I NTELLIGENT
Z ONE
A UTOMATION
C ONTROLLER
DISPLAY STAT

The **DU-1** is a member of the **IZAC** family of **I**ntelligent **Z**one **A**utomation **C**ontrollers. It provides display interface to occupants, maintenance personnel and zone temperature sensing for zones controlled by the IZAC - XL and IZAC-VAV.

- Select continuous or intermittent fan operation during occupied hours.
- Occupant adjustable heating and cooling target temperature
- Zone temperature control in 1/10 th ° F increments.
- Allows for real time and date entry.
- Review entire Network sensor values.
- Review load status in the entire Network.
- Configure the Controller Node ID and Baud rate of communication.
- Enable or cancel after-hours occupancy override.

Model:
DU - 1

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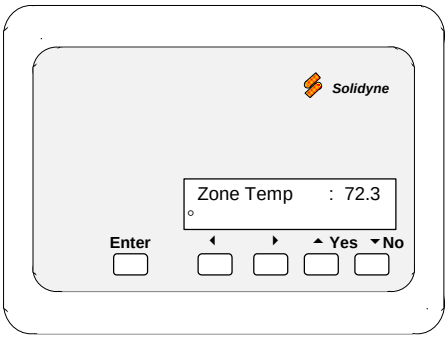

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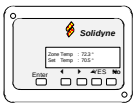
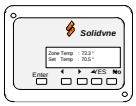




OPERATION :

IDLE DISPLAY

As the DU-1sits idle , on the controller , two display will appear sequentially . These displays are shown below.

Wed 12 / 18 / 97 Occ 12 : 45 : 00 AM	→ ←	ZoneTemp : 72.3 ° F Set Temp : 71.5 ° F

The first screen is the Controller's date and time and if IZAC sub type 2 is used (PDC-832 IZAC controller is selected as standard roof top unit) , it will display occupied - unoccupied status. The DU-1 will always display unoccupied status unless a program is added to define the occupied time The program that defines the occupied time is a dummy Cycle (Parallel) setpoint. The start and stop times /days selected will define the occupied time , all other hours/days will show as unoccupied.

NOTE : Below is shown the Parallel Cycle program. This line should be entered exactly how it is shown, except the hours/days for the occupied times. This program can be located anywhere in the program table.

```
--   1 ------------------------------------------------------------------
                                          Cycle (parallel)
From      6:30 AM  - - M T W T F -
until     5:00 PM  - - M T W T F -

CYCLE              -------    ON  for 126 T and
load(s)                       OFF for 127 T.

                    The time PERIOD, T = 1 MINUTE.
```

The second display will show the current Zone Temperature and user adjustable Comfort set temperature values (if the " Zset "feature is checked as " Yes " in the DU-1's System Config screen) .

THE SET TEMPERATURE VALUE IS THE FIRST " VIRTUAL SENSOR 1 = V1 " FOR XT SERIES OF CONTROLLERS . If it is an earlier model, it will be the 8th sensor instantaneous sensor value of the controller.

For the XT series of Controllers , the default value of V1 is 70 ° F. By using the ▲ and ▼ keys you can set the comfort levels with 0.5 ° F increments.

SYSTEM CONFIGURATION :

The System configuration screen is used to enter various system parameters along with the minimum and maximum occupant adjustable temperature ranges.

By pressing combination of Enter , Yes and No keys , you will come to the System configuration screen

```
System Config ?
    YES   NO
```

Pressing Yes button will show the next screen :

```
Node ID # =      123
BPS =9600  LAN=75
```

By using ◄ , ► , ▲ , ▼ arrow keys , you can set the Baud rate , Node Number and LAN = 75 mSec factory set Node pause time between Broadcasting and publishing Node's various data In the Network in mSec duration . When ever you press " Enter " button , it will accept entry changes and will revert back to its Idle display routine .

If you keep pushing ► right arrow , you will come to next screen :

```
Zset →V1= Y   Ovrd=Y
C/I Fan = Y
```

This screen will allow you to set certain features of the controller . While the cursor is pointing to Zset , if Yes button is pushed , the Zset feature will allow the occupants to push ▲ and ▼ buttons to set Comfort levels with in the programmed Zmin and Zmax range.

Similarly if " Yes " button is pressed for " Ovrd " option , then after hours occupancy triggering is allowed for the programmed periods of the override's occupied state . This override can be canceled . Both override time duration and cancelable/non- cancelable settings are programmable via PDC-832 PC Software.

C / I Fan option enables or disables Continuous Fan operation if the Standard Roof Top program is used . This setting will not mean anything to the controller if programs other then the Standard Roof Top Program (IZAC Subtype -II) is used. This message will not show if the Continuous Fan Operation was not selected in the Roof Top Program .

Pressing " Enter " button will return the display to Idle Mode .

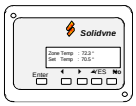
Setting Zmax and Zmin Values :

The Zmin -Zmax screen is used to define the minimum and maximum Set temperatures allowed for the occupants to set , as shown below :

```
Zset Max      85
Zset Min      55
```

Using ◄ ► ▲ ▼ buttons these values can be changed from default values of 55 and 85 ° F .

  SOLIDYNE CORP. 4215 KIRCOFF ROAD , ROLLING MEADOWS ILL. 60008 USA TEL 847-394-3333 FAX 847-394-8083



PASSWORD OPTION :

The DU-1 allows authorized personnel to enable and disable certain screens . Once a four digit password is entered , the same password will be required to allow other personnel to see " Review Sensors", " Review Loads" , and "System Configuration " or "Change the Password".

Once you reach the "Enter Password " screen , press Yes . The following screen will show :

```
Enter Password
to Relock  0000
```

By pressing ◄ , ► , ▲ , ▼ you can move the cursor one digit at a time and select any four digit number other than "0000" default value. Once the new password is entered the only screens that will be available will be Time/Date , Zone Temperature , Set Clock and Enter Password . To regain access to Review Sensors , Review Loads and System Configuration screens , the DU-1 needs to be unlocked by entering the password.

To Unlock the DU-1 , return to the Enter Password screen . Press Yes , the following screen will show :

```
Enter Password
to unlock    0000
```

Enter the password following the same procedure above for setting the password. If the password is entered correctly, all of the screens will show. If the password is entered incorrectly , the following screen will show :

```
ACCESS DENIED
 Hit any key
```

IF PASSWORD HAS BEEN FORGOTTEN, press ► key while on the screen above . The four digit encrypted password will be displayed as shown below :

```
ACCESS DENIED
 Hit any key  xxxx
```

Write down this 4 digit code (xxxx) and CONTACT SOLIDYNE'S TECHNICAL SERVICES DEPT. , THEY CAN TRANSLATE THIS CODE INTO THE ACTUAL PASSWORD.

ZONE OVER RIDE:

An Override can be triggered on an input of an IZAC controller by shorting the input for 2 seconds. The DU-1 can be programmed using the Zone Override function to short Input No. 1 of the connected IZAC controller for 2 seconds. This event can be programmed to activate various programs in the Controller based on how the Override is programmed for that sensor.

When the Zone Over-ride screen is displayed and :

1. The Ovrd=Y in the System Configuration screen .
2. Input 1 of the controller has a non-zero time duration for local override , programmed via PDC-832 for sensor details.

NOTE : The sensor changes must be transmitted before Zone Override will be displayed on the DU-1.

The following screen will show :

```
Override OFF
     Set  Clr
```

Upon pressing Yes (Set) , the sensor is overridden . The screen will show that the override is "ON" and the time left before the override time expires :

```
On Time Left =
1:O1      Set    Clr
```

(Screen shows one hour and one minute override time left before it times out) . This number will count down and always display amount of time left . At any time, pressing the Yes button will re-trigger the timer and the display will show the amount of the original override duration in the local Sensor 1's detail (+ 1 minute) .

If for some reason , if the override is to be canceled , simply bring up the screen above and press the NO (Clr) button to Clear the timer to "0" minutes and cancel the override.

REVIEW SENSORS :

The sensor Average readings of the first 32 Nodes along with this controllers Average , Instantaneous and Virtual Sensor values can be accessed via the DU-1 . If Review Sensor screen is selected , the following screens will show :

```
Review Sensor?
  YES   NO
```

→

```
A1          999.0
A2           78.9
Average
```

→

```
S1          179.0
S2           32.3
Instantaneous
```

→

```
V1          179.0
V2           32.3
Virtual
```

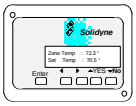
→

```
Sen 45       70.5
Sen 46       68.9
Other Nodes Average
```

→

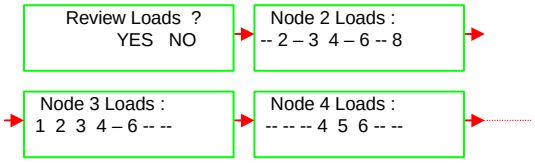
```
Sen 254      70.5
Sen 255      68.9
```

Pressing , ▲ , ▼ buttons will scan through all of the network sensors' readings.



REVIEW LOADS :

The DU-1 can display the status of the first 1 through 32 Nodes , including the Node which the DU-1 is connected (one of the 1-32 Nodes) . When Review Loads? Is selected by pressing the Yes button , the selected Node' s load screen can be accessed as shown :

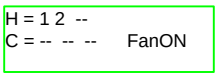


The loads that are ON are shown with the load numbers , the loads that are OFF are shown as dash lines.

Pressing the up and down buttons will scan through the load statuses of all other Nodes .

ROOF TOP PROGRAM LOAD STATUS :

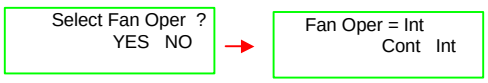
If the Roof Top control program (IZAC sub type II , selected by PDC-832) is loaded into a Controller , and if the DU-1 is connected to this Controller , the Roof Top load status screen will be displayed when Review Loads screen is selected . The following screen will be shown :



By pressing ▲ , ▼ buttons you can review the load statuses . The Roof Top Load status display will show the status of the Fan , Heating Stages and Cooling Stages . A dash line indicates that load is off. The number indicates which stage is on.

CONTINUOUS / INTERMITTENT FAN OPERATION :

If the Controller is programmed to be a Roof Top Controller via PDC-832 Node type selection, the DU-1 can change the Fan operation from Continuos to Intermittent and visa versa . Continuos fan operation will hold the Fan ON continuously when Zone temperature is satisfied . Intermittent Fan operation will turn the Fan on only if the Zone is calling for Heat or Cool. The following screen will show if Select Fan Operation screen is selected :



The present mode of operation will be displayed. If required , it can be switched from Intermittent to Continuous operation.

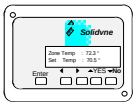
NOTE :

The continuous Fan operation will work only if the Continuous Fan option on the Roof Top control set up screen of the PDC-832 software is set to " NO " .

VIRTUAL SENSOR ADJUSTMENT FEATURE

With controller firmware revisions IZ012299 or VV012299, the ability to adjust virtual sensor values has been added. To access the virtual sensor adjustment, push either the right or left arrow buttons on the DU-1. You will see values only for the 8 virtual sensors residing on the controller that the DU-1 is connected to. Push the YES or NO buttons to scroll through the list of the 8 virtual sensors. When you have scrolled to the virtual sensor that you would like to adjust, push the ENTER button on the DU-1. You will then be able to adjust the virtual sensor value using the UP (YES) and DOWN (NO) buttons. When the desired value has been reached, push ENTER and the value will be set.

For any additional questions or need further help on any specific Controller or Module , You can contact Solidyne Corp. Technical Services Dept. at 847-394-3333 and ask for Technical Services extension.



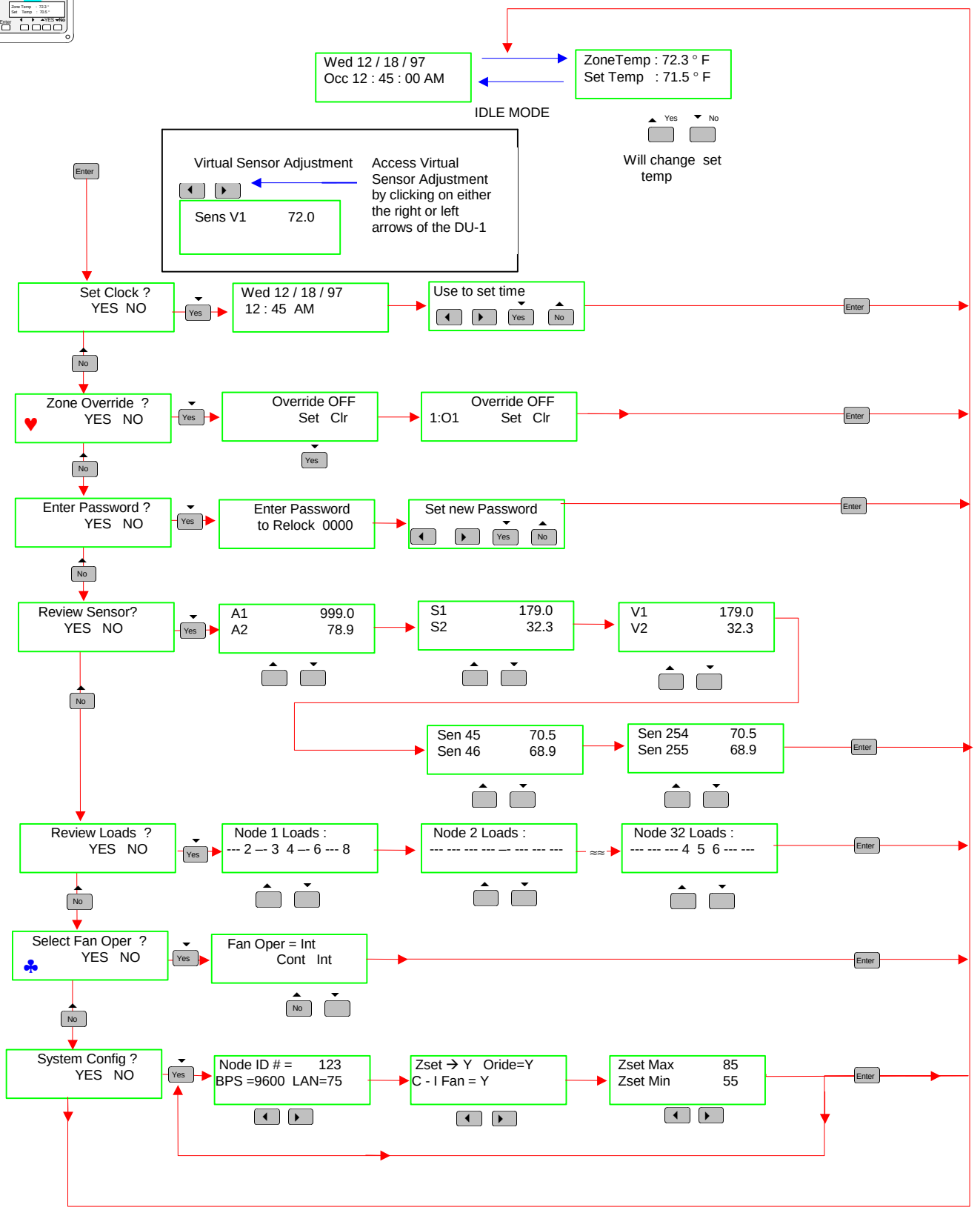
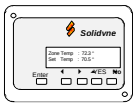


Fig.1

Flow diagram of DU-1 Menus and display .

♣ Zone Override and Select Fan Operation will not be displayed without thr appropriate ♥ settings (see their respective sections in this data sheet .



INSTALLATION

1. The Unit should be installed and wired by a trained and qualified Service Technician.

2. Check the Specifications and verify that the product and wiring will meet the application.

3. Read this instruction sheet carefully . If the instructions are not followed , damage to the DU-1 or to the controller may occur.

4. This Unit is Static Charge sensitive , discharge static charge from your body into a good ground prior to handling this unit for mounting and wiring.

5. It is recommended that you power down the Controller prior to wiring the unit.

6. After it is wired and powered , prior to fastening the unit on to the mounting surface , make sure that you check the display contrast level . Adjust the contrast level by turning Contras adjust potentiometer which is shown on Fig. 2 .

WIRING :

The DU-1 is connected to the IZAC-XL-4 or 8 via a six conductor wire. You can and should use 6 conductor flat phone cable for connection to IZAC-XL-VAV , since the RJ11 connection is the only type of termination possible for the IZAC-XL-VAV .

6 conductor flat phone cable is suitable for short distance (125 feet or less) . Make sure that you use highest quality phone plugs and crimping tools to crimp 6 conductor flat cable (or round) on to the male plug. Select your tools carefully , inexpensive crimping tools are sold for minor home applications and after several crimping operations , will not make a quality crimp. This will lead to erratic and hard to trouble shoot operations.

It is very important that the 6 conductor wiring from the DU-1 to the IZAC-XL-4 or 8 is correctly done . If wiring is reversed a damage to both Controller and DU-1 circuitry can occur and they both would need to be replaced . Please pay attention to the detail.

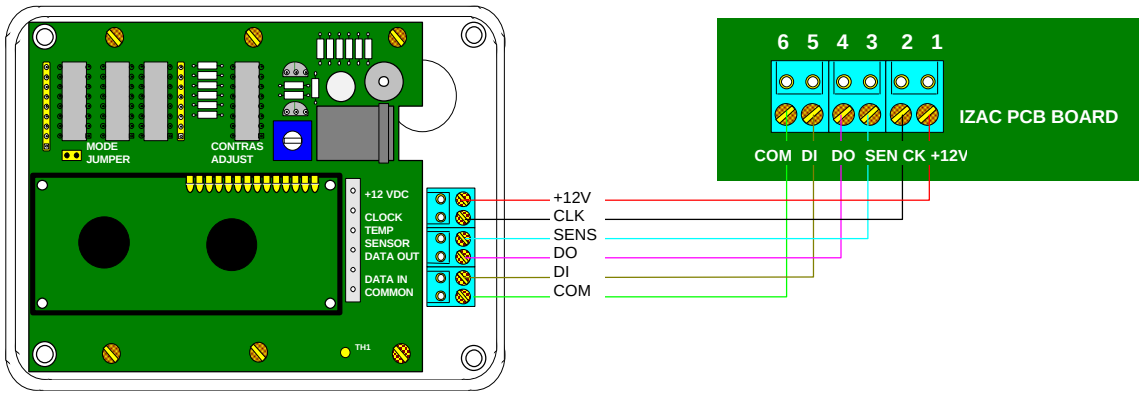
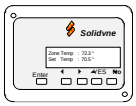


Fig. 2

Wiring and termination of DU-1 to IZAC-XL-4 or 8 Controllers.



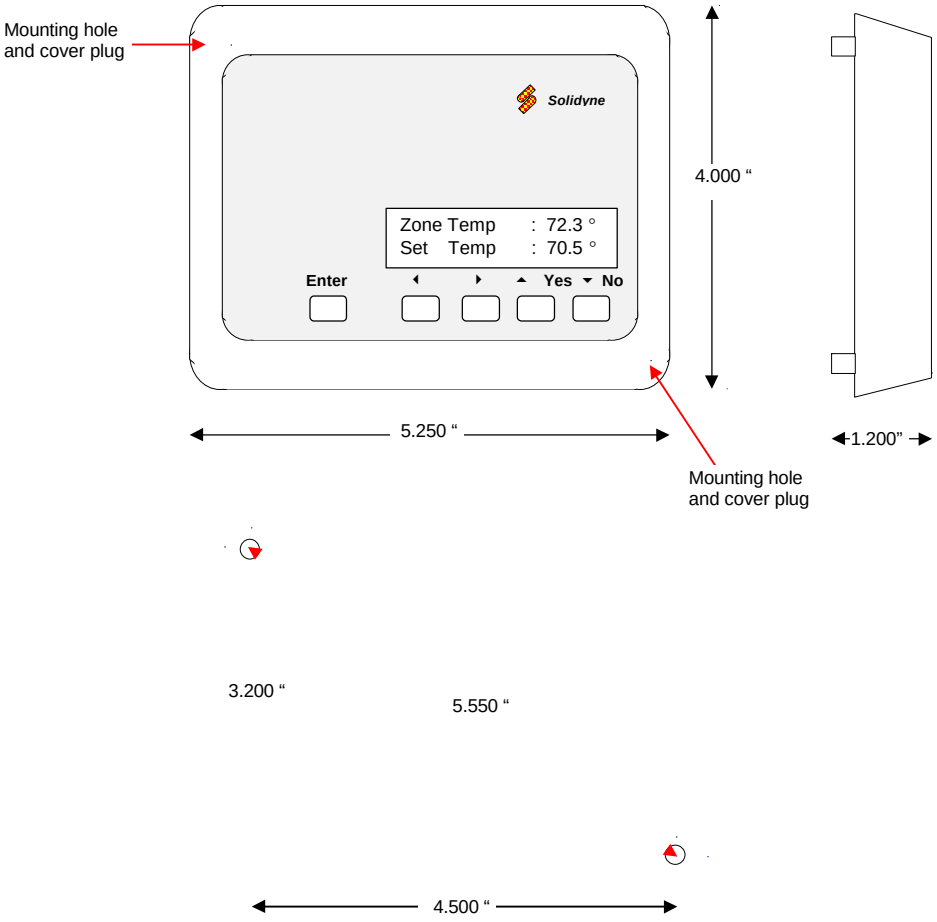


FIG. 3

DU-1 mechanical dimensions and mounting coordinates.

SPECIFICATIONS :

ELECTRICAL :

Power Input : +12 V DC , powered by the controller it is attached to. Typical Power Consumption 10 mA DC current.

Maximum Distance from the Controller : 250 ‘ (feet)
(6 Conductor #18 AWG.)

125 ‘ (feet)
(6 Conductor # 24 AWG. Stranded Phone cable)

Operating Temperature : +40 ° F to 120 ° F

Storage Temperature : -20 ° F to 140 ° F

MECHANICAL :

Dimensions : 5.250 “ L x 4.000 “ W x 1.200 “ H

Wiring : Six conductor # 18 to # 24 AWG . Prefered Shielded .
Flat 6 Conductor Phone cable #24 AWG. Stranded