



Model 1000 Terminal Unit

Configuration Manual

July 2015 Revision

EL# 29032

Copyright©2015, Electrolab, Incorporated. All rights reserved. This document may not be reproduced, copied (except for a single archive copy), used, disclosed, transferred (including sold, leased, or rented) adapted or modified except in accordance with the terms and conditions of the License Agreement between the user and Electrolab, Inc.

Electrolab, Inc. makes no representations of warranties with respect to the contents hereof and specifically disclaims any implied warranties of merchantability of fitness for any particular purpose. Electrolab, Inc. reserves the right to revise this publication and to make changes from time to time in its content without the obligation to notify any person or organization of such revision or changes.

Table of Contents

Configuration Protocol for Dac1000	2
Set Configuration for a 4 to 20mA Channel	2
Set Polling period for Sensors	2
Set Time and Date on Real Time Clock	2
Set G4 Module configuration	3
Set G4 Module configuration (v1.06 and later)	3
Set LCD and Push to Read Parameters	3
Set LCD Title Page	4
Set Sensor Parameters	4
Set Diagnostic Mode	4
Pass Through Commands	4
Get Version	5
Get the number of 4 to 20mA Channels	5
Get the configuration of a 4 to20mA Channel	5
Get the Sensor Polling period	5
Get the real time Clock, Date and Time	5
Get G4 Module configuration	6
Get G4 Module configuration (v1.06 and later)	6
Get LCD and Push to Read Parameters	6
Get LCD Title Page	6
Get RS485 communications Port Parameters	6
Get Sensor Parameters	6
Initialization	7
Notes	8

Configuration Protocol for Dac1000:

(DS87C530 processor, 4 to 20mA converter, with Push to Read LCD option)

- Rev 1.03 10/22/1997 ptk
- Rev 1.04 03/07/2000 djg
- Rev 1.06a 01/18/2001 rdl
- Rev 1.06c 11/21/2002 rdl

All configurations “Set” commands are acknowledged with “OK” if the command is successful.

Set Configuration for a 4 to 20mA Channel:

S420CcUuu[L|T]dV4Mf.fV20Mf.f

- c channel to configuration
- uu sensor unit number
- L|T level or temperature
- d data field (1 or 2 for level, 1 to 8 for temperature)
- V4Mf.f value for 4mA output
- V20Mf.f value for 20mA output

Set Polling period for Sensors:

SPPsss

- sss = number of seconds between polling cycles.

Set Time and Date on real time clock:

SRTC[Dmmdyy][Thhmmss]

- Dmmdyy month, day, year
- Thhmmss hour, minute, second

Set G4 Module Configuration:

SG4[1|2]Uuu[L|T]dON[NE|LT|EQ|GT|NA]f.fOFF[NE|LT|EQ|GT|NA]f.f

- 1|2 G4 Module number
- uu Sensor Unit number
- L|T Monitor level or temperature
- d 1 or 2 for level, 1 to 8 for temperature
- ON Specify NE, LT, EQ or GT to turn on at f.f value or NA for no action
- OFF Specify NE, LT, EQ or GT to turn off at f.f value or NA for no action
(NE – not equal, LT – less than, EQ – equal, GT – greater than.)

Set G4 Module Configuration (v1.06 and later):

SG4[0|9]Uuu[L|T]dON[NE|LT|EQ|GT|NA]f.fOFF[NE|LT|EQ|GT|NA]f.f

- 0|9 G4 Module number
- uu Sensor Unit number
- L|T Monitor level or temperature
- d 1 or 2 for level, 1 to 8 for temperature
- ON Specify NE, LT, EQ or GT to turn on at f.f value or NA for no action
- OFF Specify NE, LT, EQ or GT to turn off at f.f value or NA for no action
(NE – not equal, LT – less than, EQ – equal, GT – greater than.)

Set LCD and Push to Read Parameters:

SLCDssRrr

- ss Number of seconds display each Screen of Data
(0 to 99, 0 disables display)
- rr Number of times to repeat each set of Data
(1 to 99, 99 continuous display)

Set LCD Title Page:

SLCDT1"title line 1"T2"title line 2"

- T1"... " 20 characters maximum

Set Sensor Parameters:

SUuu"label"L[0|1|2][I|C]T[0-8]F|C]v.vv[M|E][[%]

- uu Sensor Unit number
- "label" 10 characters of text to Display on LCD
- L[0|1|2] Number of levels
- I|C Unit of measure for level I= inches, C= centimeters
- T[0-8] Number of temperature sensors
- F|C Unit of measure for temperature F= Fahrenheit, C= centigrade
- v.vv Volume per unit level or 100% tank level if % tank selected
- M|E Metric (cubic meters) or English (barrels)

or

- % Display % of tank instead of volume

Set Diagnostic Mode:

SDIAG

No arguments. The unit enters diagnostic mode. First, all 8 channels of 4 to 20mA output are stepped from 4mA to 20mA and back to 4mA. This cycle continues until the Push to Read button is pressed. Then all combinations of the G4 Output Modules are cycled twice.

Pass Through Commands:

Uuu...

Any command starting with "U" is automatically passed to the RS485 communications port. Any response from the Sensors is automatically passed to RS232 port.

Get Version:**GV**

Response: Vversion version=v.rr v=version# rr=revision#

Get the number of 4 to 20mA Channels:**G420C**

Response: 420Cc c= number of channels

Get the configuration of a 4 to 20mA Channel:**G420Cc** c= channel to report configuration.

Response: 420CcUuu[L|T]d[I|C|F]V4f.fV20f.f

Get the Sensor polling period:**GPP**

Response: PPssss ssss= number of seconds in polling cycle.

Get real time Clock, Date and Time:**GRTC**

Response: RTCmm/dd/yy<sp>hh:mm:ss

Get G4 Module Configuration:

GG4[1|2]

Response: 4[1|2]Uuu[L|T]dON[NE|LT|EQ|GT|NA]f.fOFF[NE|LT|EQ|GT|NA]f.f

Get G4 Module Configuration (v1.06 and later):

GG4[0|9]

Response: 4[0|9]Uuu[L|T]dON[NE|LT|EQ|GT|NA]f.fOFF[NE|LT|EQ|GT|NA]f.f

Get LCD and Push to Read Parameters:

GLCD

Response: LCDssRrr

Get LCD Title Page:

GLCDT

Response: LCDDT1"line 1"T2"line 2"

Get RS485 Communications Port Parameters:

G485

Response: 485B9600N81

Get Sensor Parameters:

GUuu

Response: SUuu"label"L[0|1|2][I|C]T[0-8][F|C]v.vv[M|E|%]

Initialization:

If the Alarm Reset button is pressed and held for 3 seconds upon power up, the DAC1000 configuration database is initialized to default states as follows:

- G4 Sensor Unit numbers are set to 99.
- G4 Data Type/ Number set to L1 for the first level.
- G4 ON and OFF relationships set to NA.
- G4 ON and OFF values set to 0.0.

- 4-20mA Unit numbers are set to 99.
- 4-20mA Data Type/Number and Unit of measurement set to L0 I (inches).
- 4mA Level set to 0.0
- 20mA Level set to 16.0
- 4-20mA current Output Level value set to 4mA.

- The 32 records, (16 records for v1.06 and later) in the Sensor Database have Unit labels initialized to “Unit xx” where xx is 00 to 31, (15 for v1.06 and later).
- The number of Floats and Temperature Sensors are each set to 0.
- The Unit of measure for Level is set to I for inches.
- The Unit of measure for Temperature is set for F for Fahrenheit.
- The Volume Unit of Measure is set to 1.000 E (English) for 1 barrel per inch of Level.
- All last known Data values are set to 0.0

The 2 title lines for the LCD screen are set to:

- “1st title line”, “2nd title line”.
- Number of seconds to display each LCD screen is set to 0 (disables LCD output).
- Number of times to display each series of LCD screens is set to 4.
- The poll period for auto-polling is set to 60 seconds between polls.

NOTES:

Auto-polling is disabled when a hardware handshake signal is detected on the RS232 port.

The Push to Read button forces a poll of all programmed Sensors. All the Sensors are polled again after the screen of Sensor Data is displayed.

Whenever the Sensors are polled, all installed G4 Modules and 4-20mA Modules are updated. No updates are performed if a Sensor is polled using the RS232 command pass through feature.

RS485 communications out is 9600N81. The Terminal Unit will accept E71 on units with v1.06c.

NOTES

NOTES

For further information or for assistance, please contact:

Electrolab, Inc.
159 Enterprise Parkway
Boerne, Texas 78006
Phone: +1 (888) 301-2400 or +1 (210) 824-5364
Email: sales@electrolabcontrols.com