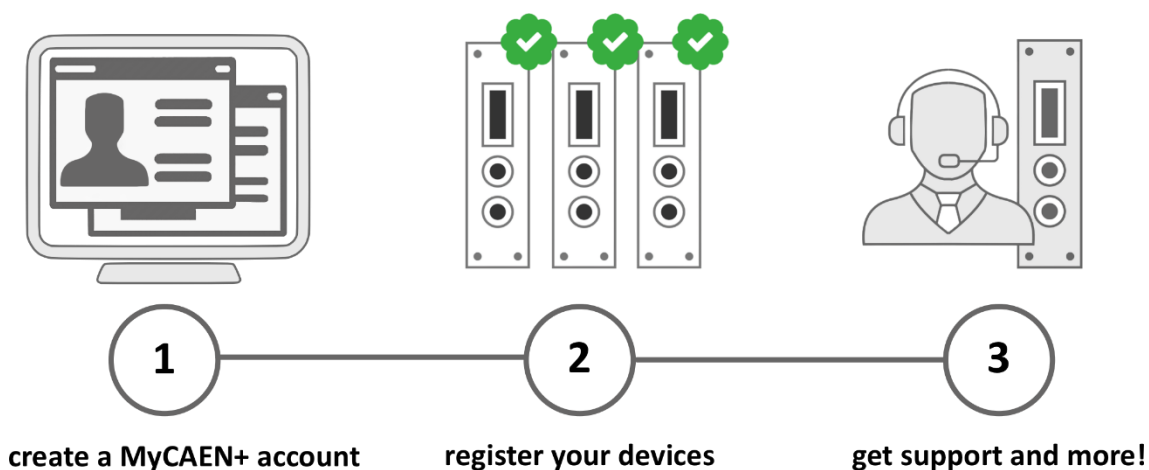




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Purpose of this User Manual

This User's Manual contains the full description of the **V65XX Controller software**

Change Document Record

Date	Revision	Changes
12 June 2012	0	Preliminary
31 July 2012	1	Selection of the used Link

Symbols, abbreviated terms and notation

T.B.D.

Reference Document

[RD1]	V1718 VME-USB2.0 Bridge User's Manual
[RD2]	V2718 VME-PCI Optical Link Bridge User's Manual
[RD3]	A2818 PCI CONET Controller User's Manual
[RD4]	A3818 PCI Express CONET2 Controller User's Manual
[RD5]	CAENComm User & Reference Manual
[RD6]	V6533 VME Programmable HV Power Supply User's Manual

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1 Introduction

V65XX Controller - Control Software for VME Power Supply Modules is a console application that allows to manage all the Board and Channel parameters of CAEN VME Programmable High Voltage Power Supply boards (V65XX series), controlled through the CAEN VME Bridges.

V65XX Controller is a C++ Program supporting Linux and Windows and allows a complete and friendly management of a single VME HV V65XX Board.

All the CAEN VME High Voltage Power Supplies Boards are supported:



- V6519 VME Programmable HV Power Supply (6 ch., 500 V, 3 mA)
- V6521 VME Programmable HV Power Supply (6 Ch., 6 kV, 300µA)
- V6521H VME Programmable HV Power Supply (6 Ch., 6 kV, 20µA)
- V6533 VME Programmable HV Power Supply (6 Ch., 4 kV, 3 mA, 9 W)
- V6534 VME Programmable HV Power Supply (6 Ch., 6 kV, 1 mA)

System requirements & installation setup

The host PC shall run Windows (XP/Vista/7) or Linux OS; Linux users have to install GCC compiler.

The V65XX series slave boards control must take place through CAEN VME Bridges: CAEN V1718 USB-VME Bridge or CAEN V2718 OpticalLink-VME Bridge.

If the V2718 is interfaced with CAEN A2818 PCI-CONET Board, host PC shall run driver version 6.3.1 or greater.

More information about CAEN VME Bridge Controllers is available at www.caen.it

OS	OS version	CAEN Libraries required
 Windows	XP/Vista/7	CAENComm CAENVMElib ⁽¹⁾
 Linux	kernel Rel. 2.4/2.6	CAENComm (1.02 or later) CAENVMElib (2.22 or later)

⁽¹⁾ CAEN libraries are locally installed by the V65XX Controller Installer.

Tab. 1.1: Host PC requirements

Once your VME set up is ready,

- Go to V65XX Controller web page: Home / Products / Firmware/Software / Software Tools / Power Supply Tools / V65XX Controller.
- Download the V65XX Controller package related to your OS in the “Download” tab.
- Uncompress the downloaded package.
- **For Windows users:**
 - launch the Setup executable file, then follow the installer instructions. Note that this is a standalone version which installs locally all the required libraries and doesn’t need them to be installed apart by the user.
 - run the software from the windows start menu -> CAEN -> V65xxController -> V65xxController
- **For Linux users:**
 - before to install the tool, the installation of the CAEN required libraries is needed. Click on the red link above the V65XX Controller package in order to download them.

Overview	Download	Related Products	Required Products			
Description	Release	Date	OS-Version	Environment	Download	
Control Software						
 V65xxController (Linux)	1.0	July, 2012	Kernel 2.4, Kernel 2.6			
SW Package 18.18 KB - Type: .tgz						
Release Notes 1.45 KB - Type: .txt						
 [-] V65xxController (Linux) requires additional Libraries						
CAENVMELib & demo			Library & Demo 412.18 KB - Type: .tgz			
CAENComm library			Library 21.64 KB - Type: .tgz			

Fig. 1 – Additional CAEN libraries required by V65XX Controller to be installed apart in Linux environment

Because of CAENComm is based on CAENVMELib, it is necessary to install CAENVMELib on your PC before installing the CAENComm..

- go to build folder, then type make
- go to bin folder and type ./V65xxController

the Log-in Window will appear as shown below

```

=====
U65XX UME HU Board
=====

Enter the type of the connection to Board [USB:OPTLINK]:

```

Fig. 2 – Log-in Window (1)

Board access

Select the used Link (for instance USB), then press [enter]; you will be asked the link number and VME Base Address of the V65XX board: type them and press [enter]; if you choose OPTLINK instead, you will have to enter both link number and CONET node (see § 3 for details). In all cases, the 15 LSB of V65XX board base address must be all 0; for example, if the board base address (bits 31÷16), fixed through the rotary switches, is 3210, the string must be 32100000.

```

=====
U65XX UME HU Board
=====

Enter the type of the connection to Board [USB:OPTLINK]: USB
Enter the link number used:

```

Fig. 3 – Log-in Window (2)

```

=====
U65XX UME HU Board
=====

Enter the type of the connection to Board [USB:OPTLINK]: USB
Enter the link number used: 0
Enter Board UME Base Address [xxxxxxxx]:

```

Fig. 4 – Log-in Window (3)

2 System configuration

Main Menu

As the connection with the V65XX board is established, the Main Menu will be displayed:

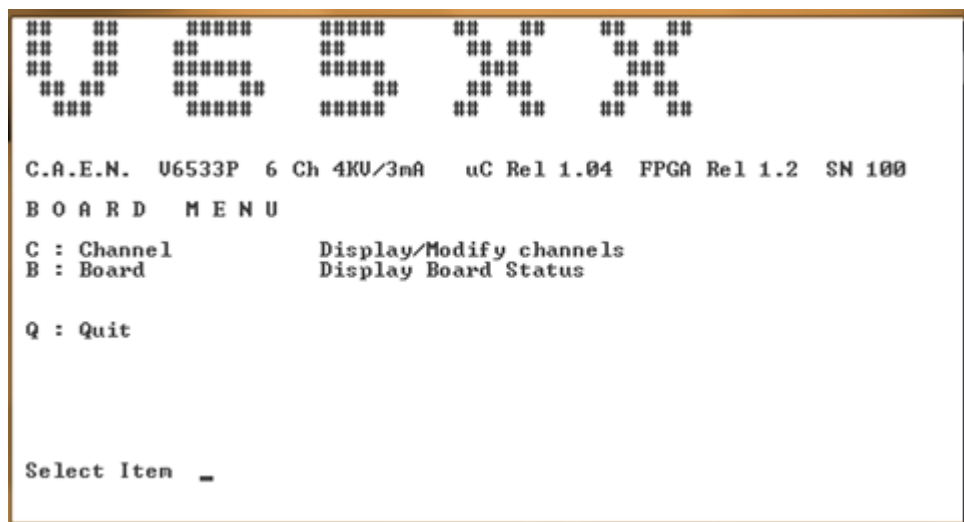


Fig. 5 – Control Software Main Menu

Board Status

By typing [b], it is possible to monitor the Board Status:

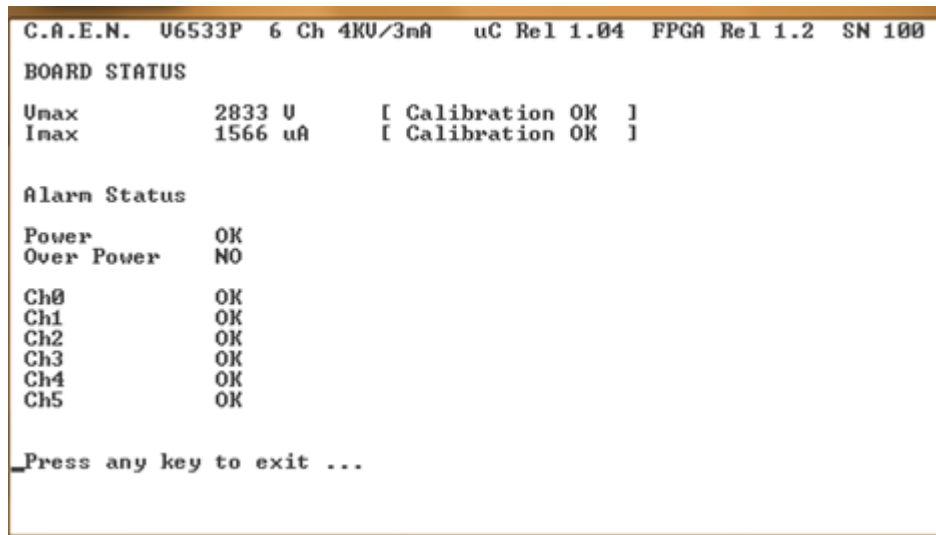


Fig. 6 – V65XX Board Status

Type any key to return to Main Menu.

Channel Options

By typing [c], it is possible to access the Channel settings:

C.A.E.N.		U6533P	6	Ch	4KV/3mA	uC Rel 1.04	FPGA Rel 1.2	SN 100				
		Ch0		Ch1		Ch2		Ch3		Ch4		Ch5
Pol		Pos		Pos		Pos		Pos		Pos		Pos
Umon	U	0000.0		0000.3		0000.1		0000.0		0000.0		0000.4
Imon	uA	0000.00		0000.00		0000.00		0000.00		0000.00		0000.00
Temp	°C	+027		+028		+028		+029		+030		+029
Status												
Pw		->Off		Off		Off		Off		Off		Off
Uset	U	0500.0		0500.0		0500.0		0500.0		0500.0		0500.0
Iset	uA	0310.00		0310.00		0310.00		0310.00		0310.00		0310.00
Sunax	U	4000.0		4000.0		4000.0		4000.0		4000.0		4000.0
RUp	U/\$	500		050		050		050		050		050
RDwn	U/\$	500		050		050		050		050		050
Trip	S	010.0		010.0		010.0		010.0		010.0		010.0
PuDwn		Ramp		Ramp		Ramp		Ramp		Ramp		Ramp
InRng		High		High		High		High		High		High

_G : Group Mode

H : Help

Q : Quit

Fig. 7 – V65XX Channel settings

The arrow points to the parameter to edit; in order to update one parameter's value:

- select the parameter using the arrow keys
- write the new value (numerical parameters) or toggle with the space bar (Boolean parameters)
- numerical parameters must be confirmed by typing [enter]

By typing [g] Group Mode is selected: when one parameter is updated, the new value is extended to all channels; when this mode is selected, the arrow becomes "bold":

C.A.E.N.		U6533P	6	Ch	4KV/3mA	uC Rel 1.04	FPGA Rel 1.2	SN 100	
		Ch0		Ch1		Ch2	Ch3	Ch4	Ch5
Pol		Pos		Pos		Pos	Pos	Pos	Pos
Umon	U	0000.0		0000.3		0000.1	0000.0	0000.0	0000.4
Imon	uA	0000.00		0000.00		0000.00	0000.00	0000.00	0000.00
Temp	°C	+027		+028		+028	+029	+031	+029
Status									
Pw		=>Off		Off		Off	Off	Off	Off
Uset	U	0500.0		0500.0		0500.0	0500.0	0500.0	0500.0
Iset	uA	0310.00		0310.00		0310.00	0310.00	0310.00	0310.00
Sunax	U	4000.0		4000.0		4000.0	4000.0	4000.0	4000.0
RUp	U/\$	500		050		050	050	050	050
RDwn	U/\$	500		050		050	050	050	050
Trip	S	010.0		010.0		010.0	010.0	010.0	010.0
PuDwn		Ramp		Ramp		Ramp	Ramp	Ramp	Ramp
InRng		High		High		High	High	High	High
_G : Group Mode		H : Help		Q : Quit		[Group Mode]			

Fig. 8 – V65XX Group Mode Channel settings

By typing [h] the Help window is displayed:

C.A.E.N.	U6533P	6	Ch	4KV/3mA	uC Rel 1.04	FPGA Rel 1.2	SN 100
Keyboard Usage							
. Use arrow keys to select the field.							
. For numeric fields directly type the value and then enter.							
. For 'Pw', 'PuDwn', 'InRng' fields use 'space bar' key to toggle the value.							
Press any key ..._							

Fig. 9 – Help window

This window is a summary of the VME Programmable HV Power Supply Control Software usage. Type any key to return to Channel settings.

3 Appendix A

Connection Settings Description

The connection parameters used by V65XX Controller software are:

- Connection Type
- LINK number
- CONET node
- VME Base Address

Connection Type: specifies the connection used for the target module.

- **USB:** PC => USB => V1718 => VME => V65XX Board
- **OPTLINK:** PC => PCI (A2818) or PICE (A3818) => CONET => V2718 => VME => V65XX Board

LINK number: in case of USB, the link numbers are assigned by the PC when you connect the cable to the device; it is 0 for the first device, 1 for the second and so on. There is not a fixed correspondence between the USB port and the link number. For the CONET, the link number indicates which link of A2818 or A3818 is used; Link index start from 0 (1st Optical link port in the 1st slot used). It is not known a priori which is the first slot used (it depends on the motherboard of the PC used.). **IMPORTANT NOTE:** if A2818 and A3818 are installed together, the A2818 have lower index assigned.

Board number: refers to the position of the target board or bridge in a CONET network. A CONET network consists in up to eight (8) nodes connected in a Daisy Chain, through the optical link, to a single Optical Controller (like the A2818).

VME Base Address: is an identification code to target a VME module. This code is fixed by the four rotary switches on the module itself (refer to the module's User Manual).

The following example is intended to show the setting of the connection parameters in three practical cases.

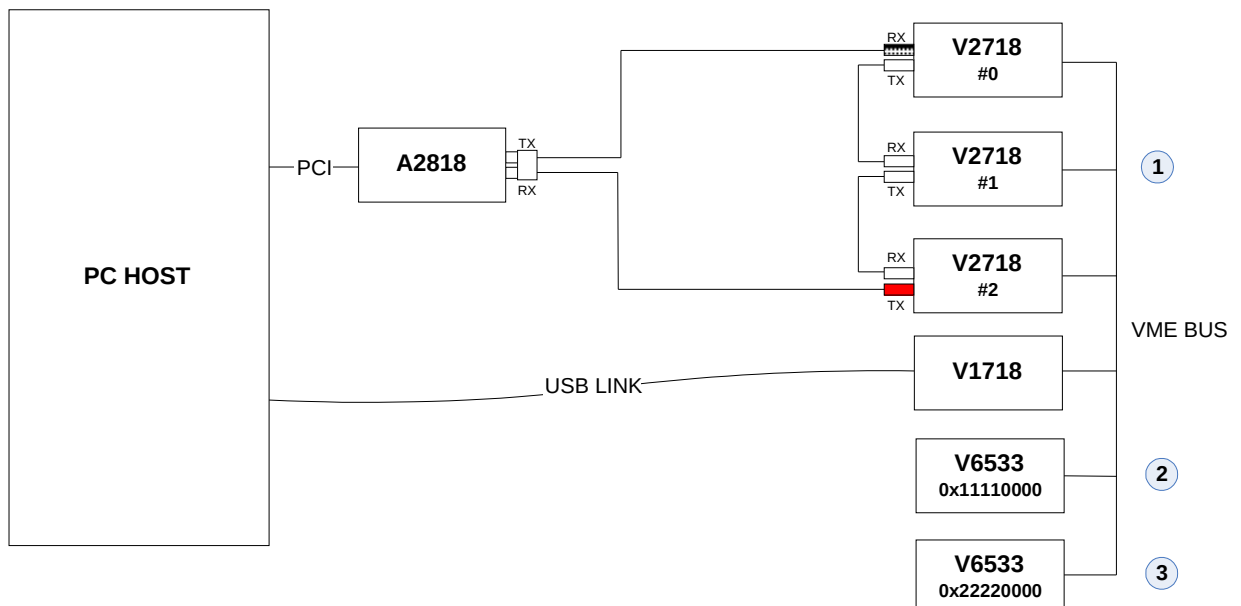


Fig. 10 – Hardware System: PC with USB port, hosting a A2818; V2718 bridges in Daisy Chain, V1718 bridge and V6533 boards

1. Target a V6533 (base address 0x1111000) through the USB link by means of a V1718 bridge:

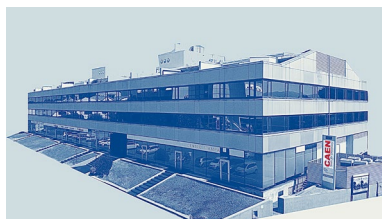
CONNECTION TYPE	LINK number	Board number	VME Base Address
USB	0	Not Required	0x11110000

2. Target a V6533 (base address 0x2222000) through the Optical Link using the second V2718 bridge:

CONNECTION TYPE	LINK number	Board number	VME Base Address
OPTLINK	0	1	0x22220000

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