

ProTalk

CV3

Installation & Operation Manual

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1. INTRODUCTION

The ProTalk Cv3, model B1277, is a device used to monitor sensors at an unattended site and provide scheduled reports or announce alarm conditions over a cellular network and/or a two-way radio or public address system. It is compatible with many temperature, humidity, and fluid level sensors as well as smoke, fire, intrusion, and other discrete sensors. The device also has four relay outputs that can be operated automatically or manually (by using a remote telephone) for control of external equipment.

Configuration of the ProTalk Cv3 can be accomplished using the dedicated PC application. Additionally, limited programming can be done using a local programming telephone or by remotely calling in to the unit. When using either the local or a remote telephone to program the unit, the unit prompts you step-by-step for database parameters using spoken phrases and speaks back all the values you have entered.

The sections in this manual show the installation and operation of the ProTalk Cv3, as well as instruction for programming the unit using the keypad on your telephone or by downloading a database from an attached computer.

2. BEFORE YOU BEGIN

Included with this device are the following:

- 16 pin terminal block for wiring sensor inputs
- 16 pin terminal block for wiring relay outputs/radio/power
- USB cable for PC programming
- Programming software CD-ROM

May also include:

- Carrier specific SIM Card
- Dipole or other Antenna

System Requirements

The Cv3 is designed to operate on an HSPA & LTE network. In order to operate on a wireless network, you will require an account with a local wireless provider who will provide you with a Mobile Identification Number (MIN).

Additionally, to program the Cv3, one of the following is required:

- Standard telephone set with DTMF keypad, or
- Personal Computer with CD Drive and USB port running Windows 2000/XP/7/Vista/10

Registering the Cellular Transceiver

To activate the embedded cellular transceiver for use on the HSPA/LTE network, you will need to obtain a phone number from your wireless provider. You will need to give your wireless provider the following information:

- SIM Card Number – included in the accessory bag
- Installed “home” location – establishes the local calling region
- A billing contact name and address

SIM Card (19 or 20 digits) _____

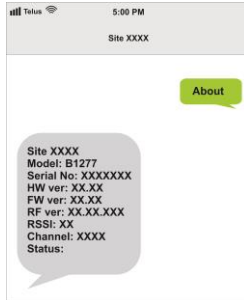
Phone Number (10 digits) _____

Confirm Device Information

There are two ways to confirm device information; each provide a different level of information.

Method 1: Text “About” to the device phone number.

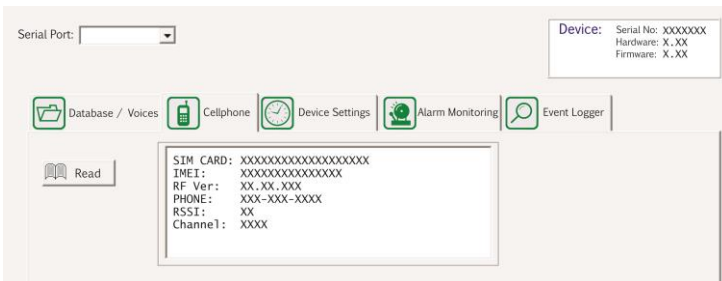
The device will respond with the model number, serial number, hardware version of the device, firmware version of the device, RF module software version, RSSI level, Channel and Status.



Method 2: Connect the device to a PC and, using the programming software, go to Program>Cell Phone and press Read.

The text boxes will populate with the serial number, hardware version of the device, firmware version of the device, SIM card number, IMEI number*, RF module software version, Phone number, RSSI level and Channel.

*Modules programmed to operate on the Verizon network will be identified by an IMEI ending in VZW.



Updating the RF Module Software

To update the RF module software, text “_#fota_upd” to the device.


3. POWER REQUIREMENTS

The Cv3 requires a DC power supply voltage between +9 to +30 Volts. This supply should be capable of delivering at least 1 Amp of current. Connect your DC power source to the Ground (GND) and Positive (PWR) terminals on the terminal block.

Optional Internal Battery Backup

When the Cv3 is equipped with the optional internal battery backup, it will continue to function without primary power. The life of the battery is dependant on unit operations and call outs during the power outage. Should the battery voltage drop below +9 Volts, the Cv3 will disconnect and shutdown. The internal battery backup is intended as a fail-safe during power outages and should only be used as a temporary means to provide power to the unit.

The internal battery charger operates with input voltages between +8 and +30 volts DC. The internal battery is limited to 1.4Ahr; if you require a larger battery capacity, please contact our sales office for alternative battery options.

Since a Cv3 equipped with an internal battery will continue to function in the absence of primary power, a means of manually shutting the system off has been provided. This feature is used when servicing or relocating the unit. The shutdown switch is identified by the  symbol on the label and is located on the back of the unit. A forced shutdown can only be done when the primary power is absent. Press and hold the shutdown switch for five seconds to force the Cv3 into shutdown mode. After five seconds, the internal battery will be disconnected and the unit will not be operational. This can be verified by noticing that none of the indicator LEDs are on or flashing. The Cv3 will return to the operational state when the primary power is applied again.

The internal battery option is not recommended for applications requiring low power consumption. The battery can be discharged as low as -40°C (-40°F), though it shouldn't be charged below -20°C (-4°F).

4. INSTALLATION

The B1277 Cv3 should be installed in a clean, dry location suitable for electronic equipment.

Caution: Power and antenna cables should be connected only after the installation is complete.

In order to communicate with neighbouring cellphone towers, you will need to attach an antenna to the Cv3. The air interface for this phone is an SMA connector on the backside of case.

A dipole antenna was included in the purchase of this product. This antenna is suitable for indoor use only and is limited in its range. The antenna should be connected to the 'Main' SMA connector. The 'AUX' port has been added to utilize future MIMO (multiple input multiple output) wireless technology. Please contact our sales office if your needs exceed the limits of this antenna, as we may be able to supply or recommend an appropriate substitute.

Installation using a two-way radio or public address system

The radio port provides the interface to a customer supplied mobile radio base station. It can also be connected to a public address system. This port supports outgoing (TX) audio, incoming (RX) audio, a push-to-talk (PTT) line to control the transmitter and a carrier operated switch (COS) line to monitor if the radio system is busy. Both audio lines are single ended and have independent level controls. The PTT line is an open collector driver. The COS line uses a ground closure to sense activity and can be programmed for either normally open or normally grounded operation.

Wiring Your Inputs

Connections

The Cv3 has ten inputs for connection to customer alarm signals. Each input can be independently programmed to accept either a digital or analog signal. Refer to Figure 1 for details of the connector pinouts.

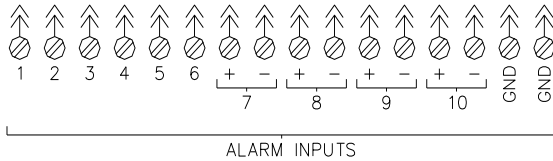


Figure 1 Alarm Input Connections

Contacts and Other Digital Alarm Inputs

When programmed for digital operation, the high (or open) state is provided by a switched internal pullup resistor connected to a +5 volt source. The low state is when the input voltage is below +2 volts. For most applications, this is done by a closure to ground using either a relay contact or an open collector/drain transistor. A voltage source can be used for a digital alarm provided it can go below the +2 volt threshold and sink 1 mA. A voltage signal of up to +36 volts can be used without damaging the input. Do not connect AC voltage sources of any type to the inputs. For digital operation, connect the signal to the single terminal for inputs 1 through 6 and the + terminal for inputs 7 through 10. Technical drawings have been provided on page 32 for your reference.

In addition to the standard detection of an alarm state at the input, a digitally formatted input can also be configured as an intrusion alarm that can be armed and disarmed or a watchdog type of alarm that requires a periodic refresh signal to prevent an alarm condition. Alternatively, the input can be configured as a non-alarm type: totalizer, accumulator or pulse width. A totalizer type counts the changes at the input; an accumulator stores the total time that the input is active and a pulse width measures the duration of an active input. These three formats do not generate alarms and must be interrogated to recover the reading.

Each change to a totalizer or accumulator count is stored in non-volatile memory. If a power loss or system restart occurs, the stored count will be recovered from memory and the count will continue without interruption. Note that, in the event of a power loss, any activity that occurred during the outage will not be recorded.

A digital input can also be programmed to perform one of the three Special Purpose functions: local acknowledge, shift select or shift

advance. Shift select is used with a two-position switch that selects one of two shifts. Shift advance is used with a pushbutton switch that advances the shift with each activation.

Temperature and Other Analog Alarm Inputs

All ten inputs can be programmed for monitoring analog voltage signals. Two programmable ranges are available: 0 to +5 volts DC and 0 to +30 volts DC. For analog voltage operation, connect the signal to the single terminal for inputs 1 through 6 and the + terminal for inputs 7 through 10.

Inputs 7 through 10 are also capable of accepting 4-20 mA analog signals. When programmed for analog current operation, the + side of the loop is connected to the + terminal and the negative side to the – terminal. Technical drawings have been provided on pages 32 & 33 for your reference.

Internal Monitoring

The incoming DC power supply is monitored as alarm 11. It has a full-scale range of 30 volts.

Wiring Your Outputs

Refer to Figure 2 for details of output pinouts.

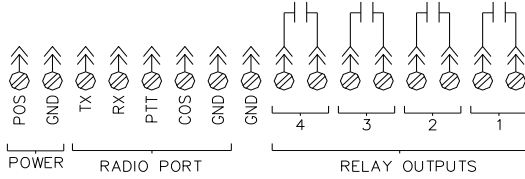


Figure 2 Output Connections

The four output relays can be programmed for either manual remote control or to automatically indicate an internal status of the Cv3. Internal statuses available are ‘new alarm present’, ‘any alarm present’, a pulsed output when an acknowledgement is received or as a system alarm. When used for status indicators, specific relays are assigned as follows:

- Relay 1 New Alarm
- Relay 2 Any Alarm
- Relay 3 Acknowledge Received
- Relay 4 System Error

Two contacts from each relay are brought to the terminal block. The idle state of the contacts (either normally open or normally closed) is selectable in programming.

5. PROGRAMMING

Programming with a PC

In order to program your Cv3 using a PC, you will need to install the appropriate programming software. A complimentary copy of our Windows-based software was included in the purchase of the product. Simply insert the disk into your CD/DVD ROM drive, select Software Installation from the CD Menu and follow the InstallShield instructions. Be sure to keep the disk in the drive until your initial programming is complete.

Once the installation of the programming software is complete, you will need to connect your Cv3 to your PC using the provided USB cable and install the USB driver.

To install the USB driver, select USB Driver Update from the CD Menu. This will launch the USB driver application. Select the B1277 Cv3 from the product list. Follow the onscreen instructions and reboot the computer once the installation is complete.

Now that your software and drivers are installed, you are ready to program your unit.

Simply double click the BE shortcut on your desktop or follow your start menu to All Programs and select Barnett Engineering. This will open up a generic folder containing information for all of our products. You will find the Cv3 Configuration Software in the B1277 Cv3 folder. Select this executable and it will open the programming software. Select the appropriate COM port to communicate with the B1277 (eg. a USB COM port will have “(USB)” after the COM port number.

Programming with a Handset

The B1277 is capable of recording voice messages and limited programming using a touch-tone telephone; either locally through the programming port or remotely by calling in to the unit.

Local Programming

A standard RJ11 Telephone jack has been provided. This port accepts a standard touch-tone telephone set and is used to record voices or perform basic, programming tasks. **DO NOT PLUG A TELEPHONE LINE INTO THIS PORT.**

To begin a local programming session, lift the handset to your ear.

The B1277 has stored voice prompts to guide you through the programming session. The first message you will hear is "Enter Command Code" followed by a pause, and then, "Enter Program Code". Refer to the Handset Programming Codes on Page 11 for a list of Program Codes and the subsequent pages for instructions on programming each section.

Remote Programming

For a remote session, call in to the B1277 from your touch-tone telephone set.

When answering an incoming call, this unit responds depending on the previously programmed Security Level setting:

- Level 1: The call will be answered with a message containing the Site ID, any Groups that have alarms, followed by the prompt "Enter Command Code". An Access Code is not required.
- Level 2: The call will be answered with a message containing only the Site ID. To advance any further the caller must enter the Access Code within 10 seconds.
- Level 3: The call will be answered with the device emitting short beeps. To advance any further the caller must enter the Access Code within 10 seconds.

If the unit's security level is set to Level 1, or the Access Code was successfully entered, the B1277 will say "Enter Command Code" and then pause for several seconds. If the Access Code is entered again, or the Access Code is blank, the unit will enter the programming mode and speak "Enter Program Code". At this time you can enter your program codes using the Program Summary on Page 11.

Handset Programming Codes

The codes used in the main programming menu are given as a summary below. If no keys are pressed for five seconds, the Cv3 will announce the menu choices.

- ①*①* Voices (page 12)
- ②*②* Directories (page 13)
- ③*③* General Site Configuration (page 15)
- ⑥*⑥* Group and Shift Configuration (page 17)
- ⑧*⑧* Reset Database (page 18)
- ⑨*⑨* Cellphone Status (page 19)
- ①①*①* Cellphone Programming (page 20)
- *①*①* Query Version (page 21)
- ⑨⑨*⑨* Outside Line (page 22)

1 Voices**

Cv3: "Program Voice"

Cv3: "Enter Voice Code"

You: **1**** Playback or record voices for Site Name (then
Groups 1 to 6, if used)

2** Playback or record voices for Alarm inputs

3** Playback or record voices for Relay outputs

5** Erase all voices

#** Exit to Main Menu

****** Advance to next voice

Playback or Record Voices

Cv3: "Site is" *"Ajax Compressor Station"*

or "Input 1 is" *"Low Temperature"*

or "Output 1 is" *"Yard Lights"*

You: **2**** Record new voice

#** Exit to voice menu

****** Accept current recording and advance to next
voice

Recording:

Cv3: "beep"

You: *"Acme Lift Station"* (Recording stops with silence)

Cv3: "Site is" *"Acme Lift Station"*

Erase All Voices:

Cv3: "Alert, Enter Octo Three One Star Star"

You: **#31****

Cv3: "Voices are empty"

2 Directories**

Cv3: "Program Directory"

Cv3: "Directory Line 1 is..."

or "Enter Group Number"

You: **1**** Group 1

2** Group 2

•••

6** Group 6

#** Exit to Main Menu

****** Advance to next line

Directory Line

Refer to the command list that follows for the available directory entries.

Cv3: "Group 1 on Shift 1 Directory Line 1 is..."

or "Directory Line 1 is DIAL 4032559544 VOICE"

You: **2**** Edit current line

3** Erase current line

4** Insert line

****** Next line

#** Exit to Directory Menu

Edit current line

Cv3: "beep"

You: **#0 4031234567 #8 ****

(new line is DIAL 4031234567 VOICE)

or **4031234567 ****

(new line is DIAL 4031234567 VOICE)

Insert new line

Cv3: "beep"

You: **#1 #8 ****

(new line is RADIO VOICE)

Directory Commands

Directory programming requires you to enter a sequence of digits that corresponds to a directory line in the PC programming. All of the commands that would appear on that line have to be entered with one string ending in **[*][*]**. Each command consists of a **[#]** digit followed by the digit representing the command followed by digits representing the value (if needed). The list below shows the sequence of digits used to enter the commands and values; the value portion is shown as a single **[X]** and will vary depending on the command it is following.

Quick Commands

[X][*][*]	DIAL & VOICE	[X] is the telephone number.
[#][1][*][*]	RADIO, ALERT & VOICE	
[#][2][X][*][*]	WAIT	[X] is the time in seconds (<255)
[#][9][X][*][*]	SMS TEXT	[X] is the cell phone number.

Custom Sequences

Custom sequences are created by selecting a prefix to define the port, followed by one or more commands and ending in a **[*][*]** suffix.

Prefix Options

[#][0][X]	DIAL	[X] is the phone number.
[#][1]	RADIO	

Command Options

[#][3]	ALERT	
[#][4][X]	2 TONE	[X] is the paging frequencies with an assumed decimal before the last digit and a [*] separating them. [1][2][3][4][5][*][6][7][8][9] will give the A/B paging tones 1234.5/678.9.
[#][5][X]	5 TONE	[X] is the 5 tone paging code with a [*] used to separate the preamble from the code. [1][*][2][3][4][5][6] will give the code 23456 with preamble.
[#][7][X]	DTMF	[X] is the string of DTMF digits.
[#][8]	VOICE	

Example: **[#][1][#][5][1][*][2][3][4][5][6][#][3][#][8][*][*]** would transmit 5 TONE paging tones over the RADIO, then generate an ALERT and speak the alarm VOICES.

3 General Configuration**

Cv3: "Program Site"

Cv3: "Dial Control is . . ."

You: ** Enter new value (0 = off, 1 = on)** Exit to Main Menu** Next setting

Cv3: "Acknowledge Request is . . ."

You: ** Enter new value (0 = off, 1 = on)** Exit to Main Menu** Next setting

Cv3: "Acknowledge Timer is . . ."

You: ** Enter new value (0 = off, 1 = 30 min, 2 = 60 min,
3 = 120 min, 4 = 240 min)** Exit to Main Menu** Next setting

Cv3: "Relay voices are . . ."

You: ** Enter new value (0 = off, 1 = on)** Exit to Main Menu** Next setting

Cv3: "Security Level is . . ."

You: ** Enter new value (1, 2 or 3)** Exit to Main Menu** Next setting

Cv3: "Access Code is . . ."

You: ** Enter new DTMF code** Erase** Exit to Main Menu** Next setting

Cv3: "Status Report is . . ."

You: ** Enter new value (0=disable, 1=enable)** Exit to Main Menu** Next setting

Cv3: "Start Reporting at . . ."

You: ** Enter hour and minute of first auto
report time

0 = not used

4 digit time (eg. 0830)

hours = 01 to 23

minutes = 00, 15, 30, or 45

** Exit to Main Menu** Next setting

- Cv3: "Report Every . . ."
You: * * Enter time between reports
0 + digits = hours (06, 08 or 012
hours)
1 to 7 digits = days (1 = Monday, 2 =
Tuesday...)
 # * * Exit to Main Menu
 * * Next setting
- Cv3: "Status Report Text Message Number is . . ."
You: X * * Enter new destination phone number
 0 * * Erase phone number (disabled)
 # * * Exit to Main Menu
 * * Next setting
- Cv3: "Status Report Phone Number is . . ."
You: X * * Enter new phone number
 0 * * Erase phone number (disabled)
 # * * Exit to Main Menu
 * * Next setting

6** Group Configuration

Cv3: "Program Group"

Cv3: "Group Count is . . ."

You: Enter new value (0 or 2 - 4)
 Exit to Main Menu
 Next Setting

Cv3: "Group N"

Cv3: "Acknowledge Code is . . ."

You: Enter a new DTMF code
 Erase
 Exit to Main Menu
 Next setting

Cv3: "Interrogate Code is . . ."

You: Enter a new DTMF code
 Erase
 Exit to Main Menu
 Next setting

Cv3: "Directory Timer is . . ."

You: Enter new value (1 to 255 min.)
 Exit to Main Menu
 Next setting

Cv3: "Acknowledge Request is . . ."

You: Enter new value (0 = off, 1 = on)
 Exit to Main Menu
 Next setting

Cv3: "Shift Count is . . ."

You: Enter new value 1 to 4
 Exit to Main Menu
 Next group setting

Cv3: "Shift Code is . . ."

You: Enter a new DTMF code
 Erase
 Exit to Main Menu
 Next setting

8 * * **Reset Database**

Cv3: "Empty Program"

Cv3: "Alert, Enter Octo Three One Star Star "

You: **# 3 1 * *** Confirm

* * Exit to Main Menu.

*** *** Exit to Main Menu.

Cv3: "Program is Empty"

9 Cellular Module Status**

Cv3: "Phone Interrogate"

Cv3: "Signal Strength is . . ."
0 to 15; 0-6 = poor 7-15 = good

You: **#**** Exit to Main Menu.
****** Next item.

Cv3: "Roaming status is . . ."
0 or 1; 0=Off, 1=On

You: **#**** Exit to Main Menu.
****** Exit to Main Menu.

0 Cellphone Programming**

The B1277 contains a HSPA/LTE based module that is pre-configured at the factory except for the assigned Mobile Number.

Cv3: "Program Phone"

Cv3: "SIM Card Number is . . ."
+ 19 or 20 digit number

You: #** Exit to Main Menu
** Next item.

Cv3: "Mobile Number is . . ."
+ 10 digit phone number
** Next setting.

*** * * Query Version**

Cv3: "Module_Number is ..."

You: # * * Exit to Main Menu

You: * * Next

Cv3: "Hardware version is ..."

You: # * * Exit to Main Menu

You: * * Next

Cv3: "Firmware version is ..."

You: # * * Exit to Main Menu

You: * * Next

Cv3: "Options are ..."

You: # * * Exit to Main Menu

You: * * Exit to Main Menu

99** **Outside Line**

Cv3: "Beep"

This function is available only with the local telset - not when programming remotely through the cell phone. In order to use the cell phone to make a call, enter the programming mode, then press 99**. The unit responds with a 'beep' and then expects the outgoing telephone number to be entered, followed by **.

6. TESTING THE INSTALLATION

It is advisable to test the state of the cellular network signal as well as the operation of the directories when installing the Cv3. If the cellular signal strength is low, additional measures may be required to ensure reliable operation.

Checking the Cellular Connection

The Cv3 has been outfitted with LED indicators on the top of the unit. The Phone LED and Signal LEDs are used to determine the state of the phone and signal strength of the connection.

<u>STATE</u>	<u>PHONE LED</u>	<u>SIGNAL LEDs</u>
Hardware Failure	Solid Red	1 Rolling Red
Invalid SIM Card	Off	1 to 4 Solid Yellow
Not Registered	Solid Red	4 Solid Yellow
No Signal	Solid Red	4 Flashing Red
Invalid MIN, Not Registered	Flashing Red	4 Solid Yellow
Invalid MIN, Registered	Flashing Green	1 to 4 Solid Green
Invalid MIN, Roaming	Flashing Yellow	1 to 4 Solid Green
Roaming	Solid Yellow	1 to 4 Solid Green
Operation Good, Weak signal	Solid Green	1 or 2 Solid Green
Operation Good, Strong signal	Solid Green	3 or 4 Solid Green
Starting A Call	Flashing Red/Green	1 to 4 Solid Green
Ringing	Flashing Red/Green	1 to 4 Solid Green
Call In Progress	Flashing Red/Green	1 to 4 Solid Green

Table 1 - Signal & Telephone Status Table

Verifying the Telephone Numbers

All of the telephone numbers that are entered into a directory should be carefully checked to guarantee that they are valid numbers and that local (or long distance dialing) is appropriate. After the Cv3 has been programmed, a test should be performed to confirm that these numbers are called correctly.

7. OPERATIONS

This chapter gives a detailed description of exactly how the Cv3 will operate after the start-up programming has been completed. Parameters which may be altered are pointed out, with reference to the appropriate Program Code section.

Alarm Sequence

When the B1277 detects an alarm condition, it dials the first telephone number stored in the directory. When the telephone call is answered, the B1277 will announce its Site ID, the list of any alarms present, and prompt the user to “Enter Acknowledge Code”. It will repeat this message a minimum of three times, pausing five seconds after each announcement to wait for an acknowledgement. When the Acknowledge Code is detected, The B1277 will announce “Alarms Acknowledged” and then prompt you to “Enter Command Code”.

If the calling number is busy, if there is no answer, or if the B1277 does not receive the Acknowledge Code after announcing the alarm, it will terminate the call then call the next number in the directory. If the B1277 reaches the end of the directory without being acknowledged, it will wait two minutes (*Directory Timer*) then start calling again beginning at the top of the directory.

In addition to making voice calls, the B1277 may be programmed to announce the alarms a number of times over radio, a public address system, or send out a Text Message or email containing the alarm information.

Acknowledging an Alarm

When the B1277 calls you on the telephone, it may take up to five seconds before it starts speaking. After it announces the alarms, it prompts you to “Enter Acknowledge Code”. You have five seconds to begin entering digits.

If the B1277 has been programmed to operate its relays (*Output Configuration*), you may send a relay code over the telephone before acknowledging the alarms. The B1277 will actuate the relay, speak the associated voice message, then prompt you again to “Enter Acknowledge Code”. After the B1277 has detected the Acknowledge Code, it will speak the phrase “Alarms Acknowledged” and return to the “Enter Command Code” level. If no activity occurs for five seconds, it will hang up.

Appending the (#) digit at the end of the Acknowledge code allows you to

acknowledge the alarm for 30,60,120 or 240 minutes (*General Operation*). After one hour, the B1277 will check the alarm inputs again, and if the same alarm is still present, it will begin the reporting cycle as if it were a new alarm.

To acknowledge the B1277 locally, configure an input as an Acknowledge Input and activate it. If the Site ID and “Alarm” is heard after attempting to acknowledge the alarms, the unit is reporting that additional alarm conditions exist that have not been announced and the acknowledgement will not occur. If this occurs, enter the Interrogate Code to hear all the current alarm conditions and then enter the Acknowledge Code.

Telephoning the B1277

When you call the B1277 on the telephone, it will answer and announce its site ID, and possibly the phrase “No Alarms”, and then prompt you to “Enter Command Code”. The B1277 then waits ten seconds for you to enter one of the following user defined codes:

- Access code
- Acknowledge code
- Interrogate code
- Totalizer or Accumulator input reset code
- Intrusion input arm or disarm code
- Shift change code
- Relay on or off code
- Program mode access code

If an Access code has not been programmed, the B1277 will automatically go into the programming mode after five seconds, prompting you to “Enter Program Code”. You may then program the B1277 from your telephone the same as you would from a local programming phone.

The B1277 will hang up whenever it has waited for more than ten seconds without receiving a control code.

Reports

At programmed times or specific events, the B1277 will generate and send reports containing the information collected in a text format. A Status Report indicates the value of each of the alarms or monitored inputs at the time the report was sent. An Event Summary Report contains a listing of all events that have occurred since the last report was sent. A Notification Report shows the alarm state of the unit and is sent when the state changes between idle, alarming and acknowledged. Each of the reports is sent only once with no operator response expected.

Indicators

The Cv3 is equipped with Status Indicators to notify the user of the current operations of the unit and to assist in troubleshooting. The indicators are in the form of LEDs on the top of the unit as shown in Figure 3.

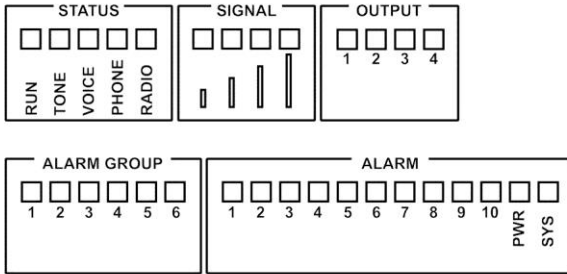


Figure 3 Status Indicators

The indicators are grouped into 5 sections.

1. **ALARM GROUP** (6, one for each group)

If the group is disabled:	Off
If the group is enabled:	
No alarms in the group	Green
Group alarms are unacknowledged	Flashing Red
Group alarms are acknowledged	Solid Red
Group alarms are being reported	Flashing Yellow

2. **ALARM** (12, ten hardware inputs, one power supply monitor & one system alarm)

If the input is disabled:	Off
If the input is enabled:	
Configured as an alarm input (<i>digital, analog, watchdog</i>)	
Idle, no alarm	Off
Alarm is unacknowledged	Flashing Red
Alarm is acknowledged	Solid Red
Watchdog Reset Activity	Blink Green
Configured as a monitored input (<i>accumulator, totalizer, interval timer or analog</i>)	
Analog	Off
Accumulator or Interval timer	Solid Green
<i>while active</i>	
Totalizer	Blink Green

Configured as a Control Function	
Special purpose - acknowledge <i>for 500 msec after each operation</i>	Solid Green
Special purpose – shift 1 or 2	
Shift 1	Solid Green
Shift 2	Flashing Green
Special purpose – advance shift	Blink Green

3. STATUS (5 defined)

Run

During startup initialization or upgrading	Flashing Red
During program mode (PC or handset)	Solid Red
Operating	
No low power modes selected	Flashing Green
Low power mode in effect	
Normal conditions	Short Green Flash
Error condition	Short Red Flash

Tone

Idle	Off
While a tone is being transmitted	Solid Red
While a tone is being received	Solid Green

Voice

Voice	Off
While speaking	Solid Red
While recording	Solid Green

Phone

Refer to the Signal & Telephone Status table found on Page 26

Radio

Idle	Off
While PTT is active	Solid Green
While COS is active (busy)	Solid Red

4. SIGNAL

Refer to the Signal & Telephone Status table found on Page 26.

5. OUTPUT (4, one for each output relay)

If the relay is in the idle state	Off
If the relay is in the ON state	Solid Red
If the relay has failed	Solid Yellow

Power Switch

This small pushbutton switch is located next to the serial connector and is used to bring the system out of low power mode, put the system back into low power mode and to gracefully shut the system down.

When the Cv3 is in low power mode, it will show only a blinking run indicator. Pressing the power switch briefly will restore operation to full power.

While the Cv3 is operating at full power, pressing the switch briefly will force it into low power mode. The unit cannot be forced into low power operation if alarm reporting activities are taking place.

Pressing the power switch continuously for 5 seconds will disconnect the cell phone from the network and gracefully shut down the unit. If the Cv3 is disconnected from the primary power source and is operating from internal battery, the unit will cease using battery power and shut down completely. Normal operation will be restored when primary power is restored.

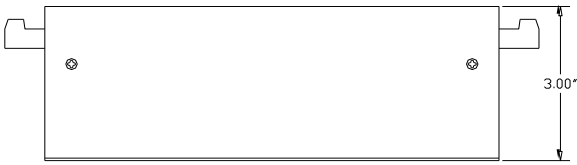
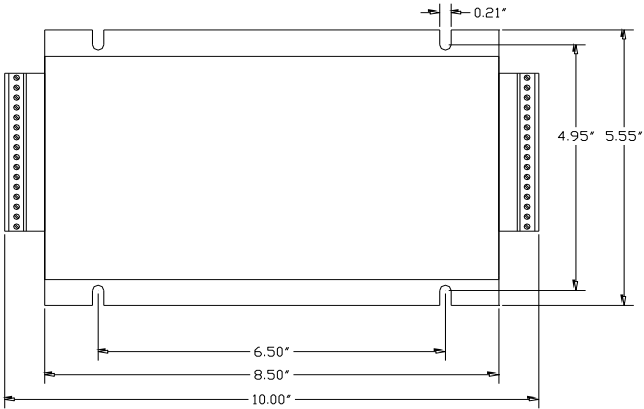
8. SPECIFICATIONS

Physical:	10" wide x 5.6" high x 3" deep Steel, powder coated matte black Mounting ears for panel installation
Environmental:	-40°C to + 60°C, 95% humidity, non-condensing
Power:	Plug-in screw terminal block connection Internally fused at 1.85A +9 to +30 VDC, negative ground, 1.0A Max. Optional internal battery backup: 1.4 Ahr 12 volt battery Built-in charger: Charger operates with input voltages between +8 and +30 VDC
Alarm Inputs: (10)	Plug-in screw terminal block connection All inputs will withstand up to +30 VDC Inputs 1 to 6: Analog voltage mode: Input impedance: 210k ohm Range: 0 to +5 or 0 to +30 VDC Digital mode: Internal 4.7k ohm pull-up resistor to +5 VDC Operates with ground closure Low state threshold of +2 VDC Inputs 7 to 10: Analog voltage mode: Input impedance: 75k ohm Range: 0 to +5 or 0 to +30 VDC Analog current mode: Input impedance: 100 ohm between pins 75k ohm to ground Range: 4 to 20 mA Digital Mode: Internal 4.7k ohm pull-up resistor to +5 VDC Operates with ground closure Low state threshold of +2 VDC
Relay Outputs: (4)	Plug-in screw terminal block connection Contact rating: 2A/30 VDC 2 contact terminals, programmable as normally open or normally closed
Cellphone:	SMA female antenna connector HSPA/LTE cellphone

Radio Port:	Plug-in screw terminal block connection TX audio: 600 ohms, single ended, capacitor coupled Adjustable between 0 dBm and -20 dBm RX audio 600 ohms, single ended, capacitor coupled Adjustable between 0 dBm and -20 dBm
Program Ports:	Telset: RJ11 connector Internal telset bias from the primary power supply Operates with standard touch-tone telephones USB: USB type B connector
Power Switch:	Momentary pushbutton

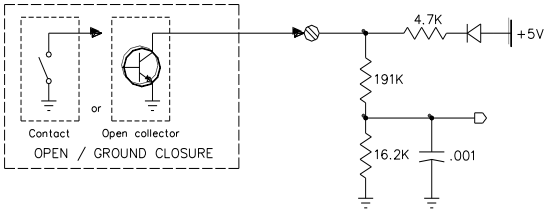
9. TECHNICAL DRAWINGS

Unit Dimensions

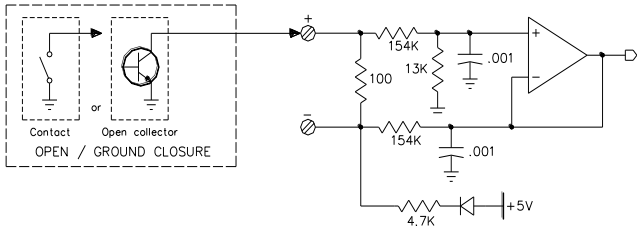


Wiring Inputs

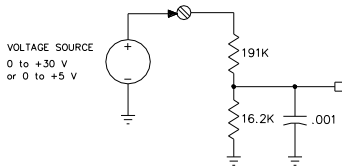
Digital connection – Inputs 1 through 6



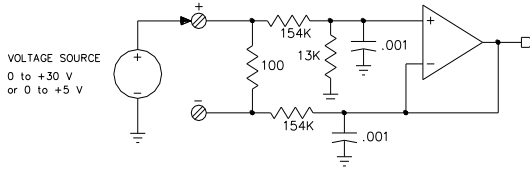
Digital connection – Inputs 7 through 10



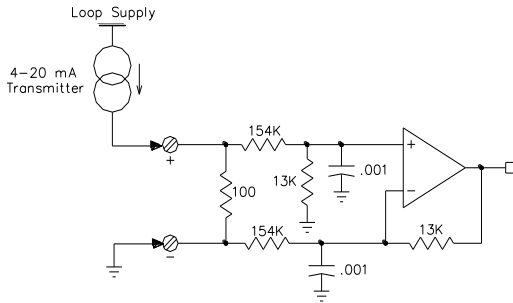
Analog Connection – DC Voltage – Inputs 1 through 6



Analog Connection – DC Voltage – Inputs 7 through 10



Analog Connection – DC Current – Inputs 7 through 10



10. SIM CARD REPLACEMENT

The B1277 utilizes an embedded HSPA/LTE cell phone module to make calls. To operate on a wireless network, a valid SIM card (Subscriber Identity Module) must be installed in this module. The SIM cardholder is located on the front of the case.

It is important to observe proper electrostatic grounding precautions and to disconnect power prior to performing this procedure.

What you'll need:

- Fine point object (eg. paper clip)
- Active SIM card

Installation Steps:

- Use a fine point object to depress the eject button.
- Remove the small black holder and place the SIM card in the holder taking note of the keyed pad.
- Return the holder with the SIM card through the slot in the front of the case.

Testing:

- Apply power to the Cv3 and compare the PHONE and SIGNAL indicators with the chart on page 26.

11. GLOSSARY

Access Code – a string of DTMF digits that act as a security password when calling in to a unit with a security level set to two or three. This string of digits is also required to enter programming mode when calling in to remotely program a unit.

Accumulator – an input type that keeps a tally of the amount of time an input is asserted. If the input is de-asserted, the timing stops and resumes when the input is re-asserted.

Acknowledge Input – an input type that, when asserted, will acknowledge all existing alarms in the device.

Analog Input, 30V – an input type that monitors a voltage and possibly has a high and low alarm setpoint with an accepted range on the input terminal of 0 to +30 VDC.

Analog Input, 5V – an input type that monitors a voltage and possibly has a high and low alarm setpoint with an accepted range on the input terminal of 0 to +5 VDC.

Call Activity Detect – a function that, when enabled, delays alarm annunciation until the recipient of the call speaks into the phone. (eg. “Hello”)

Carrier Operated Squelch – an output from a radio that indicates the receiver squelch is open. This signal is used by the ProTalk Cv3 to determine when the radio system is busy where it should delay making an announcement. a.k.a Carrier Operated Relay (COR)

Control Code – a string of DTMF digits that are recognized by the unit to perform an action. Examples of Control Codes include the Acknowledge Code and an Output On or Off Code. Alternatively, key presses used when programming are referred to as Program Codes.

COS – see *Carrier Operated Squelch*

COR – Carrier Operated Relay - see *Carrier Operated Squelch*

Current Input – an input type that monitors the flow of current in a current loop. This input type may have a high and low setpoint and has an input range of 4 to 20 mA DC.

Digital Input – an input type that, when asserted, generates an alarm condition.

Dipole Antenna – an RF antenna with a simple structure. The dipole antenna included with the Cv3 is intended for indoor use only and has limited range.

Directory – a list of callout instructions that are executed sequentially when an alarm occurs. Each directory line may specify a telephone number to call, a radio transmission with paging tones, a mobile number to send a text message to, or an email address to receive alarm announcements.

DTMF – Dual Tone Multiple Frequency; a series of audible tones used for remote command and control of equipment. a.k.a. touch-tone.

Group – a means of having the alarms created by some inputs respond differently than the others. By default, Groups are not used and all alarms are treated the same. If groups are created, inputs may be individually assigned to the group where separate acknowledge and interrogate codes are defined and the directories used have unique lists of callout instructions.

GSM – Global System for Mobile Communications - a mobile telephony standard used by carriers such as AT&T Mobility, T-Mobile, and Rogers Wireless.

HSPA – High Speed Packet Access (HSPA), is a family of high-speed 3G digital data services provided by cellular carriers worldwide that use the GSM technology

Hysteresis – a dead zone around a low and high alarm setpoint that requires the input to change sufficiently after creating an alarm before the level is recognized as being normal again. The hysteresis value should be set larger than the natural short term variations found on an analog input.

Interval Input – an input type that measures the amount of time the input has been asserted. Each time the input is asserted, the count is reset to zero. When the input is de-asserted, the measured value is maintained until the next measurement begins.

Intrusion Input – an input type that provides a time delay and the ability to enable (arm) and disable (disarm) an alarm using a DTMF code. An alarm condition detected on this input remains until the disarm code is received.

LTE – Long Term Evolution (LTE), is a 4G wireless communications standard designed to provide up to 10x the speeds of 3G networks.

MIN – *see Mobile Identification Number*

Mobile Identification Number – a ten digit number assigned by a cellular provider that identifies a mobile device on their network.

Program Code – a DTMF digit that is followed by two * digits that specify the programming parameter to be changed.

PTT – *see Push To Talk*

Pulse Width – *see Interval Input*

Push To Talk – an output from the Cv3 that provides a ground closure when a radio transmission is required and an open circuit when idle. a.k.a. Push To Transmit

Relay – an output that provides a normally open (Form A) or normally closed (Form B) set of isolated contacts that have the capacity to be used to turn on lights or sirens or control other equipment.

Shift – a time when an alternate directory (or set of directories) is used.

Shift Select Input – an input type that can specify the current shift based on its state or that can advance through the shifts each time it is asserted.

SIM Card – Subscriber Identity Module card - a smart card that stores data for GSM cellular telephone subscribers.

Totalizer – an input type that counts the number of transitions of an input between asserted and de-asserted states.

Watchdog – an input type that remains in the idle state as long as the signal on the input terminal is transitioning between asserted and de-asserted states. If the input stops changing for a specified amount of time, an alarm is generated.

12. PRODUCT SUPPORT

Thank you for choosing the ProTalk Cv3 from Barnett Engineering Ltd.

Technical Support

Technical Support for your ProTalk Cv3 is available as follows:

Network & Billing Support

If you have any questions related to network connectivity or your wireless account, please contact your local wireless service representative.

Product Support

For questions related to activation, performance, service, repair or other technical or product support concerns, please visit our website at www.barnettprotalk.com, contact Barnett Engineering Ltd. At 1-800-268-2646 or email support@barnettprotalk.com

Product Repairs

For all your repair needs, please contact Barnett Engineering Ltd.

Barnett Engineering Ltd. commits to a 'Repair Turnaround Time' of thirty (30) business days on all units under warranty. Repair Turnaround Time is defined as the time elapsed from the day the defective product arrives at Barnett Engineering Ltd. facility located in Calgary, Alberta to the day the repaired product is returned to you.

For non-warranty units, please call Barnett Engineering Ltd. and ask for a repair estimate.

An RMA form is available in the Support section of our website. Please complete this prior to shipping your unit.

Shipping

Customers are responsible for all shipping costs, to and from Barnett Engineering Ltd.

13. NOTICES

Compliance

This Class B digital apparatus complies with Canadian ICES-003. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning

This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause interference to radio communications.

Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, must take whatever measures may be required to correct the interference.

14. WARRANTY STATEMENT

Barnett Engineering Ltd. warrants that all equipment supplied shall be free from defects in material or workmanship at the time of delivery. Such warranty shall extend from the time of delivery for a period of two years. Buyer must provide written notice to Barnett Engineering Ltd. within this prescribed warranty period of any defect. If the defect is not the result of improper usage, service, maintenance, or installation and equipment has not been otherwise damaged or modified after delivery, Barnett Engineering Ltd. shall either replace or repair the defective part or parts of equipment or replace the equipment or refund the purchase price at Barnett Engineering Ltd. 's option after return of such equipment by buyer to Barnett Engineering Ltd.

Shipment to Barnett Engineering Ltd.'s facility shall be borne on account of buyer.

(1) Consequential Damages: Barnett Engineering Ltd. shall not be liable for any incidental or consequential damages incurred as a result of any defect in any equipment sold hereunder and Barnett Engineering Ltd.'s liability is specifically limited to its obligation described herein to repair or replace a defective part or parts covered by this warranty.

(2) Exclusive Warranty: The warranty set forth herein is the only warranty, oral or written, made by Barnett Engineering Ltd. and is in lieu of and replaces all other warranties, expressed or implied, including the warranty of merchantability and the warranty of fitness for particular purpose.