C. A. E. N.   S Y 4 0 3

H I G H   V O L T A G E   S Y S T E M

SOFTWARE VERSION 1.45
USER NOTE

Read this section First!

This User Note describes the major features and problems fixed since the release 1.41 of the SY403 software. It is divided in three sections, one for the problems resolved in the version 1.43 and the others for the newest software versions 1.44, 1.45.

C.A.E.N.

D E C E M B E R   1 9 9 3

1. FEATURES ADDED AND PROBLEMS FIXED IN VERSION 1.43

- It is possible via CAENET to set the Trip value = 0; In the software versions preceding the 1.43, the SY403 responds with an Error code = % FF02 (Value out of range).

- It is possible via CAENET to set the Ramp-up/Ramp-down value = 0. The same as with the terminal. In the software versions preceding the 1.43, the SY403 responds with an Error code = % FF02 (Value out of range).

- Ramp-up/Ramp-down values set to 0, means that these parameters assume the minimum value possible that is = 1 Volt/sec.

2. FEATURES ADDED AND PROBLEMS FIXED IN VERSION 1.44

- In version preceding the 1.44, In the Connect a New Crate option the number entered must have two figures (see SY403 User Manual Ver. 1.44 § B.5). This problem has been fixed in Version 1.44.

- In version preceding the 1.44, at Power-On there is an erroneous update of the Iset Values if these values have been set via CAENET on channels different from the channel 00,08,16,24,32,40,48,56. This option has been corrected in Version 1.44.

- In version preceding the 1.44, if one sets the Vmax Software for a given channel (via H.S. CAENET), the unit does not limit the Vset values to the Vmax software, but to (Vmax Software)/100. This problem has been fixed in Version 1.44.

3. FEATURES ADDED IN VERSION 1.45

- In the Operation Code for H. S. CAENET operations of the System the following features have been added (see § 6.3.1 and Table 6.8 for the Version 1.41 existing codes). Operations on groups are also available (see next page).

Hexadecimal Operating Code
(n is the Channel Number: n = 0..63)

Code	Meaning
%5	Read General Status
%6	Read Hardware VMax
%n19	Set Channel Name
%1A	Set Status Alarm
%30	Format CPU EEPROM
%31	Confirm Format CPU EEPROM
%32	Clear Alarm
%33	Lock Keyboard
%34	Unlock Keyboard
%35	Kill All Channels
%36	Confirm Kill All Channels

Hexadecimal Operating Code
(g is the Group Number: g = 0..15)

Code	Meaning
%g1B	Set Group Name
%g40	Read Channels in a Group
%g41	Read Vmon/Status of Channels in a Group
%g42	Read Imon of Channels in a Group
%g43	Read V0set/I0set of Channels in a Group
%g44	Read V1set/I1set of Channels in a Group
%g45	Read Vmax/ITrip of Channels in a Group
%g46	Read Rup/Rdwn of Channels in a Group
%g50	Add Channel to a Group
%g51	Remove Channel from a Group
%g52	Set V0set of Channels in a Group
%g53	Set V1set of Channels in a Group
%g54	Set I0set of Channels in a Group
%g55	Set I1set of Channels in a Group
%g56	Set Vmax of Channels in a Group
%g57	Set Rup of Channels in a Group
%g58	Set Rdwn of Channels in a Group
%g59	Set Trip of Channels in a Group
%g5A	Switch ON the Channels in a Group
%g5B	Switch OFF the Channels in a Group

Channel Parameters Setting

Code %n19 (Set Channel Name)

- The CAENET operating code %n19 allows to set the Channel Name up to 11 characters followed by the null terminator 0. The structure of the Words, assuming, e. g., that "ABCDEFGHIJK" is the Channel Name, is the following:

Word	Content
2	"A", "B"
3	"C", "D"
4	"E", "F"
5	"G", "H"
6	"I", "J"
7	"K", 0

- If there are less than 11 characters, the name is completed with a pad of zeroes. If there are more than 11 characters, the response is an error code %FF01. If the 0 terminator is missing, or if "spurious" characters are used (e.g. "@", "?", etc., the response is an error code %FF02.

Code %1A (Set Status Alarm)

- The CAENET operating code %1A (followed by a Word) allows to set the Status of the Alarms. The structure of the Word is the following:

Status Alarm Word Structure

Bits	Bit value = 0	Bit value = 1
0	Normal Level Low	Normal Level High
1	Level Type Alarm	Pulse Type Alarm
2	OVC Alarm OFF	OVC Alarm ON
3	OVV Alarm OFF	OVV Alarm ON
4	UNV Alarm OFF	UNV Alarm ON
5..15	Don't care	Don't care

Channel Parameters Reading

Code %5 (Read General Status)

- The CAENET operating code %5 allows to read the General Status. The System provides in response two Words: the first is the Status Alarm Word, the second contains some information related to the front panel signals:

Status Signals Word Structure

Bits	Bit value = 0	Bit value = 1
0	Vsel: V0 selected	Vsel: V1 selected
1	Isel: I0 selected	Isel: I1 selected
2	No Kill	Kill
3	No Lock	Lock
4	No HV Enable	HV Enable
5	Don't care	Don't care
6	Password Ignore	Password Required
7..15	Don't care	Don't care

Code %6 (Read Hardware VMAX)

- The CAENET operating code %6 allows to read the Hardware HVMAX of the 4 boards in the System. The response consists in four words; each word contains the HVMAX value of the corresponding board. If a board is not present, the corresponding word is meaningless.

System Operations

Codes %30, %31 (Format CPU E^{2}PROM)

- The CAENET operating codes %30, %31 allow to format the CPU EEPROM. In order to do this a CAENET command %30 must be performed, followed by a %31 command to confirm the operation. If only a %31 is performed, the response is an error code %FF01.

Code %32 (Clear Alarm)

- The CAENET operating code %32 clears the Alarms occurred in the System.

Codes %33, %34 (Lock/Unlock Keyboard)

- The CAENET operating codes %33, %34 allow respectively to Lock the Front Panel Keyboard or to Unlock it.

Codes %35, %36 (Kill All Channels)

- The CAENET operating codes %35, %36 allow to kill all channels. In order to do this a CAENET command %35 must be performed, followed by a %36 command to confirm the operation. If only a %36 is performed, the response is an error code %FF01.

Group Parameters Setting

Code %g1B (Set Group Name)

- The CAENET operating code %g1B allows to set the Group Name up to 11 characters followed by the null terminator 0. The structure of the Words is the same as the Channel Name (see page 3 of these notes).

Code %g50 (Add Channel to a Group)

- The CAENET operating code %g50, followed by the Channel Number, allows to add a Channel to a Group. The new Channel is placed at the bottom of the Group.

Code %g51 (Remove Channel from a Group)

- The CAENET operating code %g51, followed by the Channel Number, allows to remove a Channel from a Group.

Code %g52 (Set V0set in a Group)

- The CAENET operating code %g52, followed by the V0 value, allows to set the V0set value for all Channels in a Group.

Code %g53 (Set V1set in a Group)

- The CAENET operating code %g53, followed by the V1 value, allows to set the V1set value for all Channels in a Group.

Code %g54 (Set I0set in a Group)

- The CAENET operating code %g54, followed by the I0 value, allows to set the I0set value for all Channels in a Group.

Code %g55 (Set I1set in a Group)

- The CAENET operating code %g55, followed by the I1 value, allows to set the I1set value for all Channels in a Group.

Code %g56 (Set Vmax in a Group)

- The CAENET operating code %g56, followed by the Vmax value, allows to set the Vmax value for all Channels in a Group.

Codes %g57, %g58 (Set Rup/Rdwn in a Group)

- The CAENET operating codes %g57, %g58, followed by the Rup/Rdwn values, allow to set respectively the Rup and Rdwn values for all Channels in a Group.

Code %g59 (Set Trip in a Group)

- The CAENET operating code %g59, followed by the Trip value, allows to set the Trip value for all Channels in a Group.

Code %g5A (Set ON Channels in a Group)

- The CAENET operating code %g5A allows to set ON the all Channels in a Group.

Code %g5B (Set OFF Channels in a Group)

- The CAENET operating code %g5B allows to set OFF the all Channels in a Group.

Group Parameters Reading

Code %g40 (Read Channels in a Group)

- The CAENET operating code %g40 returns a Group Name and a series of words representing the Channel Numbers for that Group. Once the Hex number %FFFF is read, the readout of the Channels in that Group is terminated.

Code %g41 (Read Vmon and Status for a Group)

- The CAENET operating code %g41 returns a certain number of series of three words representing, respectively, the Most Significant Word of Vmon, the least Significant Word of Vmon and The Status Word; this is done for each Channel of that Group.

Code %g42 (Read Imon for a Group)

- The CAENET operating code %g42 returns a word representing Imon for each Channel of that Group.

Code %g43 (Read V0set and I0set for a Group)

- The CAENET operating code %g43 returns a certain number of series of three words representing, respectively, the Most Significant Word of V0set, the Least Significant Word of V0set and the Word of I0set; this is done for each Channel of that Group.

Code %g44 (Read V1set and I1set for a Group)

- The CAENET operating code %g44 returns a certain number of series of three words representing, respectively, the Most Significant Word of V1set, the Least Significant Word of V1set and the Word of I1set; this is done for each Channel of that Group.

Code %g45 (Read Vmax and Trip for a Group)

- The CAENET operating code %g45 returns a certain number of series of two words representing, respectively, the Vmax and the Trip Word for each Channel of that Group.

Code %g46 (Read Rup and Rdwn for a Group)

- The CAENET operating code %g46 returns a certain number of series of two words representing, respectively, the Ramp Up and the Ramp Down Word for each Channel of that Group.