Technical Information Manual

MODEL C 117A CAENET CAMAC CONTROLLER

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DESCRIPTION

The model C117A is the CAMAC interface for the CAENET network connecting several modules via serial link and protocol (600 baud).

It allows to carry out the full monitoring and control of all the modules and systems linked from any computer connected to CAMAC via a 50 Ω coaxial cable.In this way , for each application , a dedicated software can be developed using high-level languages and a library of standard ESONE CAMAC routines .

Appropriate error codes are returned for any operation on the modules in the network.

CAEN models that can be interfaced to CAMAC via CAENET are at present:

- Mod. SY 170 High Voltage Divider ,
- Mod. N 146 Programmable Delay Unit ,
- Mod. N 147 Programmable Attenuator .

Up to 100 modules and/or systems , mixed in any configuration, dasy-chained , can be controlled from a single C 117A.

See the proper user 's reference manual for information about the specific operational commands of the modules .

TEST PROCEDURES

Required instruments:

a) one SY 170 with a high voltage power supply and voltmeter and some nominal loads for the system . Or one N 146 or one N 147 ;
b) a CAMAC controller .

Insert the C117 A into a slot of a CAMAC crate and switch on the power , the LED DATA on the module 's front panel lights for about 1 second.

SY170 communication verify

1. Connect the SY 170 to the high voltage power supply and switch them on ;

2. perform an F(17) A(0) N , where N is the C 117A station number, having set on the write lines
W1÷W8 the binary code of a channel (1 ÷ 64) , and on
W9÷W16 the binary code of a possible crate (0 ÷ 99).
The LED DATA blinks slowly ;

3. set on the SY170 the crate number that matches the W9÷W16 setting , and connect the system to the interface via a 50 Ω coaxial cable . The LED DATA blinks quickly and the communication begins ;

4. perform an F(0) A(0) N . The read lines (R1÷R12) contain the target channel voltage value . If the crate number is different from the one set on the write lines or if the system is not connected to the C 117A , the read lines contain the value **FFFF** (NON EXISTING CRATE);

5. if the connection is performed correctly and the communication is set up , verify that:

   a) performing an F(16) A(0) N
   W1÷W13 set to zero
   W14 set to one
   W15 set to zero
   W16 set to zero;
   the target channel relay closes and the corresponding LED lights;

b) performing an F(16) A(0) N
W1÷W13 set to zero
W14 set to one
W15 set to zero
W16 set to one;
the target channel relay opens and the correspondig LED switches off;

c) performing an F(17) A(1) N with the same target, and immediatly followed by an F(0) A(0) N , on the read lines we obtain
R1÷R12 the last voltage value programmed on the channel
R13÷R15 zero
R16 the relay status (0 = On, 1= OFF);

6. repeat the same operations on several system channels ;

7. command verify

NOTE : the data on the W1÷W16 are binary coded

a) **STORE** the system configuration on the non volatile memory at the address K (0 ÷ 9):
perform an F(16) A(0) N , having set
W1÷W4 to 0010 ,
W5÷W8 to K binary code,
W9÷W12 to zero,
W13 to one,
W14÷W16 to zero.
The communication is interrupted and the LED DATA switches off for a few seconds . The communication starts again ;

b) **INACTIVE RECALL** of the configuration stored on the non volatile memory at the address K : perform an F(16) A(0) N, having set
W1÷W4 set to 0001 ,
W5÷W8 K binary code,
W9÷W12 set to zero,
W13 set to one,
W14÷W16 set to zero;

c) **ACTIVE RECALL** of the configuration stored on the non volatile memory at the address K: perform an F(16) A(0) N, having set
W1÷W4 to 0000 ,
W5÷W8 to K binary code,
W9÷W12 to zero,
W13 to one,
W14÷W16 to zero;

d) **FORMAT** of the non volatile memory :
perform an F(16) A(0) N, having set
W1÷W4 to 0011 ,
W5÷W12 to zero,
W13 to one,
W14÷W16 to zero.

Just after the execution of the CAMAC function in steps a,b,c,d the communication is interrupted and the LED DATA switches off for some seconds . During this time we can execute several F(0) A(0) N , obtaining the code **FFFE (-2)** on the read lines . When the communication starts again we obtain the code **ZERO** on the read lines after the last F(0) A(0) N ;

8. set a value on the high voltage power supply in the system range ;

9. perform an F(17) A(0) N , having set on
W1÷W8 a channel number (1÷64) terminated on the nominal load, and on
W9÷W16 the crate number;

10. perform an F(16) A(0) N , with
W1÷W12 holding a voltage value equal or less than the one programmed on the high voltage power supply,
W13÷W16 set to zero.
The channel relay closes, the LED μMOTOR ON lights , and the motor starts to follow the given voltage;

11. execute repeatedly F(0) A(0) N to check the data of the read lines with the value readable on the high voltage voltmeter;

12. perform an F(9) A(0) N to send a reset on the line, the LED DATA lights for about 1 second and the motor stops;

13. repeat step 10 with
W1÷W12 holding a voltage value greater than the one given by the high voltage power supply.The channel relay closes, the communications are interrupted and the LED DATA on the front panel switches off .Performing an F(0)A(0)N we can read **FFFC (-3)** on the read lines meaning DATA OUT OF RANGE;

14. repeat step 10 and verify that the communication starts again .

N 146 or N 147 communication verify

1. Switch on the module N 146 or N 147 and place the frontal switch in the REMOTE position;

2. perform an F(17) A(0) N ,
having set on the write lines
W1÷W8 a possible module number (0 ÷ 99), on
W9÷W16 the module identification number 100 (N 146) or 101 (N 147) .
The LED DATA blinks slowly .

3. Set on the thumbwheel switches the module number which matches the W1÷W8 setting , and connect the module to the interface via a 50 Ω coaxial cable . The LED DATA blinks quickly and the communication begins ;

4. perform an F(0) A(0) N .
The data on the read lines has to be a value twice of that set on the module .
If the number on the thumbwheel switches is different from the one set on the write lines , or if the module is not connected to the C 117A , the read lines show the value **FFFF** (NON EXISTING CRATE);

5. perform an F(16) A(0) N with
W1÷W8 set to a value equal to the double of a value inside the module range
W9÷W16 set to zero.
Verify that the module set the data correctly;

6. repeat step 5 with
W1÷W8 set to a value equal to the double of a value outside of the module range .
The communication stops and the LED DATA on the front panel switches off .
Performing an F(0) A(0) N we can read **FFFC (-4)** on the read lines meaning DATA OUT OF RANGE;

7. repeat step 5 and verify that the communication starts again.