

## SECTION 3: OPERATOR PANEL

### 3-1 General

The operator panel, which is normally accessible from the outside of a panel or door, provides a means for being alerted to specific conditions, receiving functional help, programming, and parameter monitoring/selection (Figure 2-1). For the purpose of familiarization, the panel is divided into three sub-sections and discussed individually:

- LEDs
- Display Window
- Pushbuttons

### 3-2 LEDs

LEDs are used to indicate a number of functions, operations and/or events (Figure 2-1). Four LEDs at the top of the IQ Analyzer provide a quick snapshot of the unit's status. Twelve LEDs located next to the "Up" and "Down" pushbuttons indicate the Meter Menu category.

#### Normal LED

This LED is blinking green and indicates power to the unit, normal system operation and that all parameters are within programmed thresholds. This LED will not be lighted if the unit is wired incorrectly or experiences a malfunction. The display window will show the cause of the error or failure upon power-up.

#### Event LED

This LED will blink to indicate that an event has occurred with data available for review via Event Analysis Screens. It continues to blink until data is acknowledged by entries to the event screen or remotely via PowerNet. The event conditions are defined during programming.

#### Relay LED

This LED will be lighted continuously to indicate one or more of the Form-C relays have changed from a normal operating state. It remains lighted until normal relay conditions are reset. The relay conditions are defined during programming and the Reset Mode.

#### Program LED

This LED will be lighted continuously to indicate that the Program Mode has been selected and program screens are displayed. While in the Program Mode, the IQ Analyzer continues to perform all the functions it normally performs when not in the Program Mode.

#### Function LEDs

These LEDs indicate the general grouping of the metered parameters within the "Meter Menu" (current, voltage etc.). The individual LED lighted depends

upon the particular group of parameters being displayed at that particular time.

### 3-3 Display Window

The IQ Analyzer provides a comprehensive array of metered parameters via its Display Window (Figure 2-1). Eight different categories of Display Screens can be presented via the Display Window.

#### Eight Basic Display Screen Categories

- Programming
- Meter Menu
- Trend Analysis (min/max and trend data)
- Event Analysis (event data and event log)
- Harmonic Analysis
- Demand Analysis
- Help
- Reset Menu

For all the screens, the flashing parameter is active and will be used when a selection or entry is to be made within a screen.

#### Program Mode Screens

When the Program Mode Pushbutton is pressed, the IQ Analyzer displays the top level screen of the Program Mode which includes (Figure 6-1):

- Date/Time of Last Programming
- INCOM Network Address
- Software Version
- Password Entry Fields

The device, upon correct password entry, will enter the tree of screens for setting up the IQ Analyzer (Figure 6-3). Up to eight lines of text are displayed on each screen (Figure 3-1).

#### Meter Menu Screens

The IQ Analyzer allows viewing of commonly used parameters by scrolling through its LED indicator Meter Menu. These screens each show one or more of the main parameters being metered (Figure 3-2). Movement between the different screens is accomplished using the Up, Down, and Home pushbuttons. The four function pushbuttons just below the Display Window permit access to expanded metering and analysis screens which provide detailed trend, harmonic, event and demand data (Figures 3-3 to 3-6).

New to the IQA6400/IQA6600 Series Meter Menu are time of use registers that partition energies and demands into four billing rates, according to the day of week, time of day, and season schedules. In addition, up to 22 holidays can be selected for special

scheduling. Figures **3-9** and **3-10** are examples of time of use energy and demand displays.

**Trend Analysis Screens (min/max data)**

When the TRND(F1) function pushbutton is pressed, the unit enters the tree of screens that stores min/max information. They consist of time and date stamped minimum and/or maximum values for current, voltage, power and power factor. Eight lines of text are displayed per screen (Figure 3-3). For additional information, refer to paragraph 5-5.

**Trend Analysis Screens (trend data)**

When the TRND(F1) function pushbutton is *pressed and held*, the unit enters the tree of screens that present stored data for four periodic trends. Eight lines of text are displayed per screen. See Figure 3-11 and Figure 3-12.

**Event Analysis Screens (event data and log)**

When the EVNT(F2) function pushbutton is pressed, the unit enters a tree of screens with complete information for up to ten event conditions. Eight lines of text are displayed per screen (Figure 3-4). For additional information, refer to paragraph 5-5.

When the EVNT(F2) function pushbutton is *pressed and held*, the unit displays the first page of logged events. Use PGDWN(F3) to page down through the logs. Eight lines of text are displayed per screen. See Figures 3-11 through 3-15 for an example of energy trend data. Specifically, Figure 3-11 shows the top-level trends 1-4 while Figure 3-12 shows the trend buffers that are associated with Trend1. Figures 3-13 through 3-15 show the data for a selected buffer.

**Harmonic Analysis Screens**

The F3 function pushbutton is used to access a tree of screens which contains complete harmonic data for each voltage and current. Eight lines of text are displayed per screen (Figure 3-5). For additional information, refer to paragraph 5-5.

**Demand Analysis Screens**

The F4 function pushbutton is used to access a tree of screens with detailed demand data. Eight lines of text are displayed per screen (Figure 3-6). For additional information, refer to paragraph 5-5.

**Help Screens**

When the Help Pushbutton is pressed, the IQ Analyzer displays the top level Help Screen. The category of help is selected from the top level Help Screen followed by screens offering different levels of help in a selected category (Figure 3-7). Troubleshooting includes the firmware revision and date.

**Reset Menu Screens**

The "Reset" pushbutton is used to access a password protected tree of screens (Figures 3-8 and 5-40). Up to eight lines can be displayed to direct actions for resetting a variety of programmed parameters. Refer to Reset Pushbutton in paragraph 3-4 and paragraph 5-7 for additional information.

**3-4 Pushbuttons**

The front operations panel supports eleven membrane pushbuttons (Figure 2-1). All pushbuttons are blue. Pushbuttons accomplish their function when pressed and released. The "Up" and "Down" pushbuttons and certain function pushbuttons will, however, continue to scroll if they are pressed and not released.

**Reset Pushbutton**

The "Reset" pushbutton causes the IQ Analyzer to enter a menu of reset functions. If the condition that is outside normal thresholds remains, the IQ Analyzer's relays will remain in the alarm state.

Pressing and releasing the "Reset" pushbutton prompts the password protected "Reset Display Screen," allowing an operator to perform certain activities.

**Operator Permitted Activities**

- Reset Peak Demands or Energy
- Reset Minimum/Maximum Values
- Reset Relay Outputs
- Reset Events and Event Logs
- Reset Trends (1-4)

While in the Reset Mode, the unit continues to monitor the line. Refer to Section 5 for the IQ Analyzer's operational details.

**Program Pushbutton**

The IQ Analyzer may be completely programmed via the "Program" pushbutton or through the communications port. While in the Program Mode, the unit continues to monitor the line.

Programming is password protected. In addition, Discrete Input#3 may be used as an additional safeguard for energy related settings. For further descriptions of programming details, see paragraphs under 5-5.7.

The “Program” pushbutton may be used at any time the IQ Analyzer is operational. When pressed and released, the display will change to the top level of the Program Mode hierarchy which displays:

- Date/Time of Last Programming Activity
- INCOM Network Address (IPONI/EPONI)
- Software Version
- Password Entry Fields (10000 default pswd)

The Program Mode will be exited when the “Program” or “Home” pushbutton is pressed and released. The IQ Analyzer automatically returns to the Meter Menu if no programming activity is detected for the optionally programmed time-out period of up to 15 minutes.

### Help Pushbutton

The “Help” pushbutton will function any time the IQ Analyzer is operational. When the pushbutton is pressed and released, the displayed screen will change to present a main menu for help. From the main menu a help category is selected with several levels of help. The “Help” pushbutton will function any time the IQ Analyzer is operational. When the pushbutton is pressed and released, the displayed screen will change to present a main menu for help. From the main menu a help category is selected with several levels of help screens. The Help message will remain in the screen for the shorter of a programmed time-out period of up to 15 minutes or until any other pushbutton is pressed.

The normal Help Mode, when activated by the “Help” pushbutton, allows the operator to view Help Screens.

### Help Screens

- How Help Works
- Faceplate Operation
- Meter Menu Screens
- Trend, Event, Harmonic, and Demand Analysis Screens
- Programming
- Network Option
- Troubleshooting
- Technical Support

Refer to paragraph 5-3 for more detailed information on the Help Mode.

### Previous Level Pushbutton

The “Previous Level” pushbutton is used in the Analysis, Program or Help Modes to move the display back to the previous higher level in the tree structure until it ultimately reaches the last “Meter Menu” screen viewed.

### Home Pushbutton

When pressed and released while the IQ Analyzer is in any mode except for the “Meter Menu,” the “Home” pushbutton returns the display back to the top level of the menu tree. Pressing again returns back to the last Meter Menu screen viewed. If the “Home” pushbutton is used while in the “Meter Menu” screens, the display returns to the top level screen either *Current* or *Demand*, depending upon which column of “Meter Menu” functions the IQ Analyzer is in at that time. Continued use of the “Home” pushbutton causes the IQ Analyzer to alternate back and forth between the top levels of the two “Meter Menu” columns, namely *Current* and *Demand*.

### Up Pushbutton

The “Up” pushbutton steps up through the “Meter Menu” screens of the IQ Analyzer and wraps around from the first menu to the last menu. The display will scroll continuously if the pushbutton is held depressed with a momentary pause on each screen.

### Down Pushbutton

The “Down” pushbutton steps down through the “Meter Menu” screens of the IQ Analyzer and wraps around from the last menu to the first menu. The display will scroll continuously if the pushbutton is held depressed with a momentary pause on each screen.

### F1-F4 Function Pushbuttons

Four “Function” Pushbuttons located between the “Previous Level” and “Home” pushbuttons provide different operational functions, depending upon the specific screen being viewed. Which pushbutton to use and when will be determined by the individual key labels (definitions) in the display for a specific “Mode.” In the “Meter Menu,” F1 - F4 are:

- Min/Max Data (TRND) = Press F1
- Trend Data (TRND) = Press & Hold F1
- Event Data (EVNT) = Press F2
- Event Log (EVNT) = Press & Hold F2
- Harmonics (HARM) = F3
- Demand (DEMD) = F4

```

PGM/GEN
SELECT PARAMETER:
TYPE OF SYSTEM
FREQUENCY
INCOMING L-L VOLTAGE
PT PRIMARY RATING
CT PRIMARY RATING
SEL      UP      DOWN  PGDN
    
```

Figure 3-1. Typical Programming Screen

```

/HARMONIC
SELECT PARAMETER:
CURRENT-%FUNDAMENTAL
CURRENT-AMPERES
VOLTAGE-%FUNDAMENTAL
VOLTAGE-VOLTS
#9 12/31/99 12:36:40P
SEL      UPDOWN  NEW
    
```

Figure 3-5. Typical Harmonic Analysis Screen

```

IA=      2031
PEAK AMP DEMAND
Σ=+     2634
PEAK KILOWATT DMD
TRND  EVNT  HARM  DEMD
    
```

Figure 3-2. Typical Meter Menu Screen

```

/DEMAND
SELECT PARAMETER:
CURRENT – PRESENT DMD
CURRENT – PEAK DEMAND
POWER – PRESENT DEMAND
POWER -- PEAK DMD
#9 12/24/99 10:30:00P
SEL      UPDOWN
    
```

Figure 3-6. Typical Demand Analysis Screen

```

/MINMAX/AMPS/IA/MAX

IA= 2648.43 AMPS
12/31/99 5:16:15P

NEXT
PARAM      MIN      MAX
    
```

Figure 3-3. Typical TRND Min/Max Screen

```

HELP MENU: SELECT ONE

-HOW HELP WORKS
-FACEPLATE OPERATION
-METER-MENU SCREENS
-TRND EVNT HARM DEMD
-PROGRAMMING
SEL      UPDOWN  PGDN
    
```

Figure 3-7. Typical Help Screen

```

SELECT EVENT:
#1 12/28/99 10:30:03A
MANUAL CAPTURE
#2 12/31/99 4:49:08P
PERCENT THD (IA)
SEL      UP      DOWN  PGDN
    
```

Figure 3-4. Typical Event Analysis Screen

```

RESET/
CHOOSE CATEGORY:
RESET PEAK DEMAND
RESET MIN/MAX
RESET RELAYS
RESET EVENTS/LOGS
RESET TRENDS
SEL      UP      DOWN
    
```

Figure 3-8. Reset Screen

```

TIME OF USE REGISTERS
123456789 * RATE1
123456789 RATE2
123456789 RATE3
123456789 RATE4
493827156 TOTAL
      NET KWH
TRND  EVNT  HARM  DEMD

```

Figure 3-9. Typical Time of Use Energy Screen

```

/TREND 1/BUF29
10 BYTES / 2 ITEMS
12/30/99 11:35:OOPM OPEN
12/31/99 11:45:OOPM CLOSED
5 MIN / SAMPLE
12/30/99 11:35:OOPM
NET KWH = 493826012
      PGDWN LAST

```

Figure 3-13. Energy Trend Example (Page1)

```

RATE1 * IAVG = 1234.56
RATE2 IAVG = 123.45
RATE3 IAVG = 12.34
RATE4 IAVG = 0
PEAK IAVG = 1234.56
1/26/OO 11:31:12AM
      PEAK AMP DEMAND
TRND  EVNT  HARM  DEMD

```

Figure 3-10. Typical Time of Use Peak Demand

```

/TREND 1/BUF29 PO2
12/30/99 11:40:OOPM
NET KWH = 493826123
12/30/99 11:45:OOPM
NET KWH = 493826234
12/30/99 11:50:OOPM
NET KWH = 493826345
      FIRST PGUP PGDWN LAST

```

Figure 3-14. Energy Trend Example (Page2)

```

/TREND
SELECT PARAMETER:
TREND1 31 BUFFERS
TREND2 NO BUFFERS
TREND3 NO BUFFERS
TREND4 5 BUFFERS

      SEL UP DOWN

```

Figure 3-11. Trend Analysis Menu

```

/TREND 1/BUF29 P30
12/31/99 6:40:OOAM
NET KWH = 493834567
12/31/99 6:45:OOAM
NET KWH = 493834678
12/31/99 11:45:OOAM
NET KWH = 493834789
      FIRST PGUP PGDWN LAST

```

Figure 3-15. Energy Trend Example (Page30)

```

/TREND 1
SELECT SAVED BUFFER:
30 OPEN BUFFER
29 12/31/99 11:45:OOP
28 12/30/99 11:30:OOP
27 12/29/99 11:15:OOP
26 12/28/99 11:00:OOP
      SEL UP DOWN PGDN

```

Figure 3-12. Typical Trend Analysis Buffers

This page left blank intentionally.