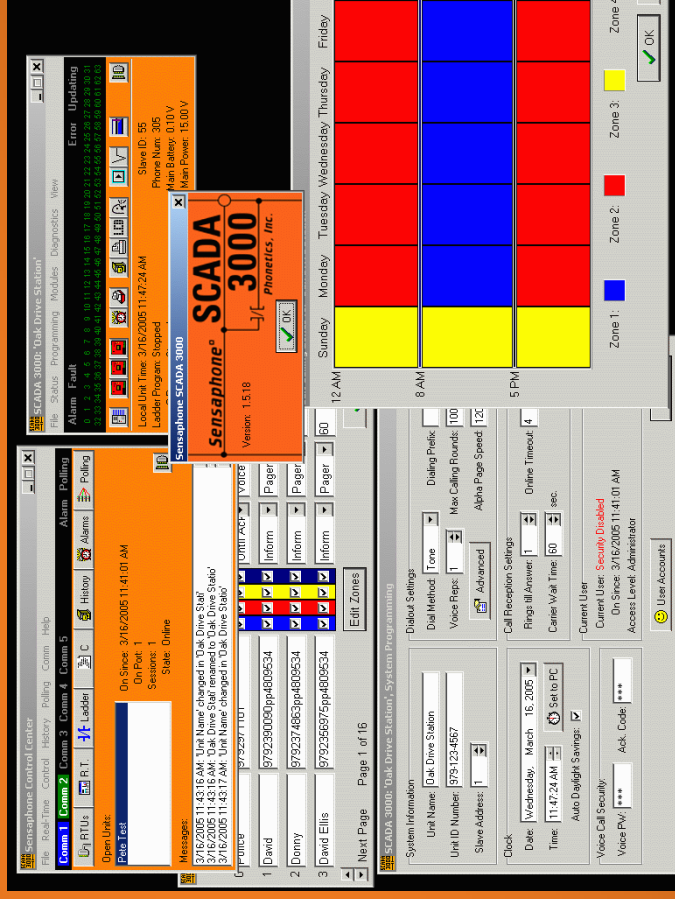


Elemco Building Controls

SCADA 3000

An Intelligent RTU

and software system



for powerful, low cost SCADA solutions

SCADA 3000 is a Combination:

Alarm Auto-Dialer

- 64 Alarms
- 64 Phone Numbers (Destinations)

Data Logger

- 50,000 records

Logic Controller (PLC)

- Ladder Logic
- C Programming
- PID Loop control

SCADA/HMI Software

- RTU Configuration
- Ladder & 'C' Program Editors
- Data Log Viewing & Processing
- HMI / MMI Interface Development
(Real-Time Screen)



SCADA 3000 MAIN RTU HARDWARE FEATURES

TWO RS232 SERIAL PORTS

For use with a standard radio modems or local programming from a laptop.

RJ11 PHONE CONNECTION

For connection to standard phone lines. Options available for 33.6kbps modem and real voice communications.

LCD READOUT & KEYPAD

For local access to any I/O value.

16 UNIVERSAL INPUTS

Analog and digital signal capability.

8 RELAY OUTPUTS

2 Amp contacts with LED status.

I/O EXPANSION PORT

Up to 144 analog/digital points.



SCADA 3000 I/O EXPANSION

EXPAND UP TO 144 TOTAL I/O BY ADDING EXTERNAL I/O MODULES

Available Modules:

UNIVERSAL INPUT MODULE

8 input channels identical to the 16 universal inputs on the SCADA 3000 main RTU.

RELAY OUTPUT MODULE

8 latching relays identical to the relay outputs on the SCADA 3000 main RTU. Rated at 2 Amps and 125 VAC

ANALOG OUTPUT MODULE

4 analog output signals that can be configured as 4–20mA or 0–10V.

PULSE COUNT MODULE

4 pulse totaling channels & 4 virtual rate calculation channels. Capable of counting pulses at a rate of up to 10,000 pulses per second (10Khz).

ANNUNCIATOR MODULE

8 bi-color (red/amber) LED indicators display the status of assigned I/O points.



SCADA 3000 ALARM DIALOUT

64 'Destinations' programmable as any of the following types:

Voice – Spoken voice message delivered directly to a programmed phone number

Fax - Dials directly to a fax machine.

Alpha - Dials directly to an alphanumeric pager to deliver an 80 character text message. Can also be used to send a text message to a cell phone

Pager – Uses Touch-Tones to leave a numeric message on a pager.

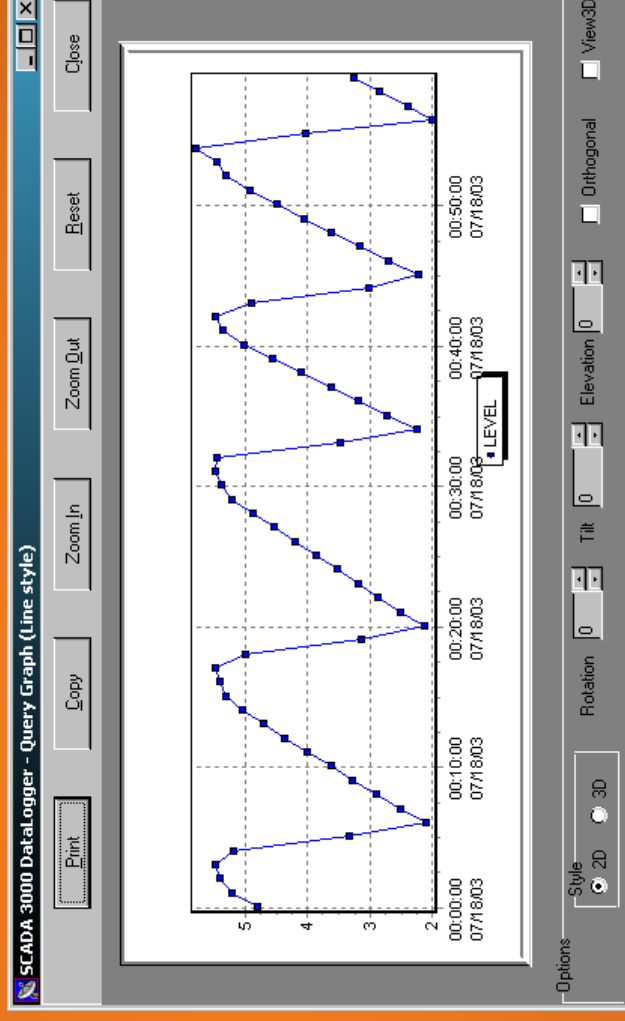
Modem - Dials to a modem attached to a PC running the SCADA 3000 software.

E-Mail – Forwarded E-Mail message including unit information and all alarm information

SCADA 3000 DATA LOGGER

- Internally logs 50,000 records up to 128 at a time
- FIFO storage
- Records must be downloaded to the PC to be viewed using the included software application.
- PC Data Log Viewer software includes Query, Import, Export, Delete, and Graph utilities

SAMPLE GRAPH:



SCADA 3000 CONTROL FEATURES

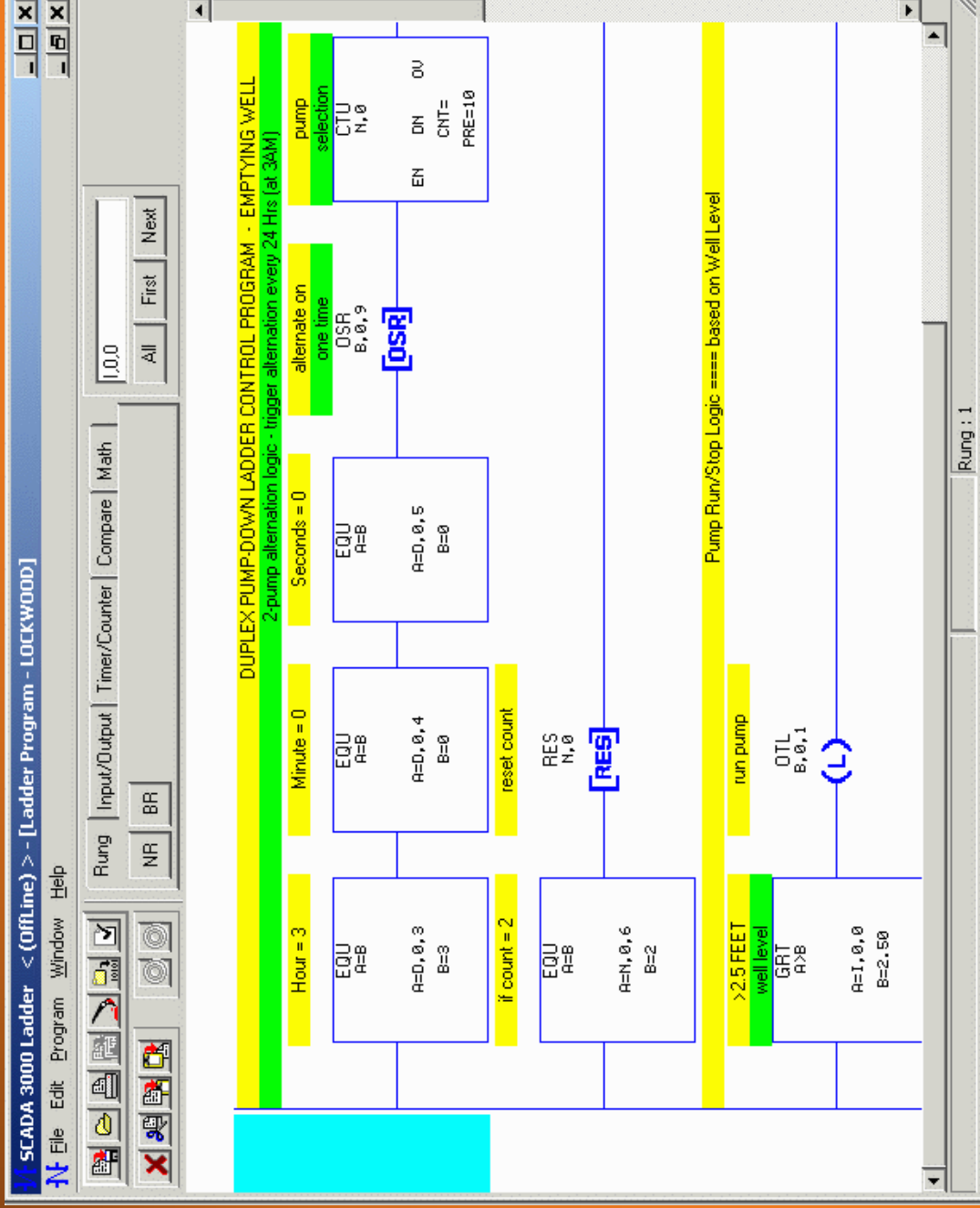
- PID - Closed-Loop Setpoint Control
- 8 Fill-the-Blank Loops Included
- “Cruise Control”

The screenshot shows a software window titled "SCADA 3000: 'A1-DOWAGIAC CREEK', PID Setup". The window has a title bar with standard minimize, maximize, and close buttons. Below the title bar is a row of eight buttons labeled "PID 0" through "PID 7". The "PID 0" button is highlighted with a grey background. The main area of the window contains the following fields and controls:

- Name:** An empty text input field.
- Enable PID:** A checkbox that is currently unchecked.
- Status:** A text label displaying "Stopped" in red.
- Input UAF:** A text input field containing "-0.0" and a dropdown menu showing "...".
- Output UAF:** A text input field containing "-0.0" and a dropdown menu showing "...".
- Data Type:** Two radio buttons: "Constant" (which is selected) and "UAF".
- kp factor:** A text input field containing "0.00".
- ki factor:** A text input field containing "0.00".
- kd factor:** A text input field containing "0.00".
- Reload Time:** A text input field containing "0.0" followed by the unit "secs".
- Target Set Point:** A text input field containing "0.00".
- Dead Zone:** A text input field containing "0.00".
- Use Output Limits:** A checkbox that is currently unchecked.
- Min:** A text input field containing "0.00".
- Max:** A text input field containing "100.00".
- OK:** A button with a green checkmark icon and the text "OK".

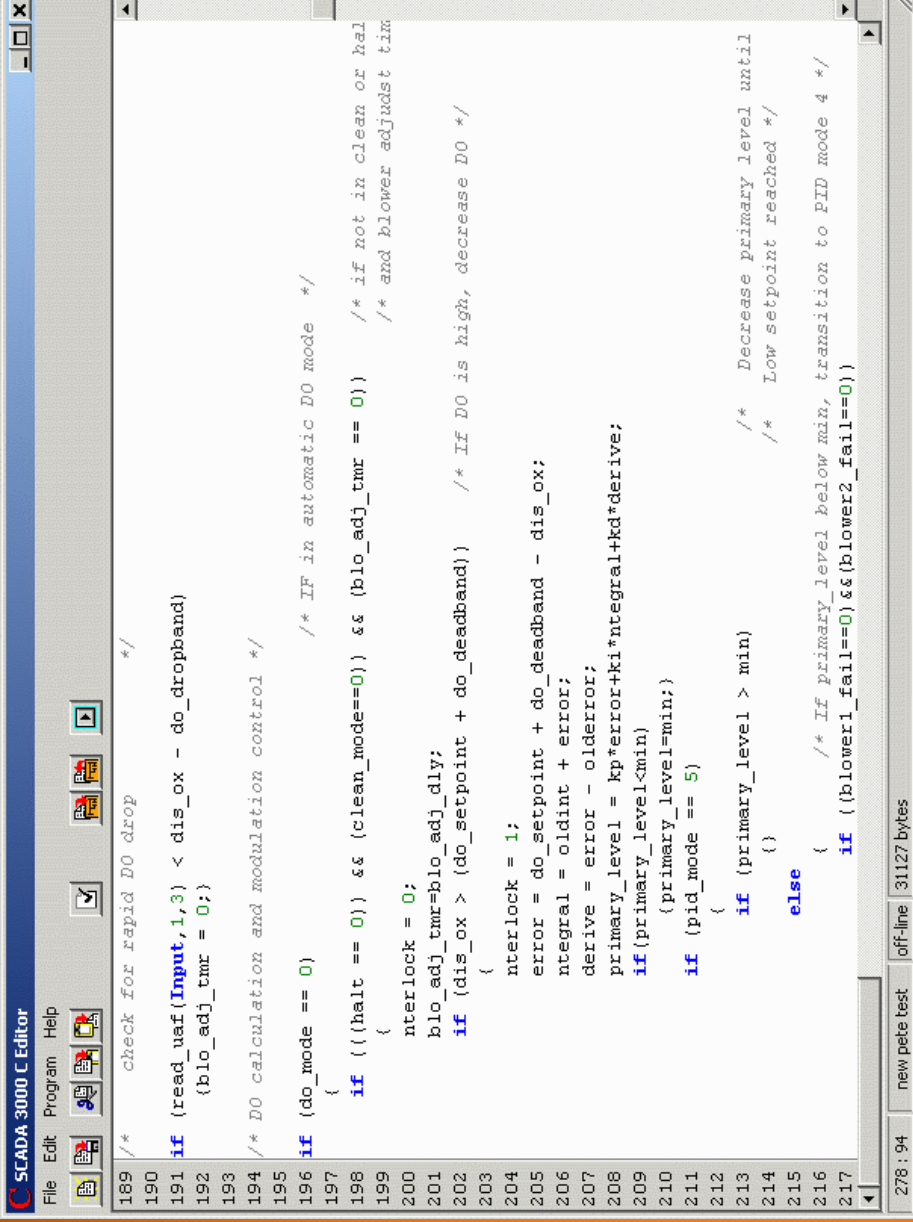
SCADA 3000 CONTROL FEATURES

- LADDER LOGIC - Simple On-Off Control
- LADDER PROGRAM EDITOR INCLUDED



SCADA 3000 CONTROL FEATURES

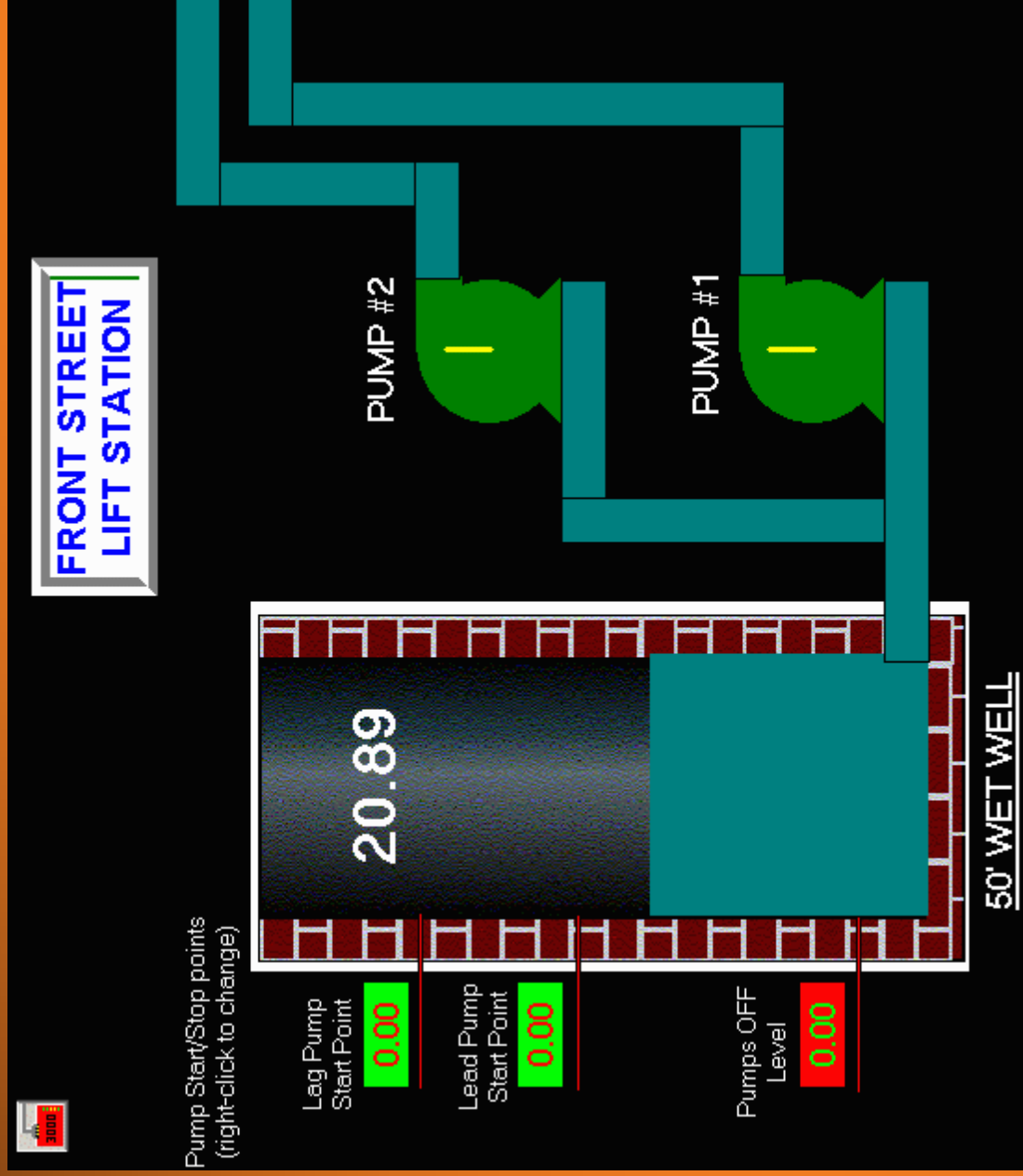
- 'C' PROGRAMMING
Complex math or repetitive calculations
- 'C' PROGRAM EDITOR INCLUDED



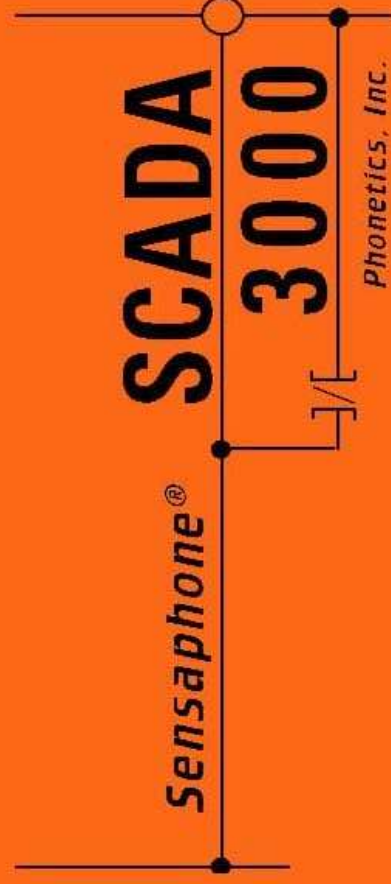
```
189 /* check for rapid DO drop */
190
191 if (read_uaf(Input,1,3) < dis_ox - do_dropband)
192 {blo_adj_tmr = 0;}
193
194 /* DO calculation and modulation control */
195
196 if (do_mode == 0)
197 {
198     if (!(halt == 0) && (clean_mode==0) && (blo_adj_tmr == 0)) /* if not in clean or hal /* IF in automatic DO mode */
199     {
200         nterlock = 0; /* if not in clean or hal /* and blower adjust tim
201         blo_adj_tmr=blo_adj_dly;
202         if (dis_ox > (do_setpoint + do_deadband)) /* IF DO is high, decrease DO */
203         {
204             nterlock = 1;
205             error = do_setpoint + do_deadband - dis_ox;
206             ntegral = oldint + error;
207             derive = error - olderror;
208             primary_level = kp*error+ki*ntegral+kd*derive;
209             if(primary_level<min)
210                 {primary_level=min;}
211             if (pid_mode == 5)
212             {
213                 if (primary_level > min) /* Decrease primary level until
214                     {} /* Low setpoint reached */
215                 else
216                     {
217                         if ((blower1_fail==0)&&(blower2_fail==0))
```

SCADA 3000 REAL-TIME SCREENS

- Design Custom Graphic Screens
- Real-Time Screen Editor Included



Sensaphone SCADA 3000



Made in the USA
Elemco Building Controls
908-281-2201