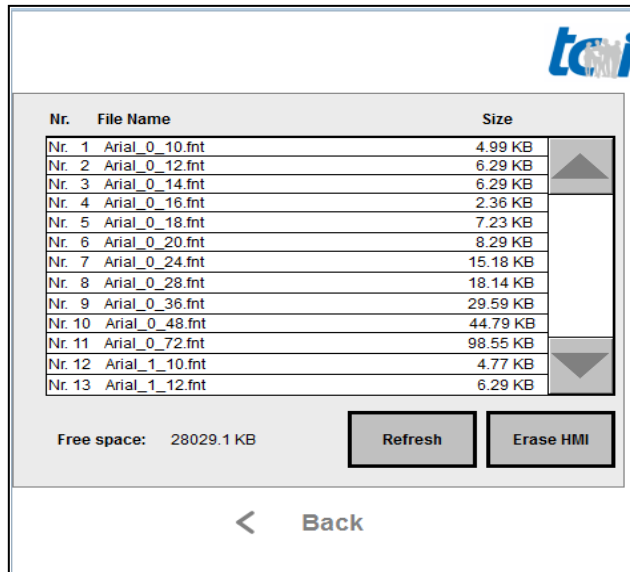
External Temperature [°C]

Temperature value of external temperature sensor.

External Temperature Offset [°C]

Set the value of offset so that the external temperature match the environment temperature.

Page: File System



The screenshot displays the 'File System' page with the 'tci' logo in the top right corner. It features a table listing files with columns for 'Nr.', 'File Name', and 'Size'. Below the table, the 'Free space' is shown as 28029.1 KB. There are two buttons: 'Refresh' and 'Erase HMI'. At the bottom, there is a 'Back' button with a left-pointing arrow.

Nr.	File Name	Size
Nr. 1	Arial_0_10.fnt	4.99 KB
Nr. 2	Arial_0_12.fnt	6.29 KB
Nr. 3	Arial_0_14.fnt	6.29 KB
Nr. 4	Arial_0_16.fnt	2.36 KB
Nr. 5	Arial_0_18.fnt	7.23 KB
Nr. 6	Arial_0_20.fnt	8.29 KB
Nr. 7	Arial_0_24.fnt	15.18 KB
Nr. 8	Arial_0_28.fnt	18.14 KB
Nr. 9	Arial_0_36.fnt	29.59 KB
Nr. 10	Arial_0_48.fnt	44.79 KB
Nr. 11	Arial_0_72.fnt	98.55 KB
Nr. 12	Arial_1_10.fnt	4.77 KB
Nr. 13	Arial_1_12.fnt	6.29 KB

Free space: 28029.1 KB

Refresh Erase HMI

< Back

Free space

Shows free space of internal flash memory.

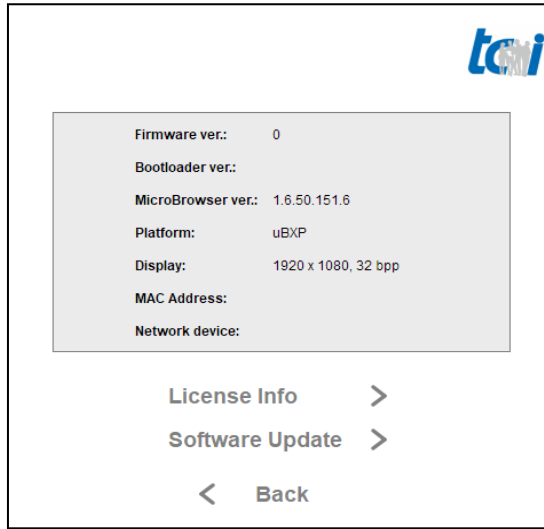
Refresh

Updates flash file system information.

Erase HMI

Deletes HMI files from internal flash memory file system.

Page: Info



Firmware version

Firmware version of the panel.

Bootloader version

Firmware version of bootloader.

MicroBrowser version

Version of the MicroBrowser.

Platform

Name of the platform, ex. MCB-XS6-WVGA.

Display

Screen resolution and color depth of the panel.

MAC Address

MAC address of the panel.

Network device

Name of the device inside the network.

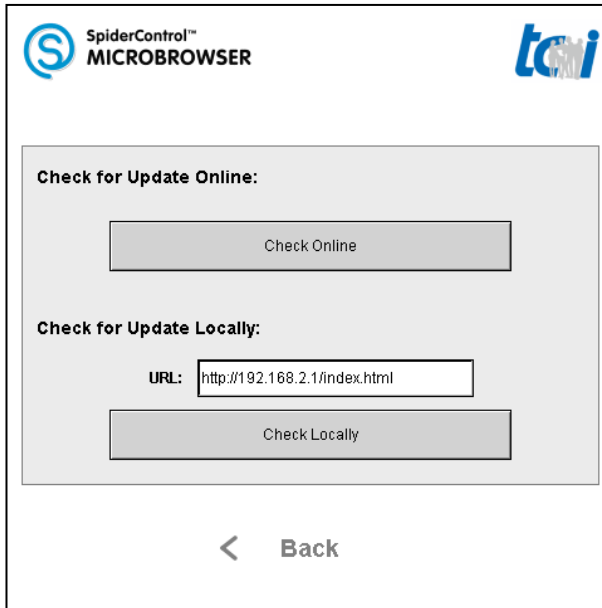
License Info

Shows license info text.

Software Update

Press this button to perform a software update of the panel.

Page: Software Update



The screenshot shows the SpiderControl™ MICROBROWSER interface. At the top left is the SpiderControl logo and text. At the top right is the 'twi' logo. The main content area is a light gray box containing two sections: 'Check for Update Online:' with a 'Check Online' button, and 'Check for Update Locally:' with a 'URL:' label, a text input field containing 'http://192.168.2.1/index.html', and a 'Check Locally' button. Below this box is a '< Back' button.

Check for Update Online

The panel will look on the internet if a new firmware is available.

Requirements: The panel is connected to the internet and a DNS server is configured.

Check for Update Locally

The panel will look on a specified host if a new firmware is available.

The latest firmware and the instruction can be found here:
<http://www.ininet.ch/public/MicroBrowser/Amena/index.html>

Requirements: The host is running and contains the needed files.

Performance Concerns

In the chapter you will find some hints and tricks to achieve the best performance on the embedded device.

Avoid Image Scaling

Image scaling can be time-consuming on embedded devices. Try to avoid it.

This can be achieved by following these points:

- Disable the automatic scaling in the advanced settings.
- Prepare your images in such a way that a scaling is not necessary, i.e. adapt the image size in an image editor.
- For SpiderControl: disable the image property "Adjust Image".
- For CoDeSys: set the image frame style to "fixed".

Period Time

The period time can affect the usability of the device. If the device needs more time for a cycle than the set period, the time for touch-handling can be very short. In this case consider incrementing the period time.

For SpiderControl: see "Project Setting" > "Period"
For CoDeSys: see "webvisu.htm" > "UPDATETIME"

CoDeSys Visualizations

Unsupported Features

The MicroBrowser supports visualizations designed with CoDeSys 2.x.

The following elements are NOT supported:

- ~~Font styles underline and strikethrough~~
- ~~Frame style other than solid~~
- Tooltip-display
- Keyboard shortcuts
- Run external program
- Watchlists / Receipts

Going Back To Setup Menu

There is a possibility to configure a button to go back to the setup page. To do so, configure a button with the intern command: "INTERN EXITPROGRAM" (in the tab "input->Execute program").

Special Variable in CoDeSys 2

The following variables can be defined in CoDeSys 2 to enable specific functions on the panel. They all begin with the prefix "SPC_MB_".

These variables must appear in a view in any way. For example in a rectangle element in the textdisplay-variable field. This element can be hidden. The best way is to insert these elements in the start view, mostly PLC_VISU.

A demo project showing the use of these variables is available at <http://ininet.ch/public/MicroBrowser/Amena/index.html>.

Variable: SPC_MB_Backlight

With the variable "SPC_MB_Backlight", it is possible to control the backlight of the embedded device.

CoDeSys definition: SPC_MB_Backlight:BOOL;

Variable value:

- 0: the device behaves as normal, i.e. it switches the backlight off after a given timeout.
- 1: the backlight stays permanently on.

Variable: SPC_MB_Clock

The panel doesn't have an internal clock. By defining the variable "SPC_MB_Clock", it is possible to set the time and date of the panel. This can be used for trend elements.

CoDeSys definition: SPC_MB_Clock:DT;

Variable value:

Variable: SPC_MB_GreenLed

With the variable "SPC_MB_GreenLed", it is possible to control the green status led of the embedded device.

CoDeSys definition: SPC_MB_GreenLed:BOOL;

Variable value:

- 0: disable the green led
- 1: enable the green led

Variable: SPC_MB_RedLed

With the variable "SPC_MB_RedLed", it is possible to control the red status led of the embedded device.

CoDeSys definition: SPC_MB_RedLed:BOOL;

Variable value:

- 0: disable the red led
- 1: enable the red led

Special Variable in CoDeSys 3

The following variables can be set in CoDeSys 3 to enable specific functions on the panel. You need to write a special command in a text field on webvisu. It is possible to use e.g. white text on white background to hide this message.

You need to display following string @@"Variable-Name"="Variable-Value" where Variable-Name is the name of variable and Variable-Value is value of variable.

Variable: @MB_LPC_Backlight

With the variable "@MB_LPC_Backlight", it is possible to control the backlight of the embedded device.

Example display text in CoDeSys 3: @@"@MB_LPC_Backlight"="1"

Variable value:

- 0: the device behaves as normal, i.e. it switches the backlight off after a given timeout.
- 1: the backlight stays permanently on.

Variable: @MB_LPC_Clock

The panel doesn't have an internal clock. By defining the variable "@MB_LPC_Clock", it is possible to set the time and date of the panel. This can be used for trend elements.

Write text in CoDeSys 3: @@"@MB_LPC_Clock"="1514764800"

Variable value:

The PLC application is responsible to periodically write the current time (Unix Timestamp) in this variable.

Variable: @MB_LPC_GreenLed

With the variable "@MB_LPC_GreenLed", it is possible to control the green status led of the embedded device.

Example display text in CoDeSys 3: @@"@MB_LPC_GreenLed"="1"

Variable value:

- 0: disable the green led
- 1: enable the green led

Variable: @MB_LPC_RedLed

With the variable "SPC_MB_RedLed", it is possible to control the red status led of the embedded device.

Example display text in CoDeSys 3: @@"@MB_LPC_RedLed"="1"

Variable value:

- 0: disable the red led
- 1: enable the red led