Configuration Protocol for DAC1000

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

rev 1.03	10/22/97 ptk
rev 1.04	03/07/00 djg
rev 1.06a	01/18/01 rdl
rev 1.06c	11/21/02 rdl

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

Set configuration for a 4 to 20 ma. channel.

S420CcUuu[L|T]dV4Mf.fV20Mf.f

c	channel to configure
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 4 ma. output
V20Mf.f	value for 20ma. output

Set polling period for sensors.

SPPsss

sss = number of seconds between polling cycles.

Set time & date on real time clock.

SRTC[Dmmddyy][Thhmmss]

Dmmddyy	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 & 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

T2"…" 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 20 ma output are stepped from 4 ma to 20 ma and back to 4 ma. 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 the RS232 port.

Get version.

GV

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

Get the number of 4 to 20 ma. channels.

G420C

Response: 420Cc c = number of channels

Get the configuration of a 4 to 20 ma 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: G4[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: G4[0|9]Uuu[L|T]dON[NE|LT|EQ|GT|NA]f.fOFF[NE|LT|EQ|GT|NA]f.f

Get LCD & Push to Read parameters.

GLCD

Response: LCDssRrr

Get LCD Title Page

GLCDT

Response: LCDT1”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 first level.
G4 ON & OFF relationships set to NA.
G4 ON & OFF values set to 0.0.

4-20 ma unit numbers are set to 99.
4-20 ma data type/number and unit of measurement set to L0 I (inches).
4 ma level set to 0.0.
20 ma level set to 16.0.
4-20 ma current output level value set to 4 ma.

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 to 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 last screen of sensor data is displayed.

Whenever the sensors are polled, all installed G4 modules and 4-20 ma 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.