MASTERVOLT

USERS MANUAL / GEBRUIKERSHANDLEIDING / BETRIEBSANLEITUNG
MANUEL D'UTILISATION / MANUAL DE UTILIZACION

MasterBus – USB interface

Communication interface between your PC and the MasterBus network

MASTERVOLT
Snijdersbergweg 93,
1105 AN Amsterdam
The Netherlands
Tel.: +31-20-3422100
Fax.: +31-20-6971006
www.mastervolt.com

Copyright © 2008 Mastervolt, v 2.1 September 2008

MASTERVOLT

CONTENTS:

1   GENERAL INFORMATION

1.1   USE OF THIS MANUAL

This manual serves as a guideline for the safe and effective operation, maintenance and possible correction of minor malfunctions of the *MasterBus - USB interface.*
This manual is valid for the following model:

Description	Part number
MasterBus - USB interface	77030100

Keep this manual at a secure place!
The English version has 12 pages.

1.2   IMPORTANT TO KNOW

Incorrect installation may lead to damage to the MasterBus-USB interface, the connected Mastervolt devices and/or the connected PC. Be sure that all equipment is disconnected from any power source during installation.

1.3   GUARANTEE SPECIFICATIONS

Mastervolt guarantees that this product was built according to the legally applicable standards and stipulations. If you fail to act in accordance with the regulations, instructions and stipulations in this user's manual, damage can occur and/or the product will not fulfil the specifications. This may mean that the guarantee will become null and void.

IMPORTANT: Additional warranty agreements, like "Mastervolt system warranty" may contain restrictions which forbid resetting of historical data

1.4   LIABILITY

Mastervolt can accept no liability for:
- Consequential damage resulting from the use of the MasterBus - USB interface and/or the MasterAdjust software;
- Possible errors in the included manuals and the consequences of these.
- Use that is inconsistent with the purpose of the product

2 MASTERBUS

2.1 WHAT IS MASTERBUS?

All devices that are suitable for MasterBus are marked by the MasterBus symbol.

MasterBus is a fully decentralized data network for communication between the different Mastervolt system devices. It is a CAN-bus based communication network which has proven itself as a reliable bus-system in automotive applications. MasterBus is used as power management system for all connected devices, such as the inverter, battery charger, generator and many more. This gives the possibility for communication between the connected devices, for instance to start the generator when the batteries are low.

MasterBus reduces complexity of electrical systems by using UTP patch cables. All system components are simply chained together. Therefore each device is equipped with two MasterBus data ports. When two or more devices are connected to each other through these data ports, they form a local data network, called the MasterBus. The results are a reduction of material costs as only a few electrical cables are needed and less installation time.

For central monitoring and control of the connected devices Mastervolt offers a wide range of panels which show full status information of your electrical system at a glance and a push of a button. Four different panels are available, from the small Mastervision compatible 120 x 65mm LCD screen up to the full colour MasterView System panel. All monitoring panels can be used for monitoring, control and configuration of all connected MasterBus equipment.

New devices can be added to the existing network in a very easy way by just extending the network. This gives the MasterBus network a high degree of flexibility for extended system configuration, not only today, but in the future as well!
Mastervolt also offers several interfaces, making even non-MasterBus devices suitable to operate in the MasterBus network
For direct communication between the MasterBus network and a product which is not from Mastervolt, the Modbus interface is recommended.

CAUTION: Never connect a non-MasterBus device to the MasterBus network directly! This will void warranty of all MasterBus devices connected.

2.2 HOW TO SET UP A MASTERBUS NETWORK

Each device that is suitable for the MasterBus network is equipped with two data ports. When two or more devices are connected to each other through these ports, they form a local data network, called the MasterBus.
Keep the following rules in mind:

Connections between the devices are made by standard straight UTP patch cables. Mastervolt can supply these cables. These cables are also commonly available at computer supply stores.
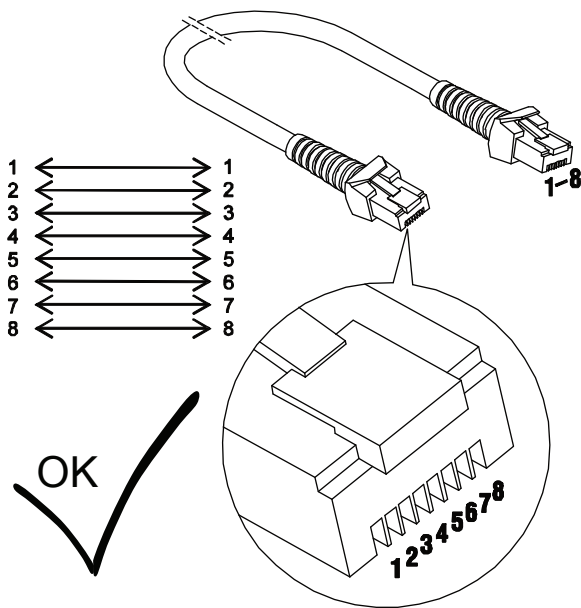

OK

Figure 1

As with all high speed data networks, MasterBus needs a terminating device on both ends of the network
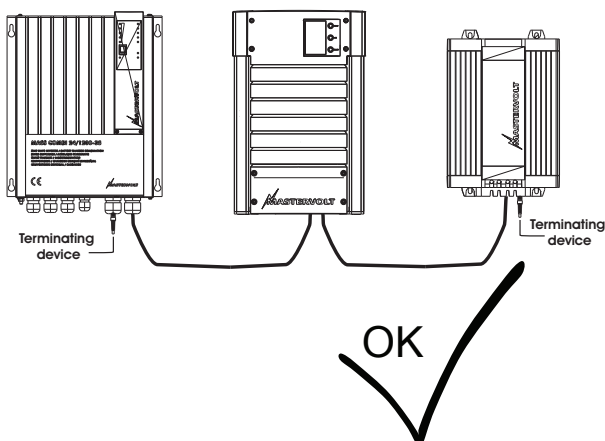

Terminating device

Terminating device

OK

Figure 2

The electric power for the network comes from the connected devices.
At least one device in the network should have powering capabilities (see specifications).
One powering device can power up to three non-powering devices.
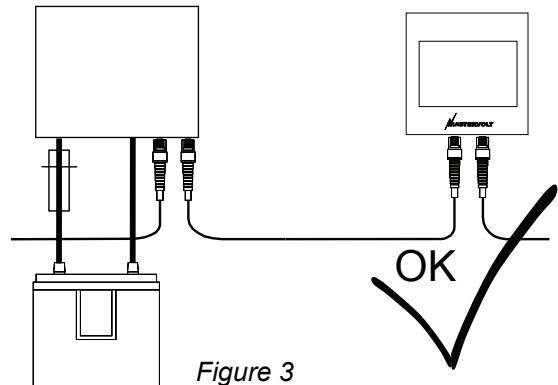As all powering devices are galvanically isolated, multiple powering devices are allowed
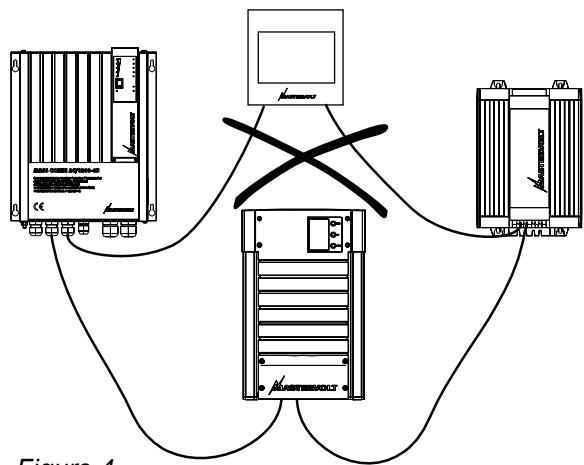

OK

Figure 3

Do not make ring networks

Figure 4

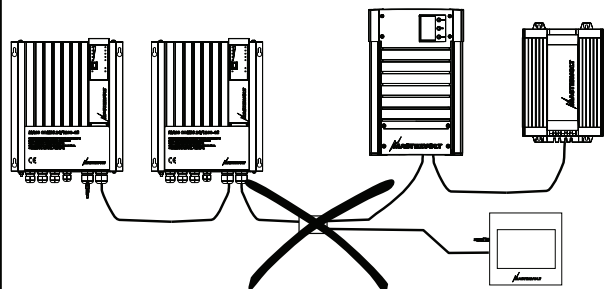Do not make T-connections in the network

Figure 5

3 INSTALLATION

3.1 CONNECTION

What you need:
- ☑ MasterBus-USB interface (included)
- ☑ USB connection cable (included)
- ☑ MasterBus connection cables (UTP patch cables) (included, 6m)
- ☐ A PC or notebook with Internet connection and a free USB 2.0 port

See figure 6
- Insert the MasterBus connection cables into the MasterBus data ports of the MasterBus – USB interface.
- Connect the USB connection cable between the MasterBus – USB interface and the USB-port of the PC or notebook.

3.2 MASTERADJUST SOFTWARE

1. Mastervolt MasterAjust software is available as free to download software on the Mastervolt website (www.mastervolt.com) Install the software on the desktop of your PC or notebook.
2. Start the program by double clicking the MasterAdjust.exe icon on your desktop
3. Immediately the USB-MasterBus interface is detected. This results in a "USB: MasterBus"-entry in the left tree-view of the MasterAdjust software
4. Now the MasterAdjust software scans the MasterBus network for connected devices. This might take a few minutes.

See chapter 4 for details about monitoring and control functions of the MasterAdjust software
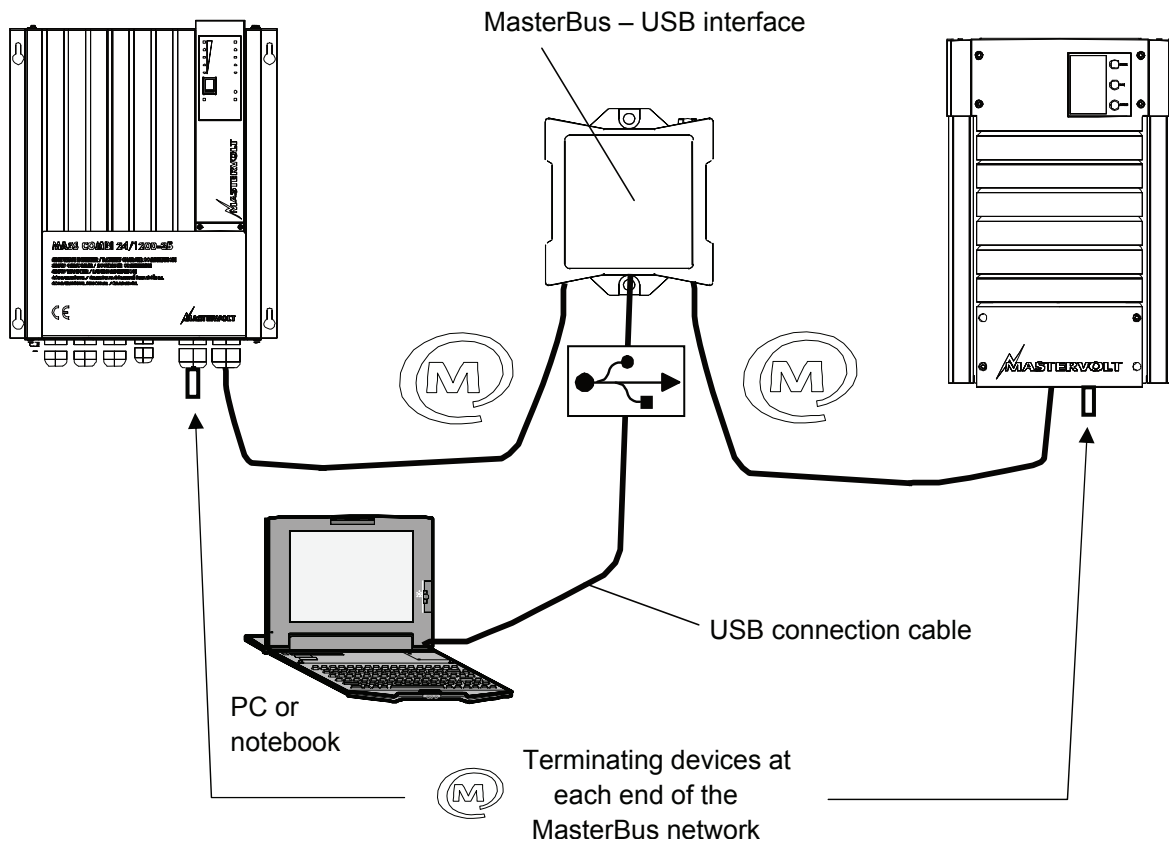If no devices are displayed, refer to chapter 6 for trouble shooting.

Figure 6: Connection of the MasterBus-USB interface

4 USE OF MASTERADJUST SOFTWARE

MasterAdjust software can be used for monitoring and control of devices that are connected to the MasterBus network. This software is available as free to download software on the Mastervolt website (www.mastervolt.com). Features:

- System configuration: to adjust the entire MasterBus network and all connected devices in accordance with your personal preferences, including programming of *Event-based commands*
- System Monitor: complete actual overview of your entire electrical installation
- System logger: data logging of system data during a longer period for analysis later on.

IMPORTANT: Invalid adjustment of the MasterAdjust software may lead to disturbed operation of your electrical installation. Therefore changes at the Configuration menu may only be carried out by qualified installers.

☞ NOTE: As every configuration of the MasterBus network differs from the other the displayed data may differ from the illustrations below. This user's manual can not give any specific instructions for any particular connected device or electrical installation. Refer to the user's manual of the connected device for an overview of all available readouts and settings

4.1 GENERAL

Click here to change the displayed language

Detailed information may include the following data Monitoring, Alarm, History or Configuration (availability depends on the connected device)

The tree view gives an overview of the connected devices. The MasterAdjust software may also recognize other serial connected devices (non-MasterBus)

Click on the desired device to show detailed information

Click here to close the MasterAdjust software.
Settings are stored in the memory of the selected device.
This means that closing the MasterAdjust software does not affect the operation of the connected devices
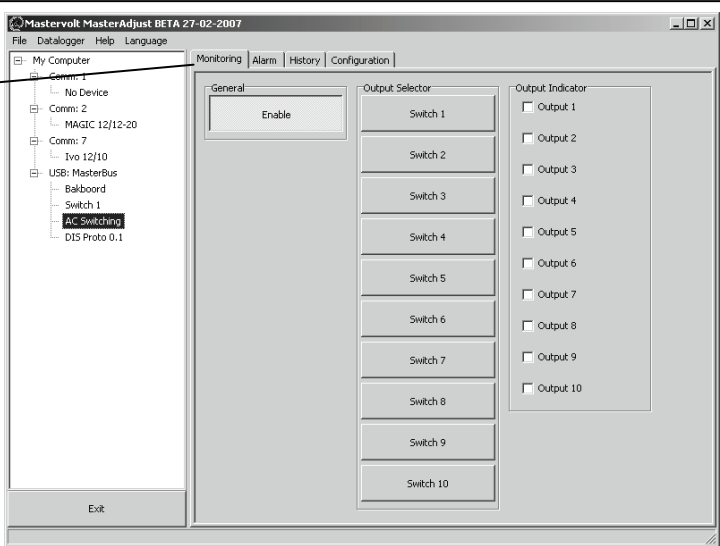
Detailed information of the selected device

Figure 7

4.2   MONITORING

Click on "Monitoring"

"Monitoring" shows the actual measured data of the selected device.
Refer to user's manual of selected device for explanation of the measured values.
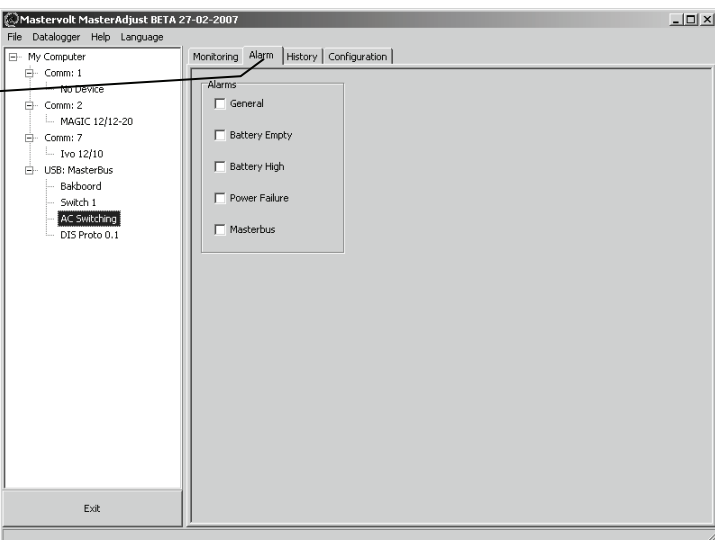
Figure 8

4.3   ALARMS

Click on the "Alarms" tab

At "Alarms" you can monitor the alarm function of the selected device.
An alarm may occur when one of the measured parameters is out of range.
Refer to user's manual of selected device for explanation.
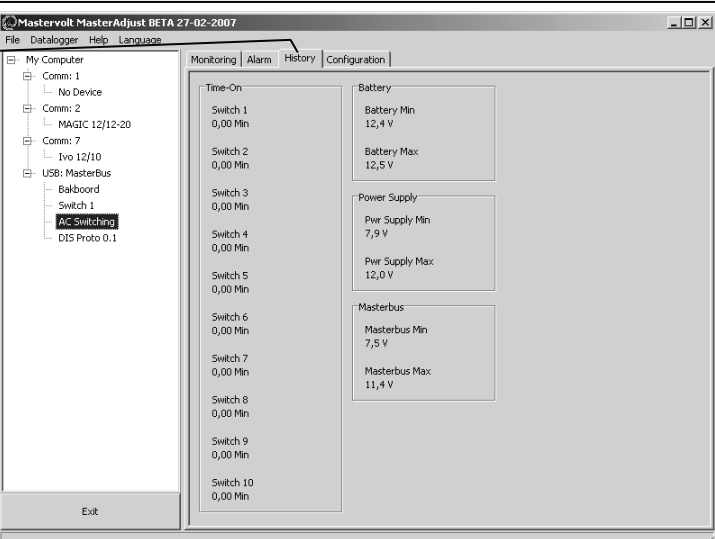The displayed data is read-only

Figure 9

4.4   HISTORY

Click on the "History" tab

To know the history of your electrical system can be very useful.
It will help you to check if all connected devices have worked properly in the past.
Most of the displayed data is read-only.

Figure 10

MASTERVOLT

4.5 CONFIGURATION

At "Configuration" you can adjust several parameters of the selected device in accordance with the specifications of the electrical installation.

The default configuration is optimal for most installations. In some applications however, it is desirable to change the configuration. Refer to the user's manual of the connected device

The configuration is stored in the memory of the connected device. This means that closing the MasterAdjust software will not affect this configuration
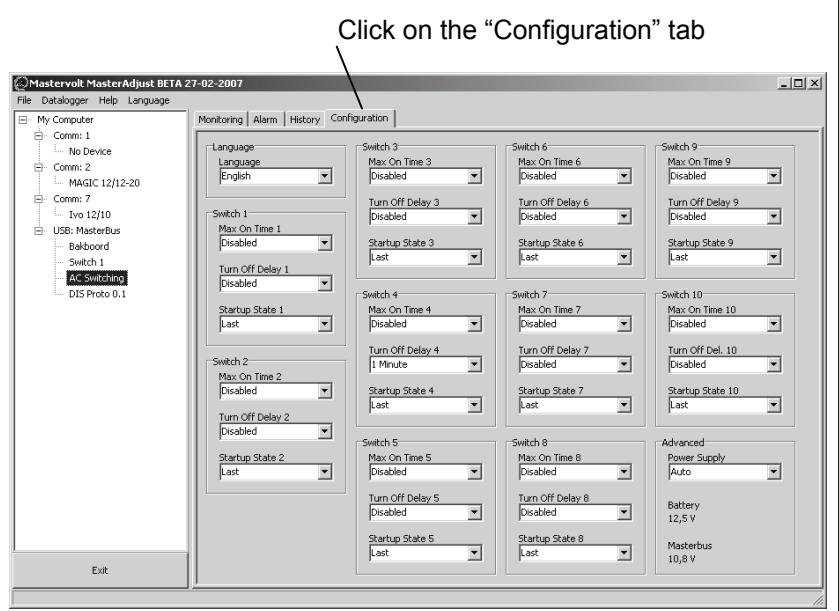
Click on the "Configuration" tab

Figure 11

4.6 PROGRAMMING OF EVENT-BASED COMMANDS

One of the main features of MasterBus is the possibility of programming for interactive operation the connected devices. This is done by means of *event based commands*. See example below where programming of *event based commands* is explained.

4.7 EXAMPLE

If the battery voltage is almost too low, the DC-load which is connected to output 3 of the DC Switch must be switched off.

- As the battery voltage is measured by the *MasterShunt,* this device is considered as the *command source*. (*Command source = MasterShunt*)
- "Battery voltage almost too low" is considered to be the *event* (*Event = Pre low battery*)
- The *DC Switch* is the device that should take action (switching of a part of the DC-load), and is therefore considered to be the *target*. (*Target = DC Switch*)
- *Event command:* at the *DC Switch* the status of output 3 should change (*Event command = State 3*)
- The status of output 3 should change to *Off* (*Event action = Off*)

Follow below steps to program this event based command:

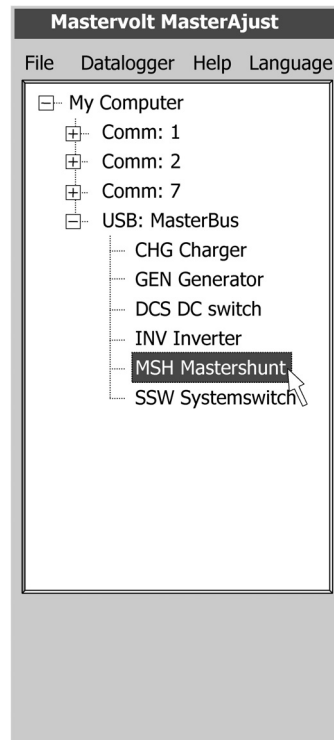1 See figure 12. In the left tree-view click on the command source (Example: *MasterShunt*).

Figure 12

---

2   After selecting the command source, click on the "Configuration" tab. One of the displayed drop boxes is named "Event source 1" (figure 13).
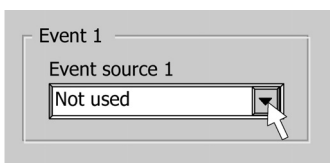

Figure 13

3   Click on the drop box and select the event at the command source that should be the trigger for an action (Example: Pre low battery) (figure 14).
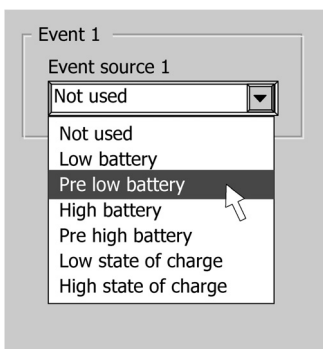

Figure 14

4   Select the name of the device that should take action in case of this event: *Event target*. (Example: DC switch) (figure 15).
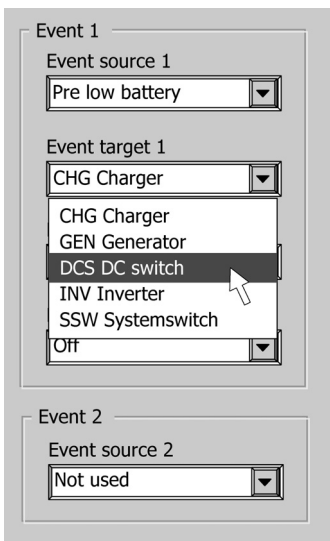

Figure 15

5   Next select which parameter must be changed at the target: *Event command*. (Example: The state of switch 3) (figure 16).
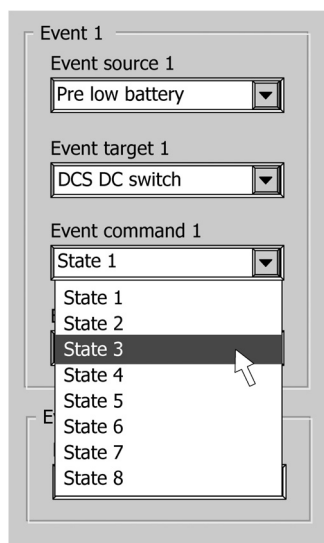

Figure 16

6   Finally select the *Event action,* which is the action that should take place (Example: Go *off*) (figure 17).
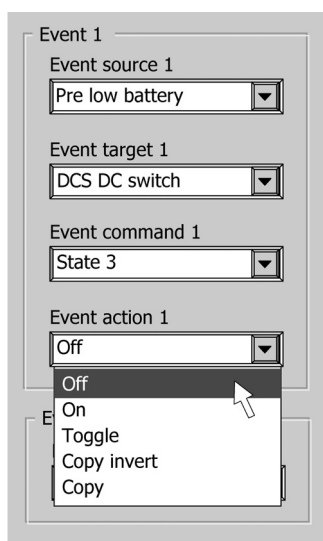

Figure 17

If you want to continue programming event based commands, proceed with *Event source 2* and follow the same procedure as described above.

5 ADDITIONAL INFORMATION

5.1 ORDERING INFORMATION

Part number	Description
77040000*	MasterBus terminating device*
77040020	MasterBus connection cable (UTP patch cable), 0,2m / 0.6ft
77040050	MasterBus connection cable (UTP patch cable), 0,5m / 1.6ft
77040100	MasterBus connection cable (UTP patch cable), 1,0m / 3.3ft
77040300	MasterBus connection cable (UTP patch cable), 3,0m / 10ft
77040600*	MasterBus connection cable (UTP patch cable), 6,0m / 20ft
77041000	MasterBus connection cable (UTP patch cable), 10m / 33ft
77041500	MasterBus connection cable (UTP patch cable), 15m / 49ft
77042500	MasterBus connection cable (UTP patch cable), 25m / 82ft
77050000	Complete set to assemble UTP patch cables. Delivery includes: 100m / 330ft UTP cable, 50 pcs. modular jacks and crimping tool

* These parts are standard included with the delivery of the *MasterBus - USB interface*

Mastervolt can offer a wide range of products for your electrical installation, including an extended program of components for your MasterBus network or MasterVision switchboard.
See our website www.mastervolt.com for a complete overview of all our products

5.2 EC DECLARATION OF CONFORMITY

Manufacturer   Mastervolt
Address   Snijdersbergweg 93, 1105 AN Amsterdam
                         The Netherlands

$C\epsilon$

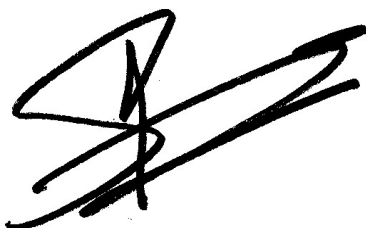Herewith declares that:

Product:
77030100   MasterBus - USB interface

Is in conformity with the provision of the EC EMC directive 89/336/EEC and amendments 92/31/EEC, 93/68/EEC.

The following harmonised standards have been applied:

Generic emission standard: EN 50081-1:1992
Generic Immunity standard: EN 50082-1:1997
Safety directive 2006/95/EC, with the following standard:
Low voltage standard: EN 60950: 2000

Amsterdam,

P. F. Kenninck,
General Manager MASTERVOLT

6 TROUBLE SHOOTING

Contact your local Mastervolt Service Centre if you cannot correct a problem with the aid of the malfunction table below. See www.mastervolt.com for an extended list of Mastervolt Service Centres.

Failure	Possible cause	What to do
No devices can be found.	If only "My Computer" is shown, the left hand tree view of the MasterAdjust software is collapsed.	Click on the ⊞ sign in front of "My computer" to open the tree view.
	Error in the wiring.	If green LED on interface is not illuminated or blinking: check USB connection cable between the MasterBus – USB interface and the USB-port of the PC or notebook.
		Check the UTP patch cables of the MasterBus Network.
	No terminating device placed at the ends of the network.	Check if terminating devices are installed on both ends of the MasterBus network (see figure 2).
	MasterBus network is configured as a ring network.	Ring networks are not allowed (see figure 4). Check the connections of the network.
	T-connections in the MasterBus network.	Check if there are no T-connections in the network. T-connections are not allowed (see figure 5).
One of the connected devices can not be found.	Connected device is switched off.	Switch on connected device.
	Error in the wiring.	Check the UTP patch cables.
	Device not suitable for MasterBus.	Check whether the device is suitable for MasterBus. Maybe the UTP patch cable is connected to a non-MasterBus connector.
Slow or no communication.	If a setting of a connected device is changed, communication between the PC and the connected device. may take a few seconds.	Wait a few seconds.
	Error in the wiring.	Check the UTP patch cables.
	No terminating device placed at the ends of the network.	Check if terminating devices are installed on both ends of the MasterBus network (see figure 2).
	MasterBus network is configured as a ring network.	Ring networks are not allowed (see figure 4). Check the connections of the network.
	T-connections in the MasterBus network.	Check if there are no T-connections in the network. T-connections are not allowed (see figure 5).
Wrong language is displayed.	Wrong setting of the language at the MasterAdjust software.	Click on the "Language" menu and select the desired language.
	Wrong setting of the language at one of the connected devices.	Each separate connected device can have its own language setting. See user's manual of the connected device.

MASTERVOLT

7 SPECIFICATIONS

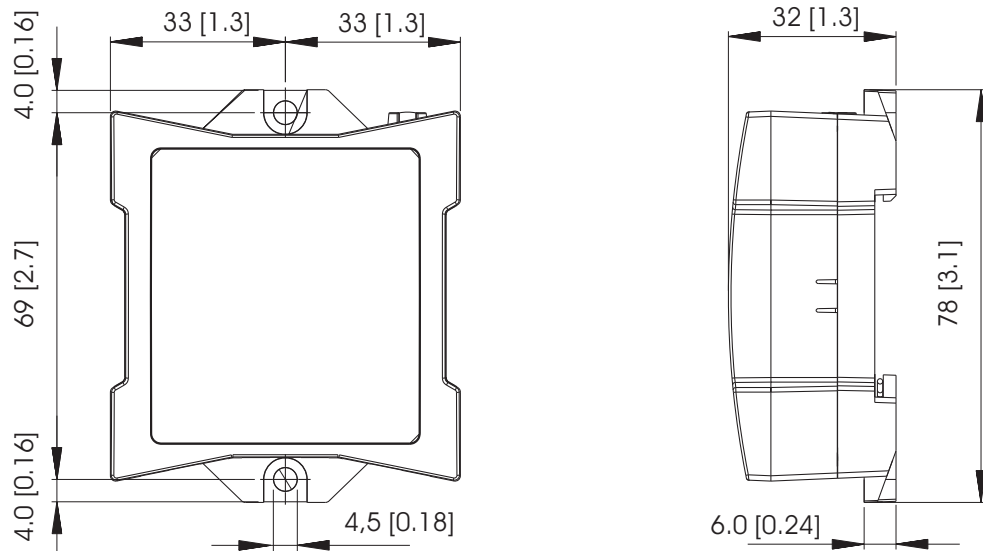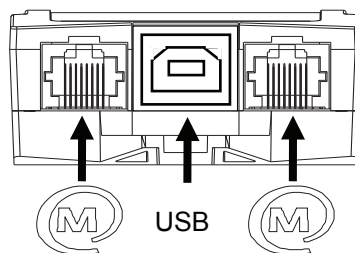|	
Model:	MasterBus – USB interface
Article number:	77030100
Delivery includes:	Interface, USB connection cable, UTP patch cable, MasterBus terminating device, user's manual
Function of instrument:	Communication interface between your PC and devices that are connected to the MasterBus network
Manufacturer:	Mastervolt Amsterdam the Netherlands
Powering capabilities:	Yes, when the PC is switched on, it can power up to three non-powering devices
Power consumption:	<9mA
Din rail mounting:	Yes, Din rail 30 mm [1.2 inch]
Weight	Approx. 80 gr [0.18 lbs]
Protection degree:	IP 21
Dimensions:	See drawing below

Figure 18: Dimensions in mm (inch) and connectors

= MasterBus connector

USB = USB connector

MASTERVOLT

Snijdersbergweg 93, 1105 AN Amsterdam, The Netherlands
Tel: + 31-20-3422100
Fax: + 31-20-6971006
Email: info@mastervolt.com