

Manual

Toolmonitor ElectronicLoad

GET IN **touch**
WITH SENSITIVE TESTING

Softline

Modline

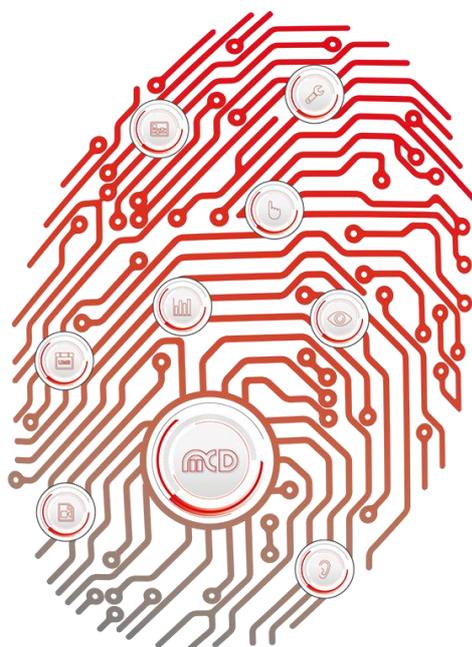
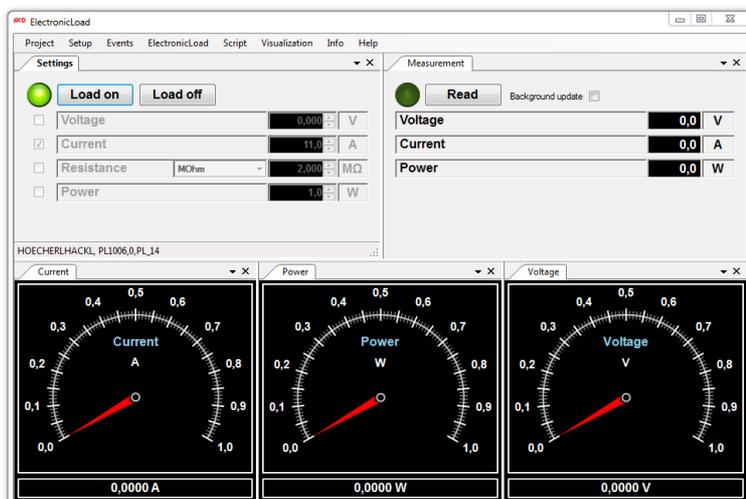
Conline

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Application



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1. General

1.1. Overview

The Toolmonitor ElectronicLoad is used to control different electronic loads. The desired load can be selected in the settings. The Toolmonitor automatically changes the views and modules for the selected load. The regulation mode can always be selected and parameterized with setpoints. Many loads also offer the options of carrying out measurement of different values. The measured values are displayed digitally or in an analog display.

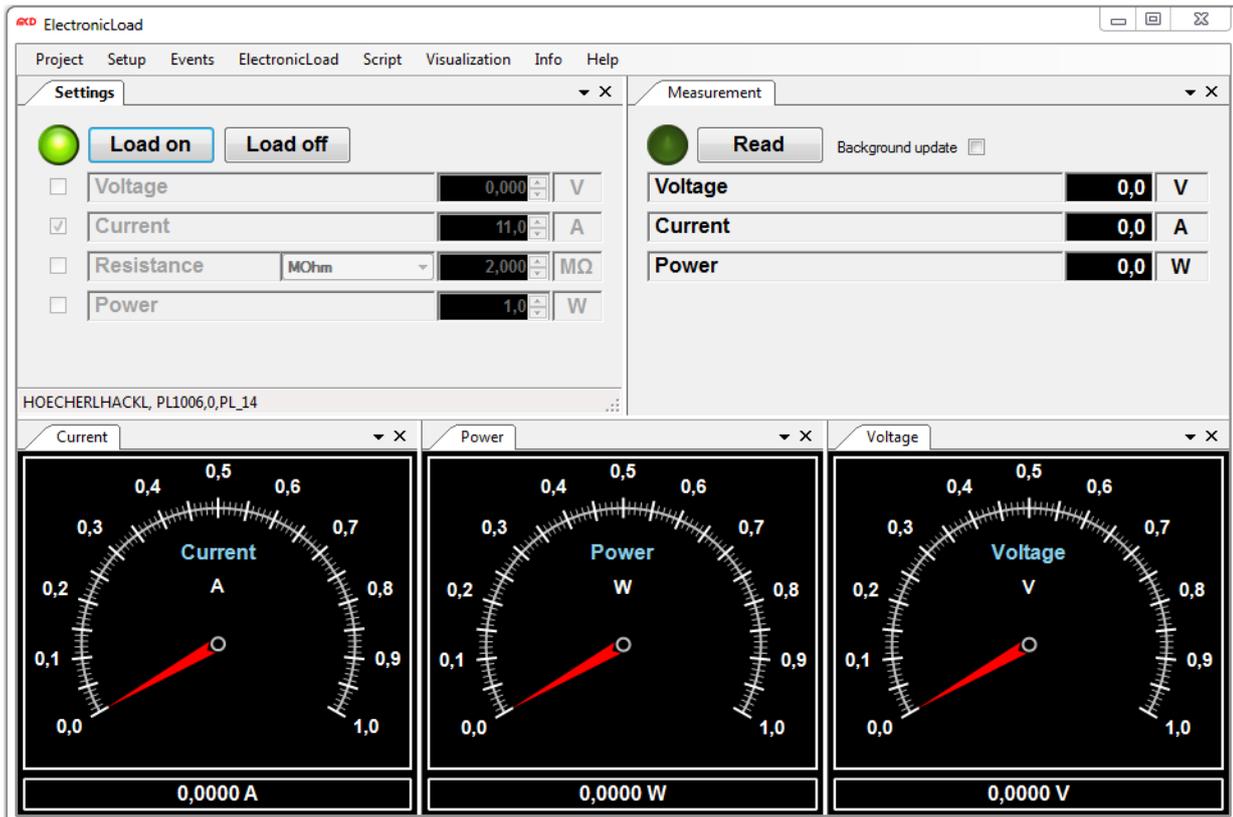


Figure 1: View of the Toolmonitor ElectronicLoad

Order number: # 150734

1.2. Features of the Software

- Different types of electronic loads can be controlled using the same software
- Setting of regulation mode and the desired levels
- Readout and display of measured values
- Analog display of measured values
- Same commands for different loads during remote control of the Toolmonitor

For third-party software, the Toolmonitor ElectronicLoad can be fully remote controlled. COM/DCOM or .Net-Assembly is used as an interface. This allows the Toolmonitor to be integrated in a large number of applications (Microsoft Visual Studio® (C#, C++, Visual Basic), Microsoft Office® (e.g. Excel®), Open Office®, LabView®, MCD TestManager CE).

2. Safety Instructions



The Toolmonitor ElectronicLoad is used to control different electronic loads. The program has been created and tested with the greatest possible care. However, all liability for any damages resulting from use of the program is still explicitly excluded. All trademarks or service marks that appear in the documentation are subject to intellectual property law and are the property of their various owners.

We explicitly draw your attention to the fact that the safety instructions for the electronic loads used must be followed!

Electronic loads, depending on their design, make it possible to connect high voltages and generate high currents. The connection and use of the loads as well as the use of the Toolmonitor ElectronicLoad are permitted only for trained technicians.

3. Installation of Software, Drivers

3.1. Software and Driver Installation

With Toolmonitor ElectronicLoad, different devices with different communication technologies can be used. The list below shows the supported technologies and the required drivers and installation steps.

3.1.1. ELR 91500-30

Interface: USB / VirtualComport (installed by default)

Driver: To use the ELR 91500-30 load, the USB driver must be installed for communication via the virtual COM port. In principle, a drive will be used that is already available on Windows operating systems (Windows XP and Windows 7, Home or Professional, 32 or 64-bit versions). If it is not, the USB driver can be requested from HEIDEN power GmbH.

3.1.2. PL1006

Interface: RS232 (optional)

Driver: No driver needed

3.2. Connecting the Hardware

Different devices can be used with Toolmonitor ElectronicLoad. The following chapters show the different connection types.

3.2.1. ELR 91500-30

Communication: USB cable connector: type A to type B

Power connection: Screw terminals L1 / L2 / L3 / N / PE

3.2.2. PL1006

Communication: H&H 9-pin D-SUB (use only the cable included! Null modem cables cannot be used!)

Power connection: 230 V IEC 320 power connection

3.3. Starting the Installed Software

Therefore a double - click on the file ElectronicLoadMonitor.exe is necessary. No installer is required.

4. Brief Introduction to the Operation

1. Start the Toolmonitor
2. Select the desired load under *Setup* → *Options* (the “Active“ and „Auto open“ checkboxes must be checked)
3. Parameterize protection levels. For protection level = 0 V / A / W the load would immediately generate an overflow error
4. Confirm setup with OK
5. In the *Setting menu*, you can now use the checkboxes to activate the regulation mode
6. Depending on the load, the setpoints can be parameterized
7. The “load on“ button can be used to activate the load
8. In the *Measurement menu*, measurement can be activated with the “read“ button or continuously using the background update box.

5. Software Manual

5.1. Heiden power GmbH / ELR91500-30

5.1.1. Settings

In the *Settings menu*, the regulation mode can be specified for the electronic load along with the setpoints. The load can also be enabled or disabled using the “Load on” and “Load off” buttons. The setpoints can only be changed when the load is disabled. When the load is active, the input controls are disabled.

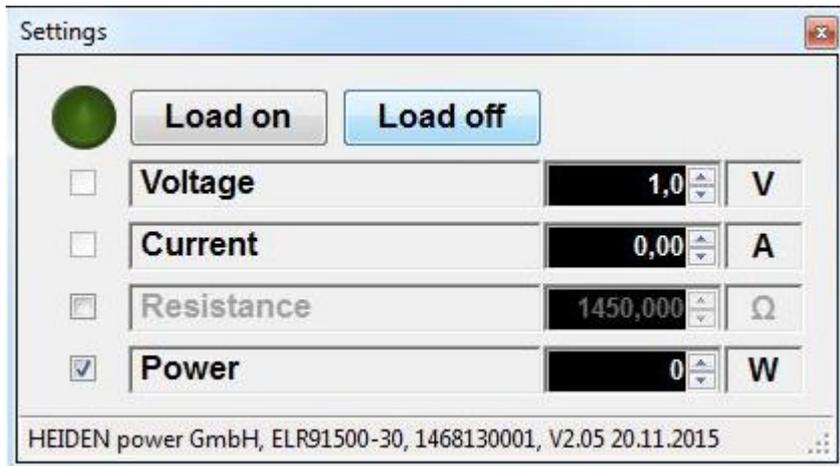


Figure 2: Settings to Configure and Activate the ELR91500-30 Load

The ELR 91500-30 electronic load can be used in two different regulation modes:

1. UIP (Power)

Here, regulation uses setpoints for voltage, current, and power after internal regulation.

IMPORTANT:

Not only the setpoint for the power is used for regulation, but also the voltage and current setpoints, depending on the momentary value.

2. UIR (Resistance)

Here, regulation uses setpoints for voltage, current, power, and resistance after internal regulation.

IMPORTANT:

Not only the setpoint for the resistance is used for regulation, but also the voltage, current, and power setpoints, depending on the momentary value.

If the *power mode* is selected, the input option for the “Resistance” setpoint is disabled, since this is no longer used for regulation. If the *resistance mode* is activated, the setpoint for the resistance can be changed again.

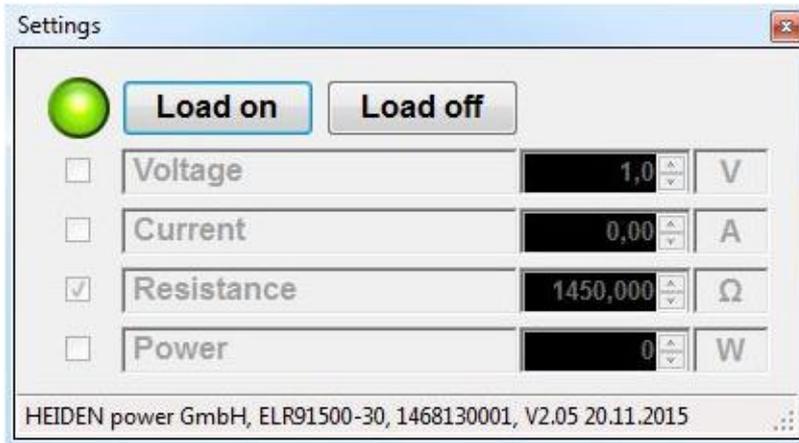


Figure 3: Settings - Activated Load

Setting ranges for the ELR 91500-30 electronic load:

- Voltage: 0 - 1500 V
- Current: 0 - 30 A
- Power: 0 - 10,500 W
- Resistance: 1.2 - 1,450 ohms

5.1.2. Measurement

The *Measurement menu* shows the measured values read out from the ELR 91500-30 electronic load. The "Read" button can also be used to start a single measurement. Check the "Background update" box to carry out continuous recording of measured values. Measured value recording is indicated by lighting the LED.

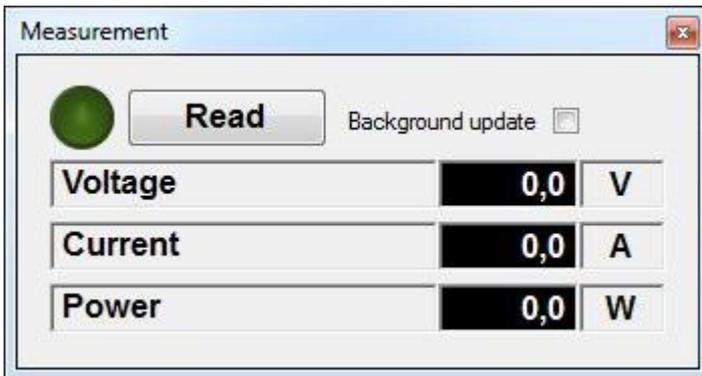


Figure 4: Measurement Menu for Recording Measured Values

The electronic load provides the following measured values:

- Voltage
- Current
- Power

IMPORTANT:

A new measured value is recorded only every 2 ms! This time must be used as waiting time in an application to ensure that only current measured values are read out.

5.1.3. Options

In the setting, the combo box “type” can be used to select the desired electronic load. The required connection parameters are already stored in the software. The user simply needs to configure the COM port, used to connect the device to the PC. For working communication, the USB driver should first be installed (see chapter 5.1.4).

The “Active” checkbox allows the Toolmonitor to open without an error message if there is no device connected. Communication can only take place when this box is checked.

If the “Auto open” box is checked, the COM port for the device is automatically opened when the Toolmonitor starts. This checkbox should be activated by default.

Categories	Electronic load type	
<ul style="list-style-type: none"> General Logger Script Visualization Electronic load type 	<p>Type: ELR91500-30</p> <p>Communication options</p> <p>COM port: 1 <small>Virtual COM Port (CDC driver) Please use driver supplied with device</small></p> <p><input checked="" type="checkbox"/> Active</p> <p><input checked="" type="checkbox"/> Auto open</p> <p><input type="checkbox"/> Check status before measurement</p> <p>Protection levels</p> <p>Voltage maximum: 13,0 V</p> <p>Current maximum: 3,0 A</p> <p>Power maximum: 25 W</p> <p>Action if over voltage, current or power detection is active: ALARM</p>	
<p>Electronic load type</p>	<p style="text-align: right;"> <input type="button" value="OK"/> <input type="button" value="Cancel"/> </p>	

Figure 5: Options for Selected Load ELR91500-30

The checkbox “*Check status before measurement*” can be used to carry out an additional check of the connected device to ensure that it is active and ready to operate. The functionality of the device is checked even if this box is not checked. However, if the box is checked, there is another explicit query of its status before a measurement is carried out.

The setting “**Protection levels**” can be used to set limits for the individual parameters. These are used as a safety shutoff when using the electronic load. Different action levels can also be selected in the combo box to define what should happen when one of the values is exceeded. By default, the “*ALARM*” property should be selected here. An error message is then displayed in the Toolmonitor and on the display of the device. The load is also disabled in order to establish a safe state.

5.1.4. Installing USB Drivers

To use the ELR 91500-30 load, the USB driver must be installed for communication via the virtual COM port. In principle, a drive will be used that is already available on Windows operating systems (Windows XP and Windows 7, Home or Professional, 32 or 64-bit versions). If it is not, the USB driver can be requested from HEIDEN power GmbH.

5.2. H & H GmbH / PL1006

5.2.1. Settings

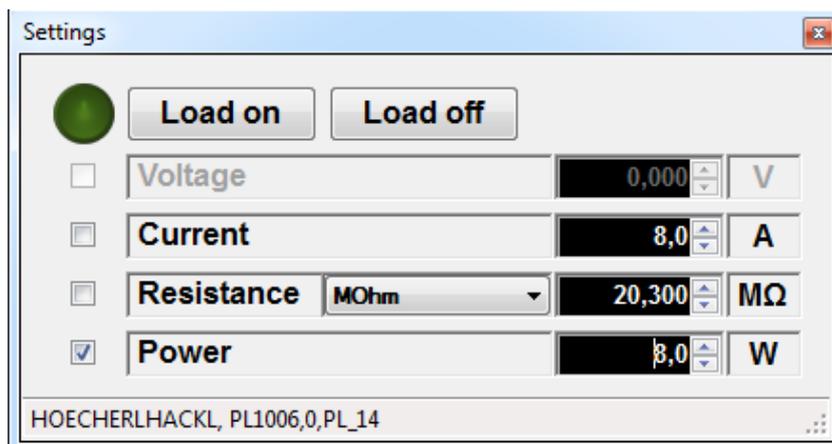


Figure 6: Settings to Configure and Activate the PL1006 Load

In the Settings menu, the regulation mode can be specified for the electronic load along with the setpoints. The load can also be enabled or disabled using the “*Load on*” and “*Load off*” buttons. The setpoints can only be changed when the load is disabled. When the load is active, the input controls are disabled.

The PL1006 electronic load can be used in two different regulation modes:

- **Current:**
Regulates the load to the specified current value.
- **Resistance:**
Regulates the load to the specified resistance value.
- **Power:**
This mode can only be used during remote control via serial interface. The mode cannot be selected or activated by a manual operation on the device. A maximum current can also be specified in the options of the Toolmonitor that limits the current during power regulation.

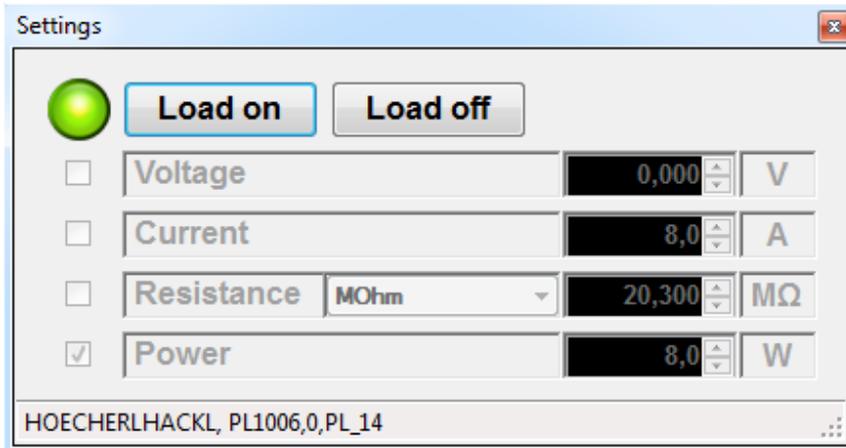


Figure 7: Settings, when the Load is Active

Setting ranges of the PL1006 electronic load:

- Voltage: 0 - 60 V
- Current: 0 - 100 A
- Power: 0 - 1800 W
- Resistance: 0.05 - 9.9E+37 ohms

5.2.2. Measurement

The Measurement menu shows the measured values read out from the PL1006 electronic load. The “Read” button can also be used to start a single measurement. Check the “Background update” box to carry out continuous recording of measured values. Measured value recording is indicated by lighting the LED.

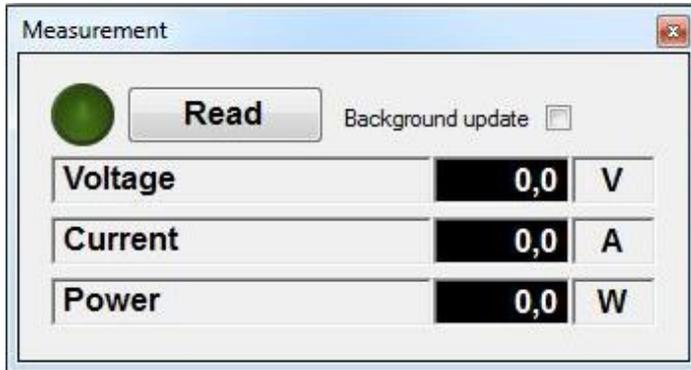


Figure 8: Measurement Menu for Recording Measured Values

The electronic load provides the following measured values:

- Voltage
- Current
- Power

IMPORTANT:

A new measured value is recorded only every 300 ms! This time must be used as waiting time in an application to ensure that only current measured values are read out.

5.2.3. Options

In the settings, the combo box “type” can be used to select the desired electronic load. The required connection parameters are already stored in the software. The user simply needs to configure the COM port used to connect the device to the PC

For functional communications, the connection settings on the back of the electronic load (see the PL load operating instructions for switch settings) must match the settings in the options.

- Baud rate: 9600 baud
- Data bits: 8
- Parity: none
- Stop bits: 1
- Handshake: none

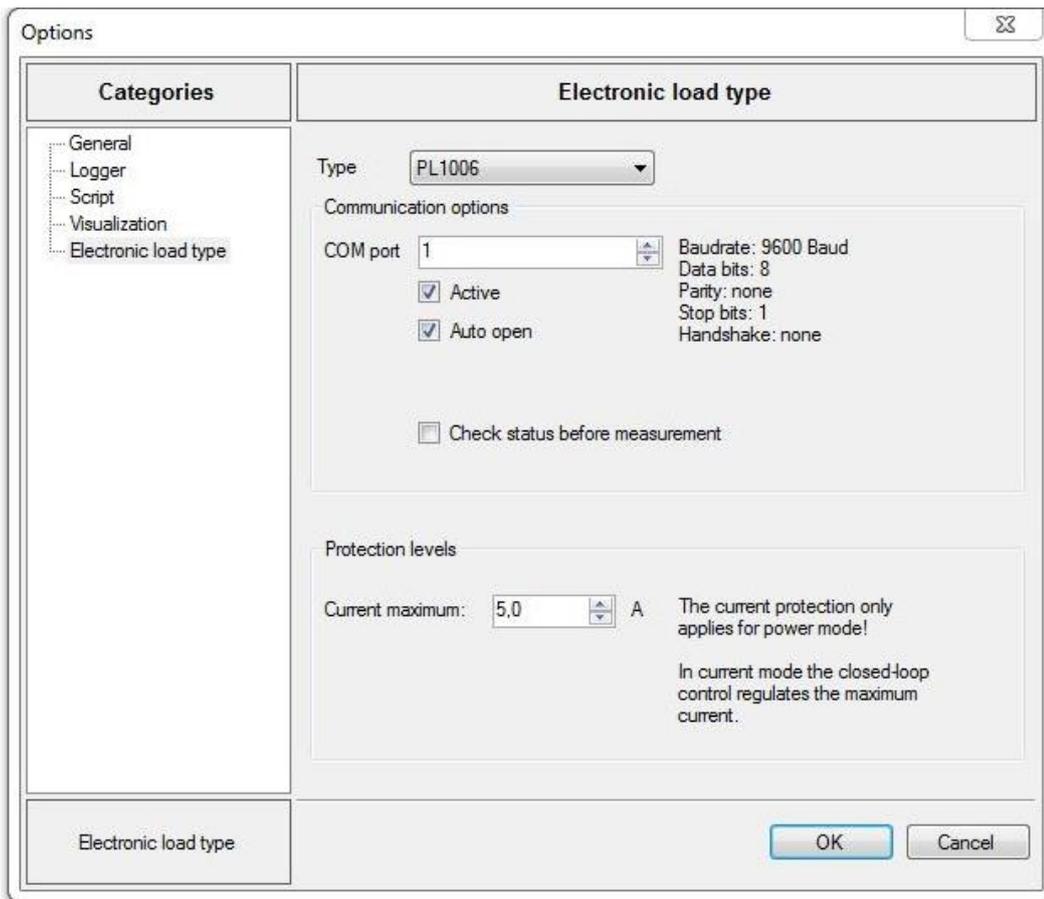


Figure 9: Options for Selected Load PL1006

The checkbox *“Active”* allows the Toolmonitor to open without an error message if there is no device connected. Communication can only take place when this box is checked. If the checkbox *“Auto open”* is checked, the COM port for the device is automatically opened when the Toolmonitor starts. This checkbox should be activated by default.

The checkbox *“Check status before measurement”* can be used to carry out an additional check of the connected device to ensure that it is active and ready to operate. The functionality of the device is checked even if this box is not checked. However, if the box is checked, there is another explicit query of its status before a measurement is carried out.

The setting *“Protection levels”* can be used to set limits for the individual parameters. These are used as a safety shutoff when using the electronic load. In the case of the PL1006 load, a current limit can be configured for power mode. When using resistance mode, no limit can be specified, because the PL1006 load controls this mode in hardware (see the operating instructions for the PL1006 load).

5.3. Programming

5.3.1. Settings ELR91500-30

ControlEvents

= Name for controlling actions of the Toolmonitor ElectronicLoad.

This name is used to start actions to control the system. Events are called without parameters. To do this, the desired name of the enum entry is passed to the SetEvent() function as a string.

Example:

```
SetEvent("Settings.LoadOn");
```

Enumeration Values:

LoadOn	Activate load input.
LoadOff	Disable load input.
Reset	Reset the settings to default values.

SettingsParameter

= Name to set parameters of the Toolmonitor ElectronicLoad.

Use these names to change settings in the *Settings module* of the Toolmonitor.

Example:

```
SetValue("Settings.VoltageLevel", 3.5);
```

Enumeration Values:

SettingsMode	Regulation mode for the connected load. Values: voltage, current, power, resistance.
VoltageLevel	Level for voltage - regulated mode (in V)
CurrentLevel	Level for current - regulated mode (in A)
PowerLevel	Level for power - regulated mode (in W)
ResistanceLevel	Level for resistance - regulated mode (in ohms)

5.3.2. Measurement with the ELR91500-30

= Name to read out measured values from the Toolmonitor ElectronicLoad.

These names can be used to read out measured values. To do this, the desired name of the enum entry is passed to the GetValue() function as a string, as shown in the example.

Examples:

Retrieving measured values:

```
GetValue("Measurement.CurrentChannel");  
GetValue("Measurement.CurrentChannel.Value");
```

The *stored function* can be used to read out the last value measured without triggering a new measurement.

Warning: The measured value of the last record is returned, not the currently valid value!

```
GetValue("Measurement.CurrentChannel.Stored");
```

Enumeration Values

Value	Readout of current, voltage, and power: CurrentChannel.Value, VoltageChannel.Value, PowerChannel.Value.
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5.3.3. Settings PL1006

ControlEvents

= name for controlling actions of the Toolmonitor ElectronicLoad.

This name is used to start actions to control the system. Events are called without parameters. To do this, the desired name of the enum entry is passed to the SetEvent() function as a string.

Example:

```
SetEvent("Settings.LoadOn");
```

Enumeration Values

LoadOn	Turns on the output voltage.
LoadOff	Turns off the output voltage.
Reset	Reset the settings to default values.

SettingsParameter

= name to set parameters of the Toolmonitor ElectronicLoad.

Use these names to change settings in the Settings module of the Toolmonitor.

Example:

```
SetValue("Settings.VoltageLevel", 3.5);
```

Enumeration values

SettingsMode	Regulation for the connected load. Values: power (UIP mode), resistance (UIR mode)
VoltageLevel	Level for voltage - regulated mode (in V)
CurrentLevel	Level for current - regulated mode (in A)
PowerLevel	Level for power- regulated mode (in W)
ResistanceLevel	Level for resistance - regulated mode (in ohms)

5.3.4. Measurement with the PL1006

= name to read out measured values from the Toolmonitor ElectronicLoad.

These names can be used to read out measured values. To do this, the desired name of the enum entry is passed to the GetValue() function as a string, as shown in the example.

Examples:

Retrieving measured values:

```
GetValue("Measurement.Current");  
GetValue("Measurement.CurrentChannel.Value");
```

The *stored function* can be used to read out the last value measured without triggering a new measurement.

Warning: The measured value of the last record is returned, not the currently valid value!

```
GetValue("Measurement.CurrentChannel.Stored");
```

Enumeration Values

Value	Readout of current, voltage, and power: CurrentChannel.Value, VoltageChannel.Value, PowerChannel.Value.
-------	---