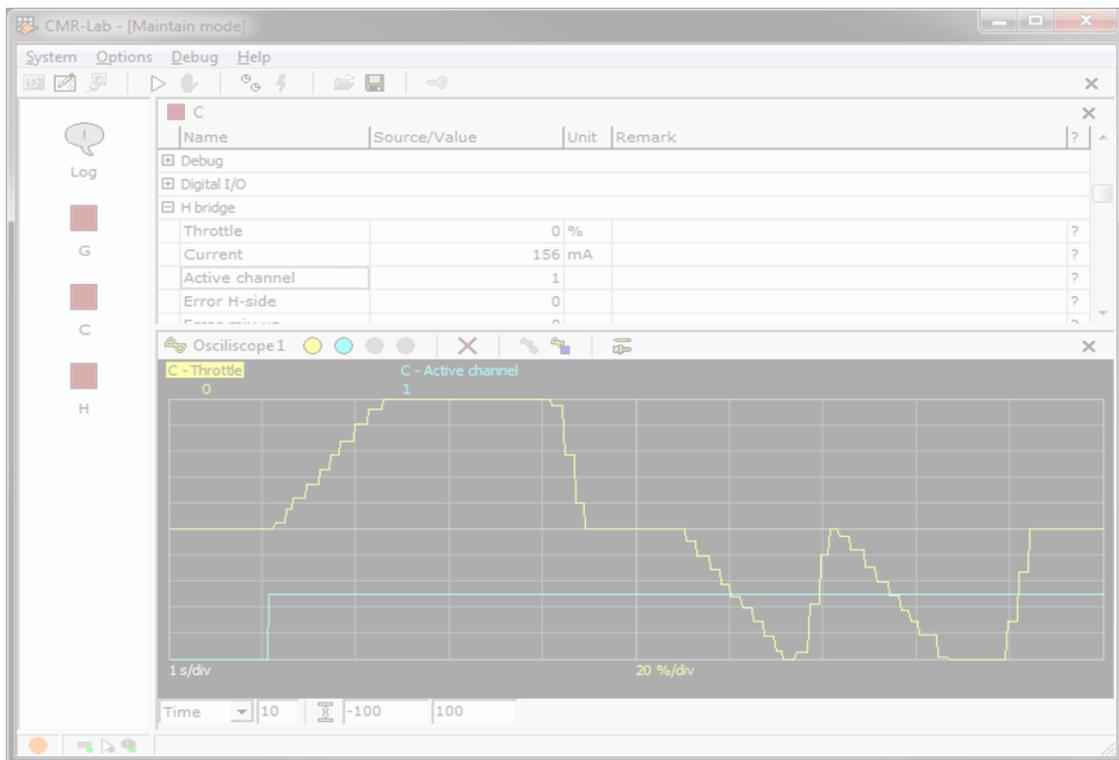




USER MANUAL RST10

GENERAL FEATURES





About REAC

REAC is passionate about helping people in their daily lives, and by providing a wide range of advanced power solutions suitable for many different applications, we hope to make people's lives a little bit easier. Our aim is to offer our clients an excellent service, backed up by experience and know-how in the application of advanced motion systems.

REAC's power solutions contain compact and strong electrical actuators, lift and tilt systems, control boxes and hand controls. We know that our customers have different needs and therefore our products are designed to be customized according to their application's specific requirements.

We are confident to say that we can solve a wide range of motion problems, so please challenge us!

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Table of Content

1	INTRODUCTION.....	1
1.1	ABOUT THIS MANUAL	1
2	CONCEPT	1
2.1	SELF-DESCRIPTIVE APPROACH.....	1
2.2	TOOLS.....	1
3	TOOLS	2
3.1	NODE TOOL	2
3.2	BANNER TOOL.....	3
3.3	OSCILLOSCOPE.....	4
3.4	LOG VIEW	7
4	THE STATUS BAR	8
5	WINDOWS	8
6	ADVANCED OPTIONS.....	9



1 Introduction

1.1 About this manual

The aim with this manual is to describe features of the PC tool RST10 in a more general way.

RST10 can be used for setting parameters, executing functions, checking event log, checking error flags and trouble shooting.

Before reading this document, it is recommended to first read the user manual for the applicable control box. There you will find information like

- If the RST10 tool is possible to use in the first place.
- What cable to use.
- Where to connect the cable.
- How to install drivers.
- How to connect to a port.
- How to do some common tasks.

This document is intended to describe what can be done in the RST10 at a general level. Without understanding of the basic functionality of the control boxes of interest first, this document will be a bit abstract.

2 Concept

2.1 Self-descriptive approach

All units in the RCS family are self-descriptive. This means that RST10 can ask a control box about what parameters, status registers and functions it has, and then build up a view dynamically, which replicates all features for each system.

The downside of this is that it takes a little while for the PC to gather everything when connected. On the upside, only one general tool is needed. This means that it is not necessary to know exactly what kind of control box that is used in order to download the correct PC tool variant. Another upside is that there is no need to learn many different tools.

2.2 Tools

RST10 is a toolbox that contains several tools for viewing and handling settings and other data.

The tools are opened via actions in the program main menu or from other tools.

Each tool has its own tool menu, and its own toolbar, which contains an appropriate set of options. Tools might also have a secondary extra lower tool bar.

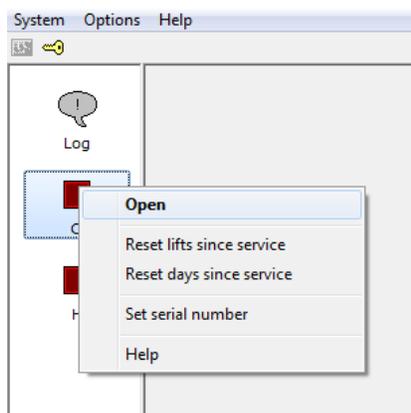
Every tool menu has at least a close option, and a corresponding close button, used for closing the tool.

3 Tools

3.1 Node tool

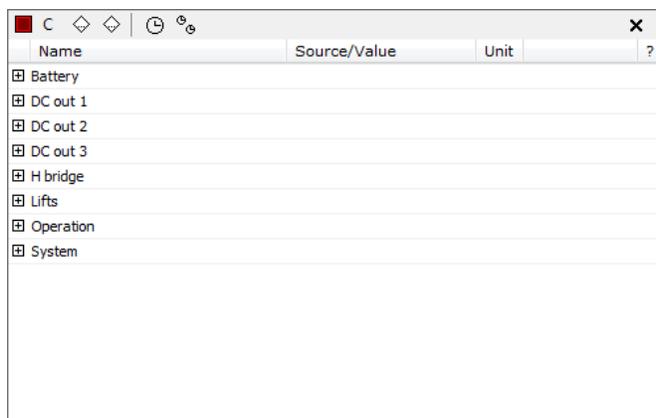
This is an important tool, where most features regarding a node can be found. Here status registers and parameters can be viewed, parameters can be set and functions can be run. Many other tools are engaged from this tool.

To open a node right click on a node icon in the left pane, or double click it.



When connecting to a system with only one single node, the node tool will open up automatically showing features for this node.

This is how a typical view in the node tool will look.





To open a group press on the plus sign, or click anywhere on the group name. When the group expands, showing its members, it also changes the plus sign to a minus sign. To collapse a group press the minus sign, or anywhere on the group name.

[-] Battery				
Estimated charge level		2900	mAh	?
Presumed capacity		2900	mAh	?
Charger connected		0		?
Battery connected		1		?
[-] DC out 1				
[-] DC out 2				
[-] DC out 3				
[-] H bridge				
[-] Lifts				
[-] Operation				
[-] System				

The columns are made up of:

- an explanatory name
- the current value
- a physical unit (if applicable)
- a question mark, that acts like a button for bringing up some help text.

The help text for each status register and parameter can also be viewed by right clicking on a name and then select Help.

Parameters have a colon symbol in front of the value. Parameters can be edited by selecting the value, enter a new value, and press Enter.

It is also possible to increase and decrease the value by selecting the value, and then press Shift-↑ or Shift-↓. By holding down these key combinations, the value can be increased or decreased continuously.



Some parameters may have been overridden and set internally in a certain product configuration, and they are therefore not possible to change using this tool. These have the text "Set internally" in front of the value.

3.2 Banner tool

If there is a need for seeing how a value behaves in real time, during real usage, when trouble shooting or fine tuning something, it is possible to open any status register in a large banner, where it will be possible to see the numbers in real time even if there is some distance between the system and where the computer running RST10 is placed.

To open a status register in the Banner tool, right click on the status register name or the value, and select Open in banner, or just double click.

Regular input throttle 1	:	50 %
Regular input throttle 2	:	100 %
Regular input throttle 3	:	100 %
System		
Voltage +24 V supply	:	26929 mV
CPU temperature	:	5 °C

Open in banner

Open in oscilloscope

Copy

Help



It is also possible to open a parameter the same way, by right clicking on the parameter name and select Open in banner, or just double click. (Not on the value.)

You can open and view as many values as you like.

3.3 Oscilloscope

Another way of looking at how values behave in real time in a real system is to open them up in the Oscilloscope tool.

To open the oscilloscope tool, right clicking on the status register name, or the value, and then select Open in oscilloscope.

DC out 2	
DC out 3	
H bridge	
Throttle	
Motor c	
Consum	
Error r	
Error H	
Error d	
Error supply	
Lifts	
Operation	
System	

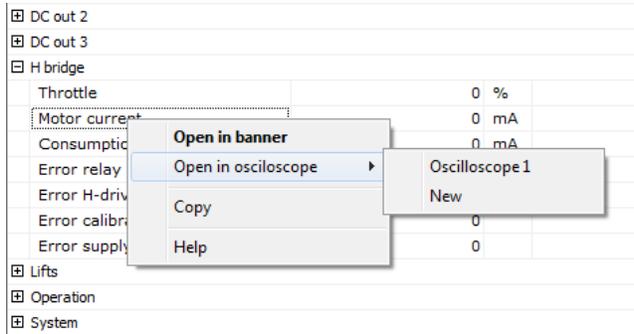
Open in banner

Open in oscilloscope

Copy

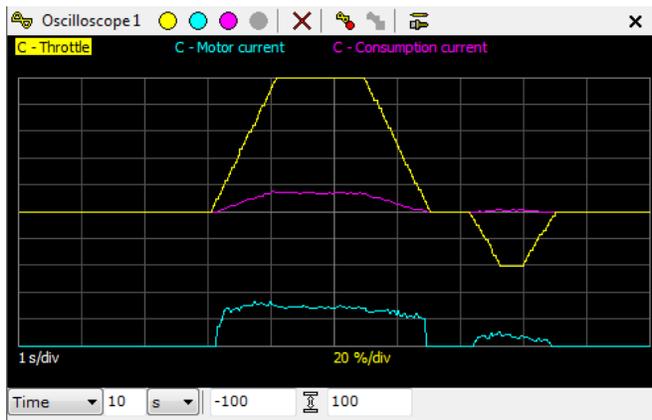
Help

However, if one or more oscilloscope tools are open already, then when right clicking on the status register name, or on the value, an extra choice will show up at Open in oscilloscope. It can then either be opened in one already opened oscilloscope, or it can be opened in a new one.

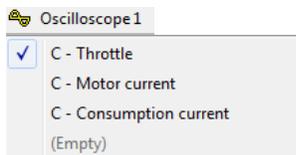


Up to four values can be shown in one oscilloscope tool.

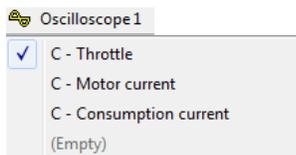
Here Throttle, Motor current and Consumption current, are opened in one oscilloscope tool.



In this example the oscilloscope channel which shows Throttle is selected. This can be determined by looking at which one of the text labels at the top of the black area is reversed. It can also be determined by looking at the tools menu, where the currently selected one will have a checkbox.



To select another channel, use the oscilloscope channel buttons in the tools top toolbar, or select it in the tools menu.





In the center at the bottom of the black area the scaling, along the Y-axis, for the currently selected oscilloscope channel is shown.

20 %/div

The scaling of the currently selected oscilloscope channel cannot be set directly. Instead there are two fields in the bottom toolbar where a range is set.

-100 100

The range can be reset by pressing the Reset button on the tools bottom toolbar, or select reset in the tool menu.



The currently selected channel can be deleted from the oscilloscope by pressing the Delete button at the tools top toolbar, or by choosing Delete in the tools menu.



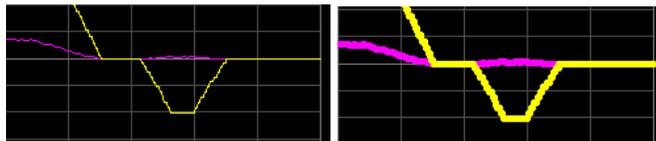
Oscilloscope 1
Delete

To make the oscilloscope more useful for seeing how a value behaves in real time, during real usage, when trouble shooting or when fine tuning something some distance away from the computer running RST10, it is possible to make the lines thicker. To do this press the Line thickness button on the tools top toolbar, or select Line thickness in the tools menu.

To toggle back to regular line thickness, select Line thickness once more.



Oscilloscope 1
Line thickness



To the left at the bottom of the black area the scaling, along the X-axis is shown. Usually it is time based. And when time based it is indirectly derived from then time set in the tools lower toolbar.

1 s/div

The time scaling cannot be adjusted directly. Instead there is a setting for how long time that will be displayed. And it can also be geared to work at different time scales, by selecting another time unit.

10 s

Instead of having time as X-axis, any channel can be used as the X-axis. When using a channel as the X-axis it will not be drawn as Y-axis. This feature is only possible when having two or more channels active in the oscilloscope. Even when using a channel as X-axis, the time setting is still applicable, as it then will control the length of "the tail".

Time

In order to stop the oscilloscope, to be able to look at something just recorded, press the Stop button at the tools top toolbar, or select Stop in the tools menu. To start again press the Start button at the tools top toolbar, or select Start in the tools menu.



When starting the oscilloscope over, it will always clear all old data.

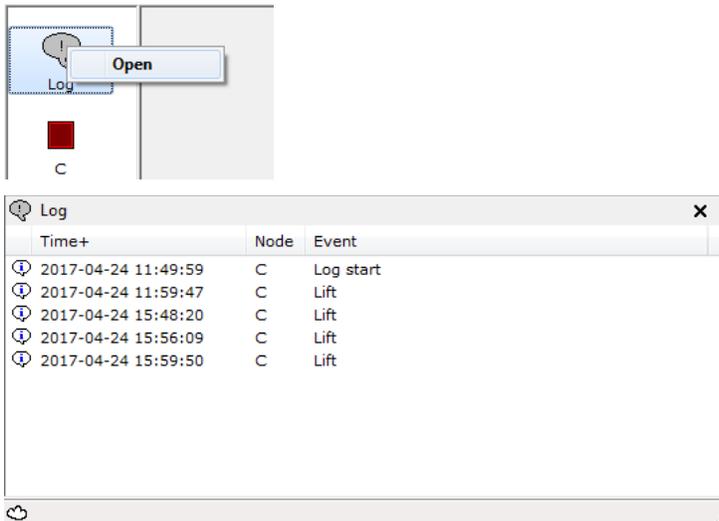


If one curve is hidden, or partially hidden, it can be brought to the front by selecting that oscilloscope channel.

3.4 Log view

This is tool for viewing an aggregated event log from all units.

To open the log right click on Log icon in the left pane and select Open, or double click it.





4 The status bar

At the bottom of the main screen there is a status bar.

To the left, right of the orange dot, are three small symbols. The first one indicates communication status, green if online. The next one will turn red when there are values that have been changed, but are not written to permanent storage yet. The last one will show if there are any warnings or errors in the aggregated log.

In the area to the right of the tree symbols, it will be shown a hint to what various menu options do, when hovering over them.

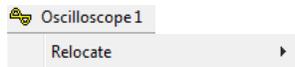
At the bottom right corner there is an area where the window can be grabbed and easily be resized.

5 Windows

The RST10 can have multiple windows. There is always a main window, containing the main menu, a system pane, and various tools. If any help has been opened that will be shown in a separate window. In addition, there might be other secondary windows displaying some tools.

When tools are opened, they usually displayed in the same window. If there already are one or more tools opened in a window, the new tool will take some space from the other tools and squeeze itself in.

Tools can then be moved into new windows, or grouped together with other tools in an already existing window, by using Relocate in the tools menu.



By pressing ctrl+tab it is possible to cycle through all RST10 windows. To cycle backwards, ctrl+shift+tab can be used.

Each secondary window has a small button, in the bottom left corner of the status area, with a small cloud. By clicking on this, that window will float above other windows. In order to release this feature, just press it again.





6 Advanced options

Some parameters, status registers and functions are hidden for the average user of the tool.

The things classified as advanced is generally things that will need some explanation to be understood and used. Things that are not explained in the user manual, and which are not considered as common knowledge among people used to simple motor control systems.

To see and use advanced options, they need to be unlocked using a code. The built in code is: 05326502.

The code is not a secret, it exists to ensure that these features are not used by mistake.

When unlocked, and allowed to show all, then groups in the node tool might get another level besides the plus/minus-sign which can be unfolded. If a group have some advanced values that are possible to unfold and view, then a small double arrow pointing down will be displayed.

⊞ DC out 2	
⊞ DC out 3	
⊞ Hbridge	
Throttle	
Motor current	
Consumption current	
Error relay	
Error H-driver	
Error calibration	
Error supply	
⊞	
⊞ Lifts	
⊞ Operation	

When unfolded, the double arrow will be replaced by another double arrow pointing upward, that can be used to fold in the advanced values again.

Once unlocked it is also possible to add some other code, or add an empty code, making it easier to enter next time using RST10 on the same computer. This is done in Options – Manage key certificates – Create. There you will only have to option to create yet another “show all” code key.



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