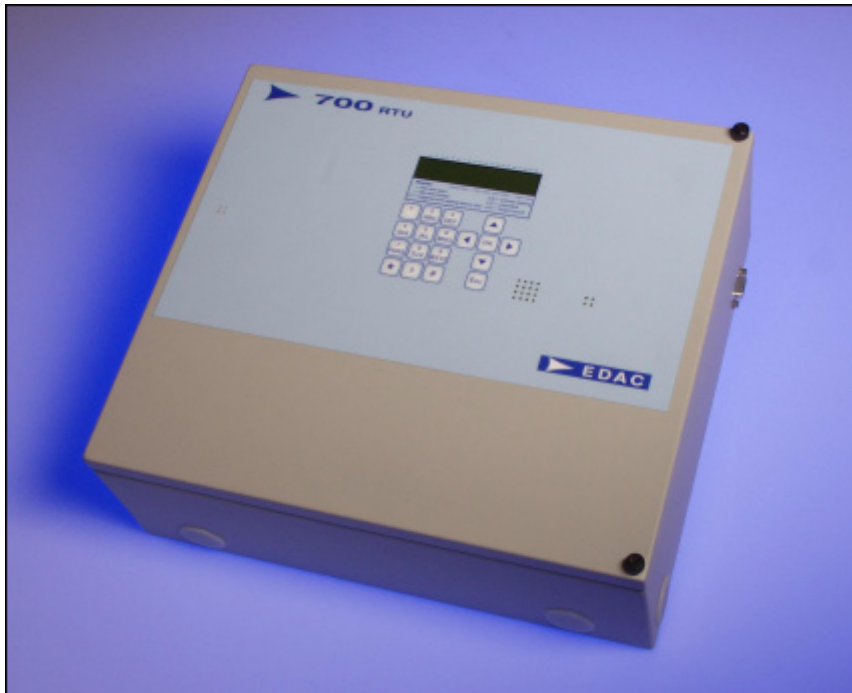# EDAC700 RTU
Technical Reference Manual

Version 1.9.3

Code Version 1.5.0 and above

Rev B & C hardware

TABLE OF CONTENTS

1   Installation Information

1.1   Power Up

When power is connected to the EDAC700 RTU it will beep continuously for a short time. During this time it will display "RUN_" on the LCD. The beeper will then stop and the display will show a code version number like 1.4.3p under the word RUN_, for a short time.

Note! This version number is required if you need to make any technical support calls.

After this the EDAC700 RTU goes into Run Mode and displays the Run Mode Display. If it does anything different to this sequence and does not end up at the Run Mode display, power it down completely, and start again, or press the Reset button located in the top right corner.

If the battery is not connected, the EDAC700 RTU may generate a low battery alarm, and will ask for a PIN. If this happens, connect the battery and check the supply voltage. Press the Reset button to start again.

2 x 1A 20mm

Note: The RS232 port here faces out the right hand side of the box. When securing to a wall allow about 50mm (2") extra room for the serial plug & lead.

Reset Button

Plug in terminal block, connected to the supplied plug pack
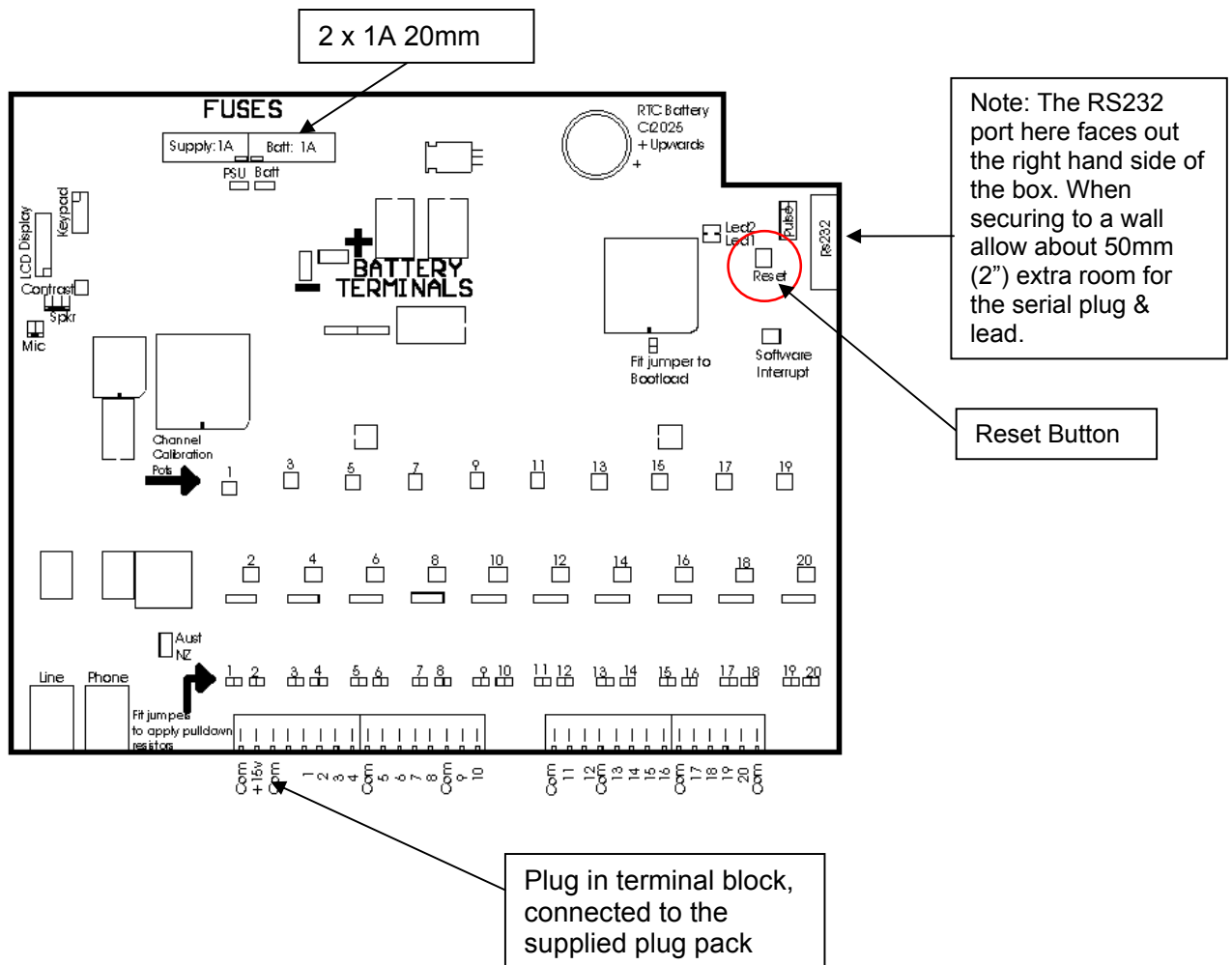
1.2 RS232 Connection

At this point you can have an option to work from either the EDAC700 RTU keypad or from a PC via the RS232 port. You can use almost any Terminal emulator program, however EDAC supports the use of Windows Hyperterm for this purpose, and this is fully documented in the next section.

The instructions in this manual are illustrated using images of the EDAC700 RTU keypad, but the RS232 connection can be used for almost all the processes shown. The terminal menu closely resembles the LCD displays. The menus are shown with a letter alongside each choice, so pressing the letter is equivalent to pressing <Ok> on a choice on the EDAC700 RTU keypad.

A combination of the keypad and the PC terminal can even be used simultaneously until you are familiar with the menu system via the PC program. It is always best to record voice messages while using the EDAC700 RTU keypad.

2   Hyperterm and the EDAC700 RTU

Microsoft provides Hyperterm free with all Windows operating systems from Win95 on.
If it is not installed you can normally find it on the Windows distribution disk.

Once your terminal program is connected to the EDAC700 RTU and the RTU is in
Program Mode, the complete menu is displayed on the PC screen with a letter for each
option. Typing each letter selects the corresponding option.

2.1   Direct RS232 Connection Configuration

This screen capture shows how Hyperterm should be configured to make a direct
connection via Com1 and RS232 lead.
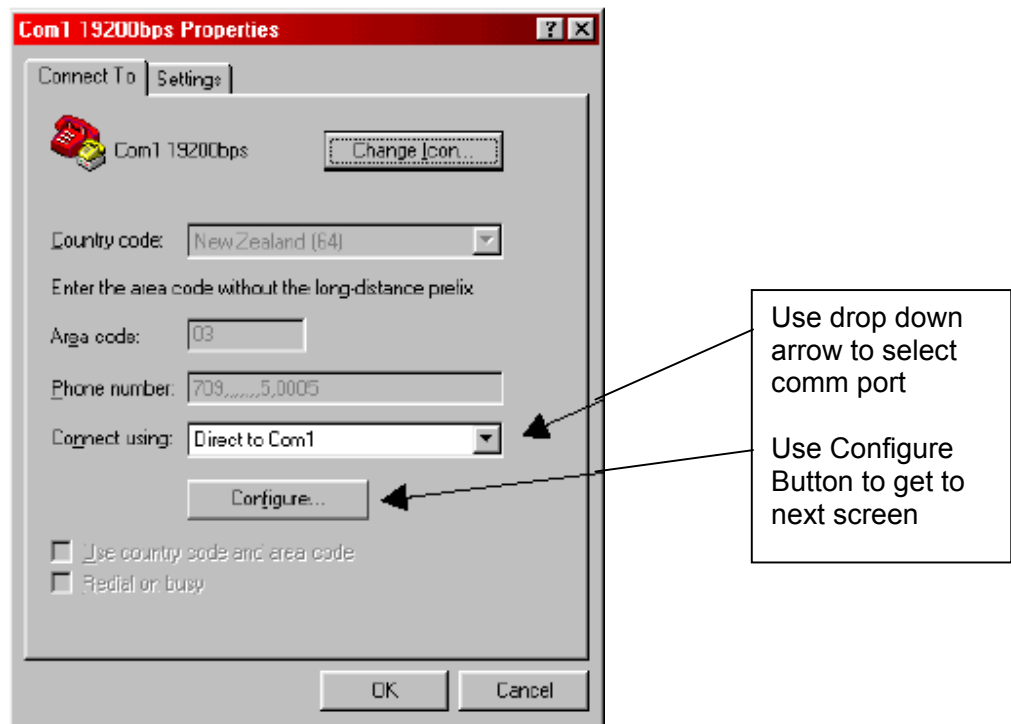
This next screen capture shows the settings form for the Communications Port that is
displayed when you click on Configure. Enter all the values as they are listed here.
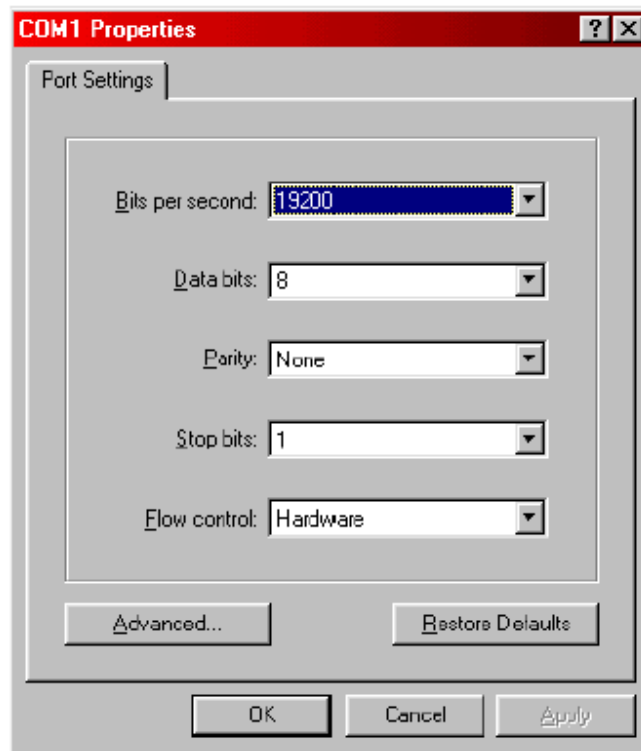
Hyperterm provides a facility to save connection settings to an Icon/File. Once saved the Icon/File can be clicked to start the connection to that site name. E.g. You could save a direct connection as "Com1 19200bps"

NOTE: The EDAC 700 RTU will not respond to Hyperterm unless it is in Program Mode. A PIN number (default =0000) must be entered via the EDAC700 RTU keypad, after Hyperterm is started, to put the EDAC700 RTU into Program Mode. This will allow communications to take place.
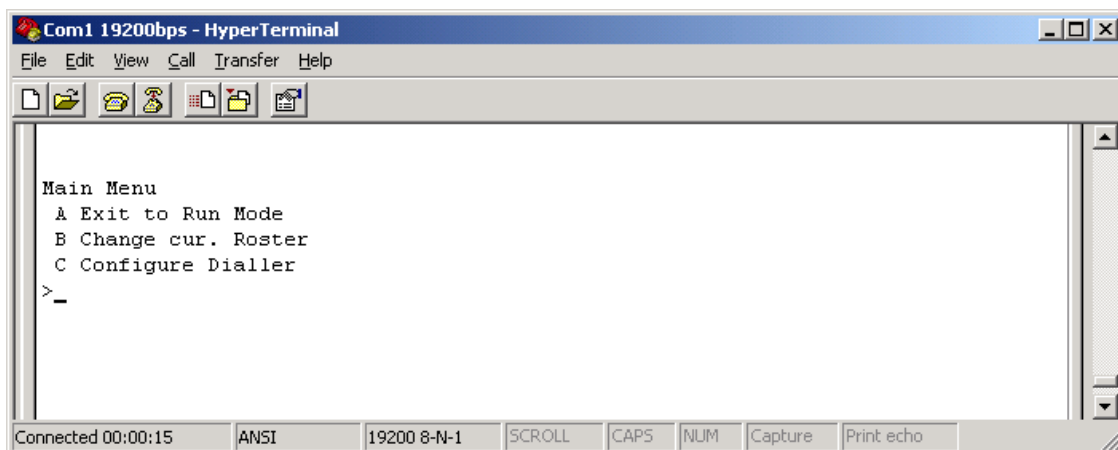
When Hyperterm is configured correctly, and the Program Mode PIN is entered via the EDAC 700 Keypad, you should see the above menu in the Hyperterm window.

2.2 Modem Connection Configuration

NOTE: This type of connection should only be done <u>after </u>experience with a direct RS232 connection

This screen capture shows how Hyperterm should be configured to make a remote modem connection. Replace the '709' number with the required phone number. The '….5.0005' is required to establish a modem connection.

Making a connection
Once the connection information is configured and saved you can double click the Icon/File and a window will open allowing you to initiate dialling to the pre-configured site.

When a connection to the EDAC700 RTU is established via a modem connection, the PIN to put the product into Program-Mode is not required. The EDAC700 RTU will go into Program Mode automatically.

3   Physical Sensor Wiring and Measurements

The EDAC700 RTU has 20 physical input/output (I/O) terminals. The following diagrams show how the circuits around each of the I/O terminals are configured to perform each of the six functions.

3.1   Digital Input - Normally Open

Normally open and normally closed inputs have a 0-10V input range.
Normally Open, clean contact, input to Com/Gnd. Triggers below ~1.5V.
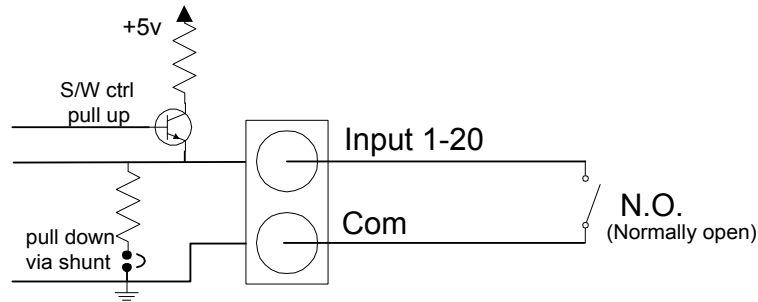
3.2   Digital Input – Normally Closed

Normally Closed, clean contact, input at Com/Gnd. Triggers above ~1.5V.
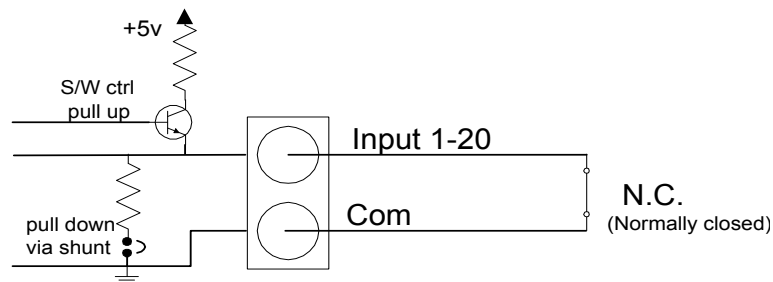
3.3   Digital Outputs
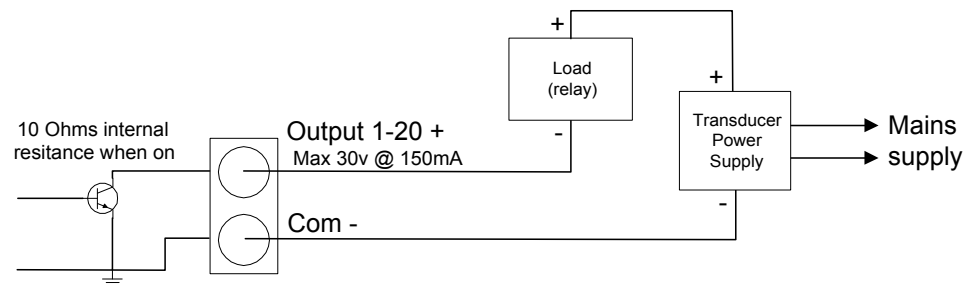
Open collector configuration

Transducer
0-1Vdc or 1-10Vdc
+   -   -   +

Regulated
Transducer
Power
Supply

Mains
supply

Input 1-20 +

Com -
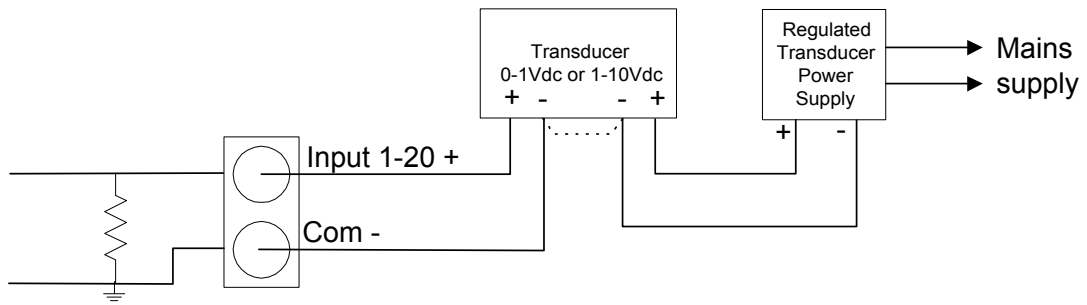
3.4 Analogue Inputs

0-1Vdc or 0-10Vdc transducer wiring

"2 wire"
4-20mA
Transducer

Regulated
Transducer
Power
Supply

Mains
supply

-   +   +   -

Input 1-20 +

Com -
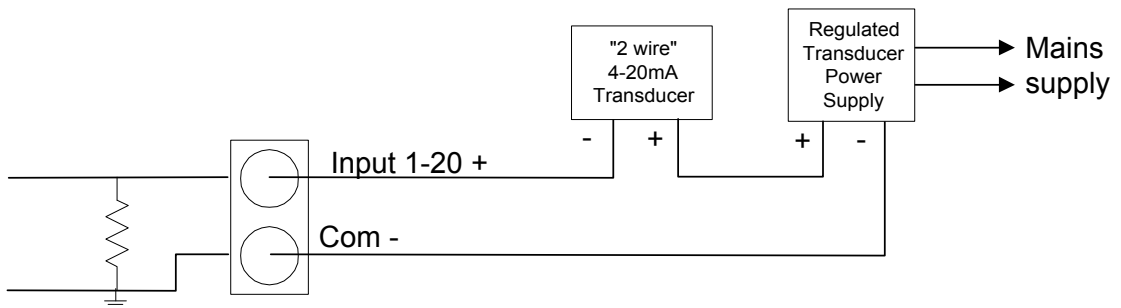
4-20mA Transducer, two-wire wiring

"3 wire"
4-20mA Transducer
Sig   -   +

Regulated
Transducer
Power
Supply

Mains
supply

+   -

Input 1-20 +

Com -
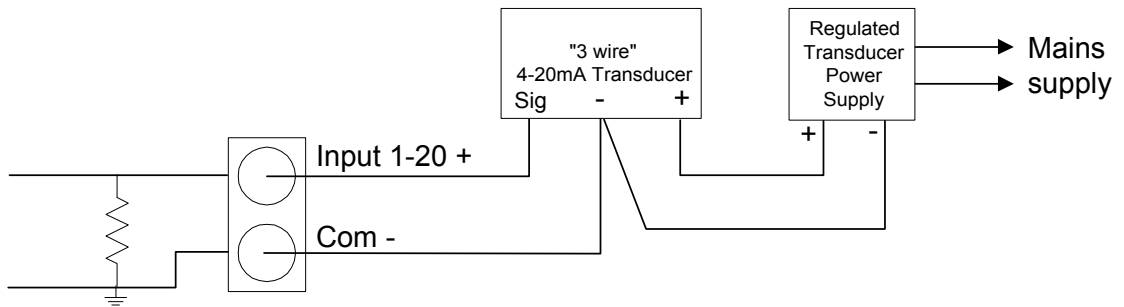
4-20mA Transducer, three-wire wiring

"4 wire"
4-20mA Transducer
+   -   -   +

Regulated
Transducer
Power
Supply

Mains
supply

+   -

Input 1-20 +

Com -
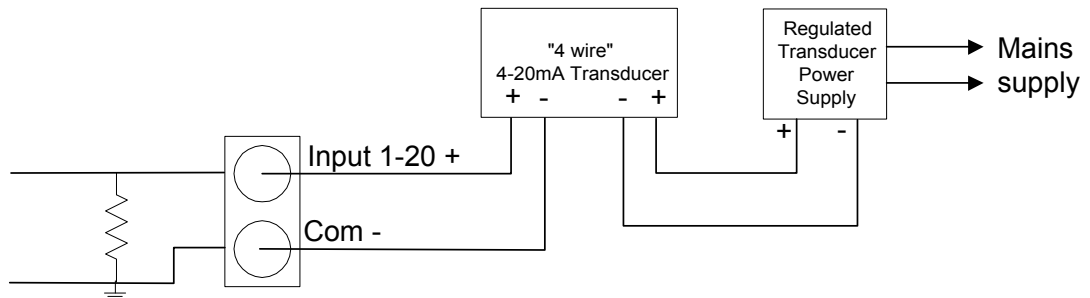
4-20mA Transducer, four-wire wiring

3.5   Analogue Configuration

3.5.1   Sensor Calibration

Sensors are calibrated by providing two sets of coordinates (4 values) from a graph, from these coordinates the **slope** of the graph can be calculated, this is also called the **multiplier (M)**.
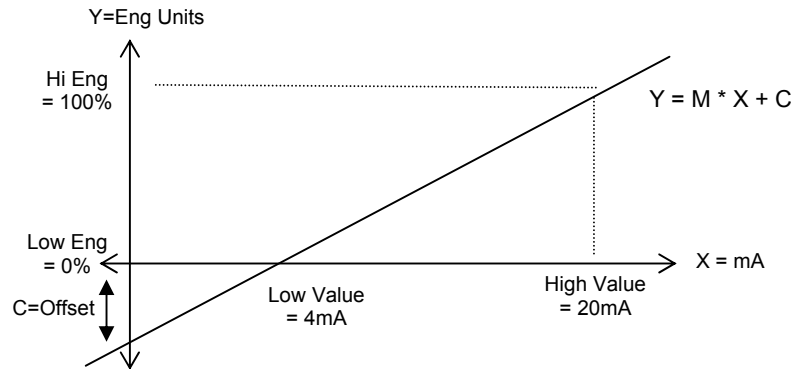
Reading in Engineering units (Y) = multiplier (M) * sensor reading in mA/Volts (X) + offset (C)

By making fine adjustments of the set points and using an external calibration reference we can calibrate the sensor.

3.5.2   Calibration Example 1

You may have trouble doing fine adjustment of slope, by adjusting the high or low calibration points. The EDAC700 RTU may give you the impression that it does not use the decimal component of the value entered, making it feel like it has quite coarse control over calibration values. The EDAC700 RTU actually uses 5 decimal places more than the decimal places entered in the calibration values. Therefore entering 3.12 will cause the EDAC700 RTU to use a value of 3.1200000 and entering 3.1234 will mean 3.123400000 is used.

The formula for calibration of slope is:
mA x steps x multiplier = display value (assume offset =0) & V x steps x multi = display value

where steps 1V = 4095, mA = 4095/20

eg at 1:1 becomes: 20mA x 4095/20 x 0.004884 = 20

To calibrate the multiplier:
1. Set up reading as desired with low/high mA and Eng units
2. Read the display. (D1) eg 19.5
3. Note the expected display (D2) eg 20.0
4. Calculate correction factor D2/D1 (20.0/19.5 = 1.025)
5. Adjust mA high value by correction factor HmA x D2/D1 (20 x 1.025 = 20.51)
6. The display should now read as expected.

3.5.3   Calibration Example 2

This Calibration procedure is longer and more involved but does produce a more accurate calibration.

As discussed on the pervious page, four values are required, this is illustrated in the table below.

	Volts or mA's	Engineering units
Low Point	Low mA or V	Low Eng Units
High Point	High mA or V	Hi Eng Units

For this example we will use a pot which will display a 0-100% range. It could be a Transducer in a reservoir measuring the percentage full level.

Displayed Engineering Units for the example will be percent.

The pot will have a physical output range of 0-10 volts.

1. Configure Analogue Input via the Program Mode.
2. Low V value = 0
3. High V value = 10
4. Low Eng units = 0
5. High Eng units = 100
6. Decimal place spk = 1
7. ***Input type = D Always Report*** *(must be set to this to do calibration, can be changed after calibration)*
8. You need to record a suitable voice recording in both the "on Voice message" and "off voice message". This message should be the same in both slots.
9. Go Back to Run Mode
10. Press down arrow twice to get to the Input display screen
11. Use left/right arrows to display your analogue input location
12. Set pot at lowest reading, for this example it will be 0 volts, display should read Zero
13. Using a calibrated DVM, measure the actual voltage at the input terminal and note it down on paper
14. Set pot at highest reading, for this example it will be 10 volts, display should read Ten, do not worry if it does not.
15. Using a calibrated DVM, measure the actual voltage at the input terminal and note it down on paper.
16. Go back to Program Mode, and go back to configuring your analogue Input location
17. Enter the Low and High readings observed on the DVM into *"Low V value"* and *"High V value"* , go back to Run Mode
18. Check readings on display at low and high end. Calculate the difference between displayed reading and expected reading at each end. If the slope has been calculated correctly, these calculated deference's should be very similar. This is the offset.
19. Go back to Program Mode, and back to configuring your analogue Input location
20. Enter the calculated Offset into the appropriate Offset location.
21. Go back to Run Mode and check the displayed reading for low and high end.
22. Reading should know be calibrated.
23. You can continue to adjust the Offset and Multiplier to achieve better calibration

For greater flexibility with analogue inputs please refer to notes on Input Mapping.

Analogue alarm settings

When configuring an analogue input you need to set Alarm High "Set Point", Alarm Low "Reset Point", and select the "Analogue trig type".

The "Analogue trig type" setting will decide how the analogue signal is tested against the "Set Point" and "Reset Point". Sensor signals out of normal operating range will generate an Input alarm trigger to the Group.

A=Alarm
T=Timer Delay
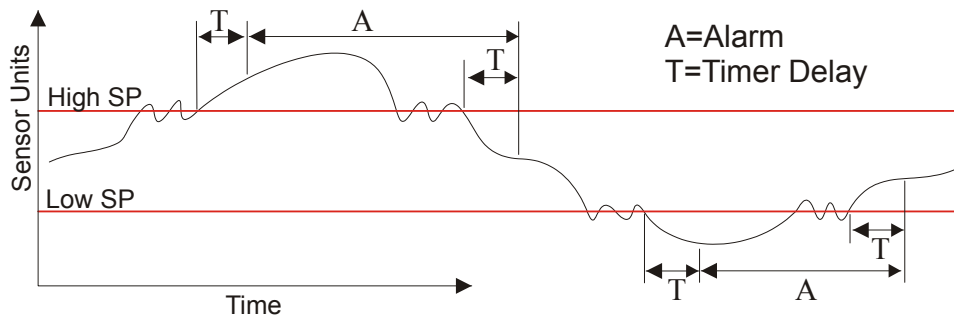
Shows the relationship between Set Point and Reset Point, and the analogue signal.
(High SP = **Set Point**, Low SP = **Reset Point**).

The following trigger types are supported:

Trigger when high
- Trigger when the analogue signal is above the "Set point".
- Remove the trigger when the analogue signal is below the "Reset point".

Trigger when low
- Trigger when the analogue signal is below the "Set point".
- Remove the trigger when the analogue signal is above the "Reset point".
Note: The "Set point" value must be smaller than the "Reset point".

Outside set/reset point
- Trigger when the analogue signal is above the "Set point" or below the "Reset point".
- Remove the trigger when the analogue signal is between the "Set point" and the "Reset point".

Between set/reset points
- Trigger when the analogue signal is between the "Set point" and the "Reset point".
- Remove the trigger when the analogue signal is above the "Set point" or below the "Reset point".

4 EDAC700 RTU Main Menu Structure

Main Menu
- Exit to run mode
- Change Current Roster → **Roster is** 1 Roster 1
- Configure Dialler

Use: Up/Down arrow keys & <ESC> to go back

1st line on display is menu heading
2nd line is menu option

Red = Menu Heading

Use Up/Down arrows to move through menu choices

⇑
⇐ (OK) ⇒
⇓
(Esc)

* = Current setting,
also indicates you are in a pick list, use up/down
arrows to move through choices. OK to select

Dialler Menu

- Configure I/O → **I/O Menu**
  - Add i/o →
  - Delete i/o →
  - 253-1 RTU Batt →
  - 254-1 RTU Power →
  - 1-1 Input 1... →

- Configure groups → **Group Menu**
  - Add group →
  - Delete group →
  - 1, Group 1
  - 2, Group 2

- Configure phone num → **Phone List Menu**
  - Add phone number →
  - Delete Phone number →

- Configure call list → **Call List Menu**
  - Add a call list →
  - Delete a call list →
  - Call list 1... →

- Configure rosters → **Roster Menu**
  - Add a roster →
  - Delete a roster →
  - 1 Roster 1... →

- Configure tap → **TAP Menu**
  - Add tap →
  - Delete tap →
  - 1 3385517... →

- Configure system → rings answ norm=1

- Configure speech → **Speech Menu**
  - Site Message →
  - System msgs... →

- Configure misc → **Misc Menu**
  - Change Date & Time →
  - RS232 config →
  - Up/Download config →
  - Erase config →

I/O Menu

Add I/O → 1 Input No.=1
>_

Input name
Input 1

Group
*1 Group 1 → Add group
→ *1 Group 1

Delete I/O

1-1Input 1

2-2 Input 1

Input function
20mA loop →
- Off
- Normaly Open
- *Normaly Closed
- 20mA Loop
- 10V analogue
- 1V analogue
- Output-reset off
- Output-reset on
- Pulse Accummulator
- Runtime Meter

These two displays change to volts or mA depending on "Input Function" selected

I/O point
↓
2-1 Input 1
↑
Group ID

See separate page for the menu options relating to these input types

Low mA value = 4.00
>_

High mA value = 20.00
>_

Low Eng Units value = 0
>_

High Eng units = 100
>_

Offset = 0
>_

Set point=-869.61335
>_

Reset point=-869.613
>_

Input alarm
*do not latch → latched input
→ *do not latch

Analogue trig type
*trig when high →
- *trig when high
- trig when low
- outside set/reset point
- betwn set/reset pts

Trig/dial time(s)=2
>_

Depending on "Input function" selection, this box may or may not be present

Lat/dial time(s)=3
>_

This box has been temporarily removed from the menu

Lat/untrig time(s)=1
>_

Speak suffix mess.
* No →
- *No
- Yes

Suffix voice message
*=play #=record

Input type
*trig causes dial out →
- *trig causes dial out
- report - non dial
- report-call in
- always report

Decimal place spoken
>_

```
┌─────────────┐
│ I/O Menu    │
└─────────────┘
        │
        │
        ▼
┌─────────────┐
│ *Add I/O    │ ──────▶   Continued from previous page
└─────────────┘                        │
                                       │
                                       ▼
                          ┌──────────────────────┐
                          │ pager message        │
                          │ Input 2              │
                          └──────────────────────┘
                                       │
                                       ▼
                          ┌──────────────────────┐
                          │ on voice message     │
                          │ *=play #=record      │
                          └──────────────────────┘
                                       │
                                       ▼
                          ┌──────────────────────┐
                          │ off voice message    │
                          │ *=play #=record      │
                          └──────────────────────┘
                                       │
                                       ▼
                          ┌──────────────────────┐
                          │ Save changes?<ok>    │
                          │ _                    │
                          └──────────────────────┘
```

```
┌─────────────┐        ┌──────────────────┐          ┌──────────────────┐
│ Delete I/O  │ ─────▶ │ Delete           │ ───────▶ │   1-1 Input 1    │
└─────────────┘        │ 1-1 Input 1      │          ├──────────────────┤
        │              └──────────────────┘          │   2-1 Input 2    │
        │                                             └──────────────────┘
        │
        ▼
┌─────────────┐        ┌──────────────────┐
│ 1-1Input 1  │ ─────▶ │ 1 Input No.=2    │ ───────▶  As per above Add I/O menu
└─────────────┘        │ _                │
        │              └──────────────────┘
        ▼
┌─────────────┐        ┌──────────────────┐
│ 2-1 Input 2…│ ─────▶ │ 1 Input No.=2    │ ───────▶  As per above Add I/O menu
└─────────────┘        │ _                │
                       └──────────────────┘
```

Group Menu

Add group → 8 Group name
Group 8_

Grp Voice message
*=play #=record

Group pin=1000
_

Group mode
*Input → *Input_
Output_

Save changes? <ok>
_

Delete group → Delete
1 Group 1_ → 1 Group 1
2 Group 2
3 Group 3

1 Group 1 → 2 Group name
Group 2_

Grp Voice mess. =2010
*=play #=record

Group pin=1000
_

Group mode
*Input → *Input_
Output_

Save changes? <ok>
_

2 Group 2 → 2 Group name
Group 2_ → As per above menu

Phone List Menu

Add phone number

phone name
John Smith

phone number=102
_

Cancel method
*any key cancel
→
cancel not allowed

*any key cancel

pin cancel

Call time(s)=60
_

spk on dial-out
*No extras
→
*No extras — *Speaks alarm status message straight away*

report pin — *PIN required to get alarm status message*

Speak Menu — *Speaks Menu "Press 1 for ...2 for... 3 for...etc*

report pin + menu — *Speaks menu, requires PIN to get alarm status*

Call type
*voice (eg phone)
→
*voice (eg phone)

numeric pager
→
pager delay(sec)=15
_

SMS/alpha-numeric pager
→
Pick TAP service
* 1 3385517
→
add TAP service

*1 3385517

Detect tones
*dial & ring tone
→
no tone detect

detect dial tone

detect ring tone

*dial & ring tone

Save changes? <ok>
_

Delete Phone number
→
Delete
2 JOHN SMITH
→
1 RICHARD

2 John Smith

3 Brian Smith

1 RICHARD
→
phone name
RICHARD
→ As per above menu

As per above menu

2 JOHN SMITH
→
phone name
JOHN SMITH
→

Call List Menu

Add a call list → **Pick phone**
Add phone num. → Add phone num. → Goes to "Add phone number"

*2 JOHN SMITH

3 BRIAN SMITH

Wait aftr call(m)=0
_

ack drops number
*No → *No

Yes

Set to yes if calling a list of pepole who need to respond. Eg a fire alarm trigger, notifies fire fighters. Each can acknowledge the call and not be called again, while they drive to the fire station

max call count=99

Save changes? <ok>
_

Delete a call list → **Delete**
Call list 2 → Call list 1

Call list 2

Call list 3

Call list 1... → Call list 1
Add phone → Goes to top of above menu

Call list 1
Add phone → As per above menu

Call list 1
Delete phone → **Delete**
JOHN SMITH → JOHN SMITH

RICHARD

Call list 1
JOHN SMITH → As per above menu

Call list 1
RICHARD → As per above menu

Roster Menu

*Add a roster → Roster name
Roster 3

Call LIst, Group
1, Group 5 → 1,Group 5

1,Group 6

1,Group 7

"In", call list asosiated with this group. If time frames are being used there is a second "Out" call list which is not displayed

Call List in
* Call list 1 → Call list 1

Call list 3

Save changes? <ok>
_

Delete a roster → Delete
1 Roster 1 → 1 Roster 1

2 Roster 2

1 Roster 1... → Roster name
Roster 1

```
┌─────────────────┐
│    TAP Menu     │
└─────────────────┘
         │
         ▼
┌─────────────────┐      ┌──────────────────────────┐
│    Add tap      │─────▶│ Service no=3385517        │
└─────────────────┘      │ _                        │
         │               └──────────────────────────┘
         │                            │
         │                            ▼
         │               ┌──────────────────────────┐
         │               │ Service id               │
         │               │ PG1_                     │
         │               └──────────────────────────┘
         │                            │
         │                            ▼
         │               ┌──────────────────────────┐
         │               │ service p/w              │
         │               │ _                        │
         │               └──────────────────────────┘
         │                            │
         │                            ▼
         │               ┌──────────────────────────┐
         │               │ Save changes? <ok>       │
         │               │ _                        │
         │               └──────────────────────────┘
         │
         ▼
┌─────────────────┐      ┌──────────────────────────┐      ┌──────────────────────┐
│   Delete tap    │─────▶│ Delete                   │─────▶│    1 3385517         │
└─────────────────┘      │  1 3385517               │      └──────────────────────┘
         │               └──────────────────────────┘      ┌──────────────────────┐
         │                                                 │    2 5656565         │
         │                                                 └──────────────────────┘
         │
         ▼
┌─────────────────┐      ┌──────────────────────────┐
│  1  3385517...  │─────▶│ Service no=3385517        │─────▶  As per above menu
└─────────────────┘      │ _                        │
                         └──────────────────────────┘
```

System Menu

rings answ norm=1
_

rings answ wait=4
_

rings answ canc=5
_

cancel-call in
*any key

→ Not Allowed

*Any key

Group pin

program pin=0000
_

roster pin=0002
_

modem mode pin=0004
_

remote prg pin=0005
_

group priority
*No

→ *No — *Calls each group as triggered*

Yes — *Calls groups in priority order 1 to ...*

Pin report, call in
*report pin not req.

→ *report pin not req.

report pin

Save changes? <ok>
_

Speech Menu

Site Message

System msgs...

Distributor PIN required to change system voice messages. Used for Languge change.

Misc Menu

Change Date & Time

→ dd/mm/yy hh:mm day
22/12/00 02:49   Tues

RS232 config

→ RS232 Speed
*19200

Up/Down load config — *Flash access r/w OS code upgrade*

Erase config — *Set unit back to factory defaults, erase ph numbers, groups, call lists, rousters, & voice.*

5   Detailed EDAC700 RTU Configuration

This section provides a detailed guide to every menu available on the EDAC700 RTU. It is assumed that you are familiar with the information in the Getting Started Manual.

The entry point to each menu is described in a single line like this:

Program Mode -> Configure Dialler -> Configure I/O

This summarises the sequence of going to Program Mode by entering the correct PIN number, then navigating to and selecting the Configure Dialler and Configure I/O menu options.

Screen shots are included to enable you to confirm your position in the menus.

Telepermit Requirements; New Zealand
The grant of a Telepermit for any item of terminal equipment indicates only that Telecom NZ has accepted that the item complies with the minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

This equipment shall not be set up to make automatic calls to the Telecom 111 Emergency Service.

The **"max call count"** parameter shall be set to a value of not more than 10.
The **"wait after call (m)"** parameter shall not be set to the default value of 0

Telepermitted equipment only may be connected to the auxiliary telephone port. The auxiliary telephone port is not specifically designed for 3-wire-connected equipment. 3-wire-connected equipment might not respond to incoming ringing when attached to this port.

In the event of any problem with this device, it is to be disconnected, and a CPE item connected to one of its terminal ports may be connected directly in its place. The user should then arrange for the product to be repaired. Should the matter be reported to Telecom as a wiring fault, and the fault is proven to be due to this product, a call-out charge will be incurred.

Austel Requirements; Australia
The **"max call count"** parameter shall be set to a value of not more than 15

5.1   Configure I/O (I/O Menu)

All settings, calibration and voice messages relating to the sensor-input and digital output configuration, including Pulse and Runtime Meters, are done in this menu.

5.1.1   Common Settings

Program Mode -> Configure Dialler -> Configure I/O

```
I/O Menu
  Add I/O…
```
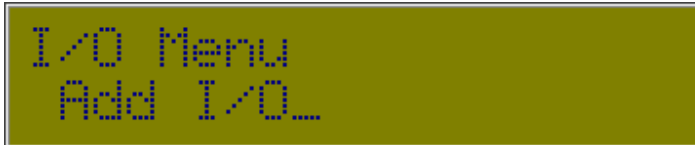
The " Configure I/O " menu includes Add & Delete I/O options, and at least three pre-configured Inputs:

253-1 RTU Batt	Battery back up reading
254-1 RTU Power	RTU Power supply voltage
1-1 Input 1	Example input configuration

As you define new Inputs using Add I/O, they are added to the list in this menu. You can modify any existing entry by pressing <Ok> when its name is displayed.

```
2 Input No.=2
…
```
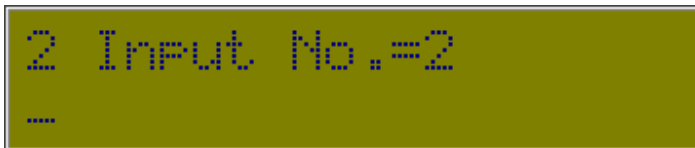
The first setting displayed is the Physical I/O Point number this Input uses. This will be a number between 1 and 20 (unless you have an expansion option). You do not have to use consecutive numbers although it is recommended for simplicity.

The next setting is the display label for the Input or Output.   The LCD accommodates 20 characters, however labels can be up to 40 characters long.

```
Input Name
Input 2_
```
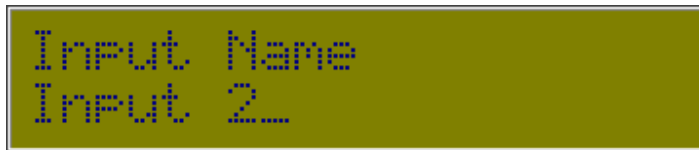
Select a descriptive name that suits the sensor type.

Once a character has been entered, the existing text will be replaced. You can now backspace using <Left> to edit your name entry.

Note! Long names use up data base space (RAM).

```
Group
  1.Group 1
```
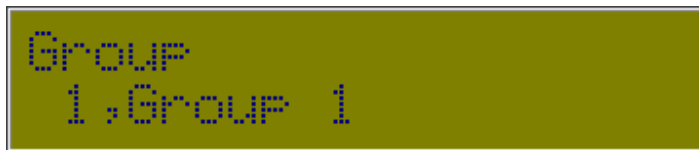
The next setting is the Group to which the input sensor is assigned. Press <Down> to see each available Group. The dialler will give a double beep on the last Group entry. You can also add a new group from this option.   Press <Up> from Group 1 to reach Add Group, <Ok> to select.

Each I/O configuration must be associated with a Group. When an Input goes out of range it is the Group associated with the Input that generates an alarm notification call.

The initial mapping or association of an Input with a Group is done when configuring the Input, however the mapping can be changed at any time.

Outputs must be associated with an Output Group. Outputs cannot be in the same Group as Inputs.

Note! An Output Group is limited to 9 outputs.

```
Input Function
*Normally Open_
```
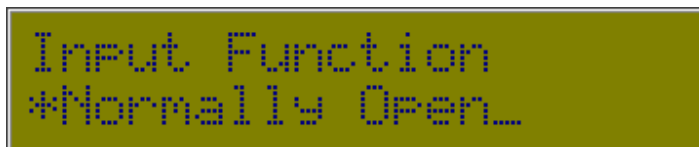
The next setting is the Input Function, which has the currently selected option showing. Scroll through the menu options using <Up> & <Down> to choose an appropriate I/O function, which will be one of the following:

Off
Sensor has been removed for servicing.   This allows a sensor to be removed from a configured Physical I/O Point without causing an alarm call to be initiated.

Normally Open
Clean contact NO digital input.

Normally Closed
Clean contact NC digital input.

20mA Loop
4mA to 20mA analogue input.

10V Analogue
0V to 10V DC analogue input.

1V analogue
0V to 1V DC analogue input.

Output reset off
Digital output set OFF when EDAC700 RTU is powered up or reset.

Output reset on
Digital output set ON when EDAC700 RTU is powered up or reset.

Pulse accumulator
Please contact EDAC Electronics, New Zealand for information on this optional expansion module.

Runtime meter
Please contact EDAC Electronics, New Zealand for information on this optional expansion module.

If you are editing an entry with an Analogue Input Function, then extra analogue settings will be presented. Proceed through the section Analogue Settings for details on these. If you have completed that section, or you are editing an entry with any other Input Function, the settings continue as follows.

```
Input alarm
*Do Not Latch…
```

The next setting is the Input Alarm method, which has the currently selected option showing.
Scroll through the menu options using <Up> & <Down> to choose an appropriate alarm method, which will be one of the following:

Latched input
Alarm Trigger will be latched on.   If the sensor goes back into range the alarm trigger will remain present until acknowledged by a user.

do not latch (default)
The alarm trigger will be removed if the sensor goes back into range. This means the alarm is self-cancelling.

```
Trg/dial time(s)=1
```

This setting is the delay in seconds for the period the trigger must be continuously present before being accepted as a valid alarm trigger.

```
Lat/Dial time(s)=3
```

Type in the delay in seconds for the period from the time a valid alarm trigger is present to the time alarm notification calls are initiated.
Note! This menu choice will only appear if "Latched input" is selected from the "Input alarm" menu choice.

```
Untrig time(s)=1
```

Type in the delay in seconds for the period an analogue signal must remain in the normal operating range before it is accepted as being back in normal operating range.

```
Input type
*trig causes dial ou
```

Choose when you want the value to be reported: on Dial in, Dial out or Both.

trig causes dial out (default)
The EDAC700 RTU will make alarm notification calls when this Input is triggered.

Report - non dial
Will report a status voice message whenever an alarm notification call is made.

Report – call in
A status voice message will be reported when a user calls the EDAC700 RTU.

Always Report
The EDAC700 RTU will make alarm notification calls when an Input is triggered. A status voice message will be reported when the EDAC700 RTU makes an alarm notification call or when a user calls the EDAC700 RTU.

```
pager message
_
```

Enter a suitable pager message. If an analogue sensor has been configured, a relevant analogue reading is added to the end of the pager message at the time of transmission. Your pager message will need to allow for this. Eg. "Water Level is high, the reading is ".

Each I/O Sensor Configuration record can have a pager message associated with it.

```
on voice message#1
*=play #=record_
```

Voice messages can be recorded for any input. A separate message can be recorded for the On (alarmed) state and the Off state off the input.

If a voice message has been recorded for this input, you have the option in this setting to play back the existing message by pressing <*>. Press <#> to start recording your On message. Several messages are displayed while the RTU prepares to record. Wait for the EDAC700 RTU to beep before you start your recording.

```
    RECORDING VOICE
Press any key to end
```

Press any key when you are finished recording. The EDAC700 RTU will play your recording back to you. Press <Ok> to stop listening to the recording playback, then <Ok> to move to the next setting.

```
off voice message#1
*=play #=record_
```

This setting allows you to record an Off message. This procedure is the same as for the On message.

```
Save changes? <ok>
_
```

Press <OK> to save and exit, or press <Esc> to discard any changes.

5.1.2   Analogue Settings

Program Mode -> Configure Dialler -> Configure I/O -> Add/Edit Input -> Input function -> Analog/4-20

For more detail on these settings, refer to the Analogue Configuration section.

```
Low mA value=4.00
```

Enter the sensor low output value in mA.
Note! Will say "Low V value" if 0-1V or 0-10V has been selected.

```
High mA value=20.00
```

Enter the sensor high output value in mA.

```
Low Eng units=0
```

Enter the sensor low value in engineering units that the "**Low mA value**" represents

```
High Eng units=100
```

Enter the sensor high value in engineering units that the **"High mA value"** represents

```
Offset=0
```

Enter the calculated Offset in engineering units to calibrate the reading to the external reference.

```
Set Point=40
```

High alarm set point.   Enter the signal level in engineering units that will cause a high level alarm.

Note! For code Ver 1.2.8p and below 4 decimal points must be entered. Eg. to enter 30 you must enter 30.0000.

```
Reset Point=20
_
```

Low alarm set point. Enter the signal level in engineering units that will cause the alarm condition to reset or stop triggering.

Note! For code Ver 1.2.8p and below 4 decimal points must be entered. Eg. to enter 30 you must enter 30.0000.

```
Analogue Trig Type
*trig when high_
```

*Trig when high (default)
- Trigger when the analogue signal is above the "Set point".
- Remove the trigger when the analogue signal is below the "Reset point".

Trig when low
- Trigger when the analogue signal is below the "Set point".
- Remove the trigger when the analogue signal is above the "Reset point".
Note: The "Set point" value must be smaller than the "Reset point".

Outside set/reset point
- Trigger when the analogue signal is above the "Set point" or below the "Reset point".
- Remove the trigger when the analogue signal is between the "Set point" and the "Reset point".

Between set/reset pts
- Trigger when the analogue signal is between the "Set point" and the "Reset point".
- Remove the trigger when the analogue signal is above the "Set point" or below the "Reset point".

```
Speak Suffix Mess.
*Yes_
```

Yes
Will ask for a suffix to add to the voice message after speaking the analogue sensor value. This would normally be the relevant engineering unit. If this is "Yes" the next setting will prompt for the suffix voice message to be recorded.

*No (default)
Will speak the analogue value with no suffix.

```
Decimal place spk=1
_
```

Type the number of decimal places to be displayed and spoken for this analogue sensor.

5.2   Configure Groups (Group Menu)

Each configured I/O must be mapped to a Group.
It is the Group that generates the alarm notification call.

Program Mode -> Configure Dialler -> Configure Groups

```
Group Menu
  Add group…
```

The "Configure Groups" menu includes Add & Delete Group options, and at least one pre-configured Group:

       1,Group 1   Example group configuration

As you define new Inputs using Add Group, they are added to the list in this menu. You can modify any existing entry by pressing <Ok> when its name is displayed.

The next setting is the display label for the Group.   The LCD accommodates 20 characters, however labels can be up to 40 characters long.

```
1 Group name
Group 1_
```
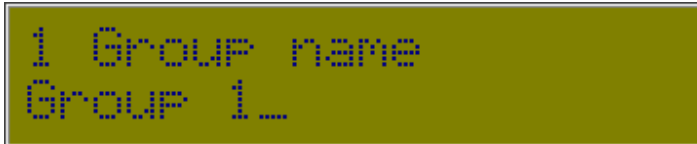
Select a descriptive name that suits the group type.

Once a character has been entered, the existing text will be replaced. You can now backspace using <Left> to edit your name entry.

When working with different Input sensor types it is logical to group the sensor types together. E.g. Intruder Sensor Group, Smoke detector Group. These groups can then be associated with a Call List with the telephone numbers of the appropriate personnel.

```
Group voice mess:1
       #=record_
```
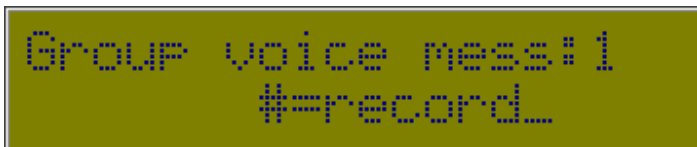
The next setting allows you to record a voice message to suit the group name. E.g. "Group 1" or "Smoke Detectors".

Several messages are displayed while the RTU prepares to record. Wait for the EDAC700 RTU to beep before you start your recording.

```
    RECORDING VOICE
Press any key to end
```

Press any key when you are finished recording. The EDAC700 RTU will play your recording back to you. Press <Ok> to stop listening to the recording playback, then <Ok> to move to the next setting.

```
Group pin=1000
_
```

Enter a Group PIN. Each Group has a 4-digit PIN number associated with it. On an alarm notification call the number is entered using a touch-tone phone to acknowledge and cancel the alarm. A single PIN can be used for all Groups or each Group can have its own individual PIN.

```
Group mode
*Input_
```

This setting allows you to choose either an Input (Default) or an Output Group type. You cannot map Inputs and Outputs to the same Group. In order to turn an Output on it must be associated with an Output Group.

Output Groups are limited to 9 Outputs. The number of keys available on a normal touch-tone phone determines this. The keys, numbers 1 to 9, are used to toggle the outputs on and off during a phone call with the EDAC700 RTU.

```
Save changes? <ok>
_
```

Press <OK> to save and exit, or press <Esc> to discard any changes.

5.3   Configure Phone Numbers (Phone List Menu)

The EDAC700 RTU requires a phone book, called the Master Phone List in order to build a Call List. All I/O notification must be mapped to a Call List.   The Call List and the Master Phone List each only require a single entry in order to make successful alarm notification calls.

Program Mode -> Configure Dialler -> Configure Phone num

```
Phone List Menu
Add Phone Number…
```
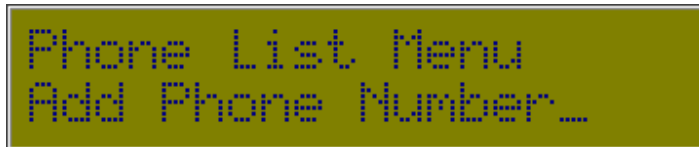
The "Configure Phone num" menu includes Add & Delete Phone Number options.
As you define new Numbers using Add Phone Number, they are added to the list in this menu. You can modify any existing entry by pressing <Ok> when its name is displayed.

The next setting is the display label for the Phone Number.   The LCD accommodates 20 characters, however labels can be up to 40 characters long.

```
phone name
…
```
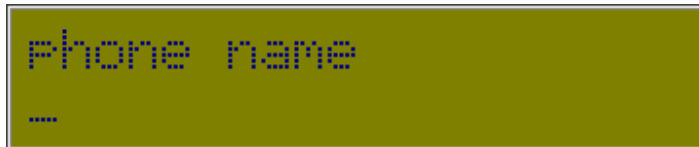
Enter a suitable name for the contact person or service associated with the number. The EDAC700 RTU keypad will allow you to enter a name using the alphanumeric function of the keypad. It is similar to editing a cell-phone phone book entry.

```
phone number
…
```
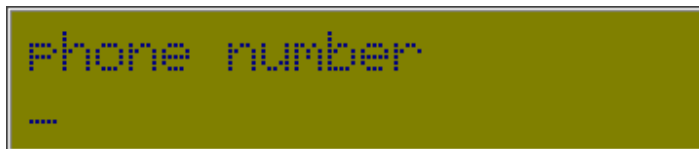
You can now enter a phone number. Do not forget any prefix that may be required to get an outside line, or any required area codes. Use a comma to put in a delay. On an EDAC700 RTU Keypad <*> is read as a comma when entering phone numbers.

```
Cancel method
*any key cancel…
```
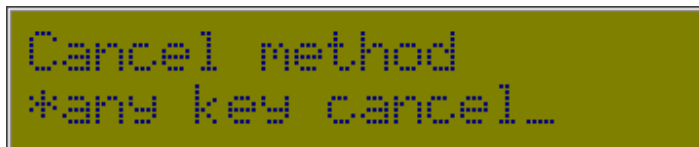
Choose an alarm cancellation method from these options:
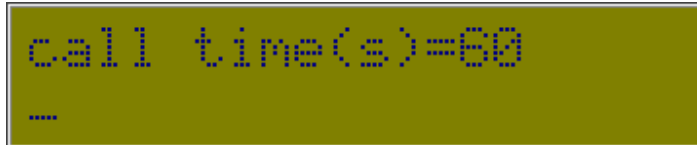
cancel not allowed
The EDAC700 RTU will play the appropriate voice messages for the configured time (set in this menu) and then hang up.

any key cancel
The EDAC700 RTU will stop making any further alarm notification calls if any key on a touch-tone phone is pressed.

PIN cancel

A valid PIN number for the triggered Group must be entered. The PIN required is configured in the Group Menu. This option would normally be used when other people might answer the phone that the EDAC700 RTU calls.

```
call time(s)=60
…
```

This setting is used to set the time the EDAC700 RTU is allowed on an alarm notification call for this group. It is the time from the instant the I/O trigger causes dial-out to the time it will hang up if no DTMF tone is received. If it takes a while for the exchange to connect or there is a long delay before the phone is answered, then this time needs to be increased. The time is entered in seconds.

```
spk on dial-out
*No extras…
```

Choose a dial out speech method. When the EDAC700 RTU makes an alarm notification call you can set one of four options to determine the method of presenting voice messages.

No extras

Will start speaking alarm status message straight away, the user can then press a key or enter a PIN to acknowledge and cancel the alarm.

Report pin
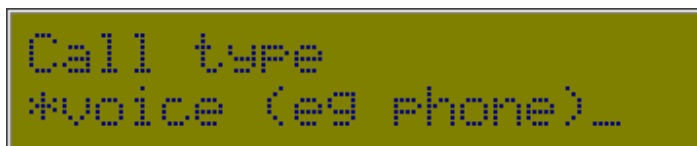
Will ask for a PIN before it starts speaking the alarm status message. Any valid Group PIN will work.

Speak Menu

Will start by speaking the Main Menu "Press 1 for….2 for…3 for…etc. Will not require a PIN after pressing 1 to get the alarm status message.

Report PIN + Menu

Will start speaking the main menu but will ask for a PIN after pressing 1 to get the alarm status message. Any valid Group PIN will work.

```
Call type
*voice (eg phone)…
```

This sets the type of response to an alarm call used on this number.

Voice

A voice message will be spoken to a human recipient on a phone.
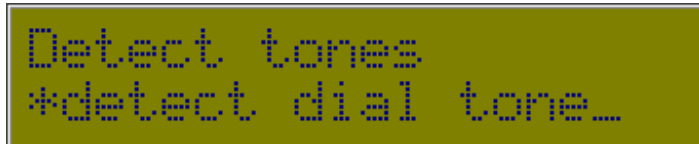
Numeric pager
A numeric message will be sent to a numeric pager.

Note! If the Numeric pager option is chosen the dialler will ask you to enter a pager delay.

SMS/alpha-numeric pager
A text message will be sent to an alphanumeric pager or a cell phone.

Note! If the SMS/alpha-numeric pager option is chosen the dialler will ask you to choose a pre-configured TAP service - see Configure TAP for more detail.

```
Detect tones
*detect dial tone…
```

The EDAC700 RTU is capable of detecting dial tone and ring tone from the telephone exchange using its inbuilt modem.

If the EDAC700 RTU will not dial, due to being unable to detect dial tone you can set it to "no tone detect".   This is also called "blind dialling".   This will allow the EDAC700 RTU to initiate a call regardless of the dial tone frequency.

no tone detect (default)
The dialler will dial without waiting to detect dial tone.
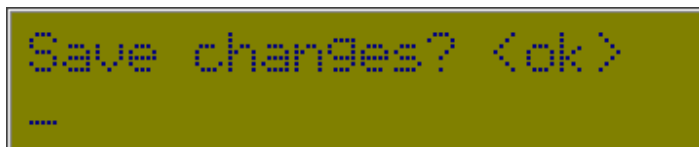
detect dial tone
The dialler will only dial after dial tone is detected. NOTE: Dial tone detect is not available in Australia

detect ring tone
This feature is not currently available. Please contact EDAC Electronics, New Zealand with any queries.

dial & ring tone
This feature is not currently available. Please contact EDAC Electronics, New Zealand with any queries.

```
Save changes? <ok>
…
```
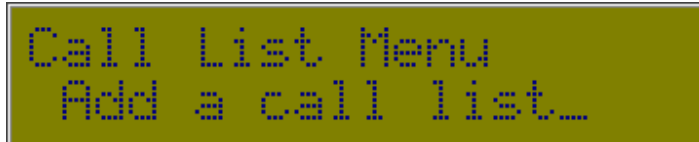
Press <OK> to save and exit, or press <Esc> to discard any changes.

5.4   Configure Call List (Call List Menu)

The EDAC700 RTU must have a Call List defined before it can make alarm notification calls.   The Call List and Master Phone List only require one entry each in order to make successful calls.
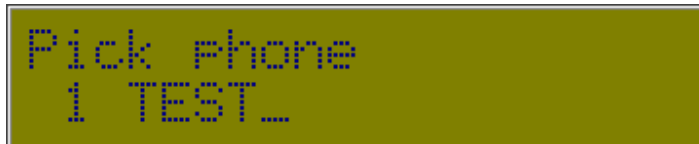
When building a Call List you must first select a phone number to call. If none are defined the EDAC700 RTU will let you define them as required from within the "Call List Menu".
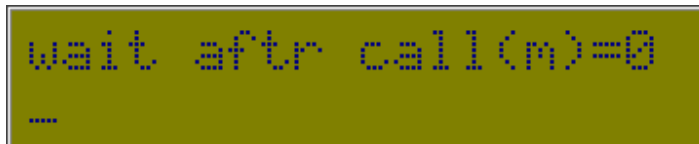
Program Mode -> Configure Dialler -> Configure Call List

```
Call List Menu
 Add a call list…
```

The "Call List" menu includes Add & Delete call list options.
As you define new Call Lists using Add a call list, they are added to the list in this menu.
You can modify any existing entry by pressing <Ok> when its number is displayed.

```
Pick phone
 1 TEST…
```

Select a phone number by scrolling through the numbers using <Up> & <Down>. The dialler will give a double beep on the last number entry. You can also add a new number from this option.   Press <Up> from the first number listed to reach "Add phone num".
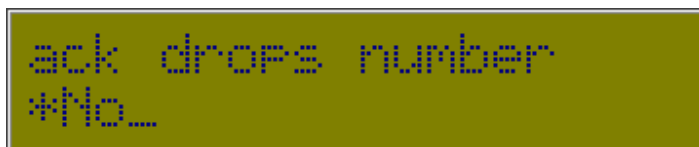
```
wait aftr call(m)=0
…
```

This setting is a delay in minutes that the EDAC700 RTU will wait between calls from the Call List. This is used to allow a user to phone in and cancel the alarm if required. It also allows the EDAC700 RTU time to self-cancel if the alarm trigger has been removed or gone back into its normal operating range.

This setting must be set if a pager is being called or text messaging to a cell phone are being used.

New Zealand setup;
The **"wait after call (m)"** parameter shall not be set to the default value of 0.

```
ack drops number
*No…
```

When the EDAC700 RTU dials a number from the Call List it looks for an acknowledge signal from the user. When set to "Yes" the EDAC700 RTU, after receiving the

acknowledge signal from the user, will drop the phone number it is currently dialling from the list.

```
max call count=99
```

You can set the maximum number of calls for each number on the Call List.

New Zealand Setup;
The **"max call count"** parameter shall be set to a value of not more than 10.
Australian Setup;
The **"max call count"** parameter shall be set to a value of not more than 15

```
Save changes? <ok>
```

Press <OK> to save and exit, or press <Esc> to discard any changes.

5.5   Configure Rosters (Roster Menu)
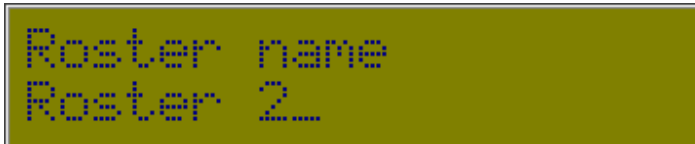
If no Rosters are defined the EDAC700 RTU will default to using Call List 1. A Roster must have at least one Call List or a number of Call Lists mapped to it. Once one or more Rosters have been configured the operator can change the current Roster either via the menu options using a touch-tone phone or the EDAC700 RTU keypad.

Program Mode -> Configure Dialler -> Configure Rosters

```
Roster Menu
 Add a roster…
```

The "Roster" menu includes Add & Delete roster options.
As you define new Rosters using Add a roster, they are added to the list in this menu.
You can modify any existing entry by pressing <Ok> when its name is displayed.

```
Roster name
Roster 2_
```

You can give the roster a meaningful name, or leave the default name.

```
Call list,Group
 1,Group 1_
```
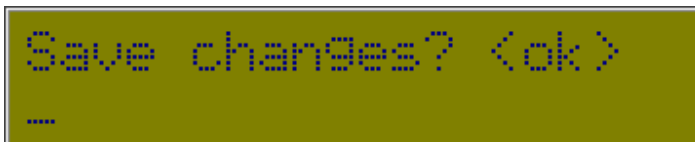
This setting links a Call List to this roster. The display is indicating that Call List 1 is connected to Group 1, so if Group 1 is triggered it will use Call List 1 to make alarm notification calls from.

Use the arrow keys to scroll through the list. The dialler will give a double beep on the last Call List entry.

```
Call List
*Call list 1_
```

The next setting determines which Call List is used during the default time frame.

```
Save changes? <ok>
…
```

Press <OK> to save and exit, or press <Esc> to discard any changes.

5.6 Configure TAP (TAP Menu)

The Tap service is configured via this menu. See the [TAP Configuration](#) section for the required service and equipment details.

Program Mode -> Configure Dialler -> Configure Tap

```
TAP Menu
  Add tap…
```

The "TAP" menu includes Add & Delete tap options.
As you define new Tap definitions using Add tap, they are added to the list in this menu.
You can modify any existing entry by pressing <Ok> when its number is displayed.

```
service no=
…
```

This is the access number to connect to the TAP service. Enter the appropriate number for your telecom provider.

```
service id
PG1…
```

This entry is also provider specific. Enter the correct code for your location.

```
service p/w
…
```

Enter the access password, if one is required.

```
Save changes? <ok>
…
```

Press <OK> to save and exit, or press <Esc> to discard any changes.

Please contact your local dealer, or EDAC Electronics, New Zealand if you have any further queries on this section.

5.7   Configure System Settings

This Menu is where the user can setup default values for security and operational options of the dialler.

Program Mode -> Configure Dialler -> Configure System

```
rings answ norm=1
....
```

This sets the number of telephone rings the EDAC700 RTU will count before answering an incoming call when in the Normal state.

```
rings answ wait=4
....
```

This sets the number of telephone rings the EDAC700 RTU will count before answering an incoming call in the Wait state. This is when the dialler is in Run mode and there are alarms triggered.

```
rings answ canc=5
....
```

This sets the number of telephone rings the EDAC700 RTU will count before answering an incoming call when cancelled alarms exist.

```
Cancel-call in
*Any key...
```

This sets the method for cancelling an alarm when answering an incoming call.

 Not allowed
*Any key   (default)
 Group Pin

```
program pin=0000
....
```

This sets the security number (PIN) used to access Program Mode from Run mode.

```
roster pin=0002
….
```

This sets the security number (PIN) used to access the Roster Menu over a phone call, i.e. menu option '2' on the Spoken Menu.

```
modem mode pin=0004
….
```

This sets the security number (PIN) used to establish a remote modem connection. This function is used to talk to an external device attached to the RS232 port of the EDAC700 RTU.

Example: Remote command; "ATDT <PHNUMBER> , , , , , , 4, , 0004"
Modems do not all wait the same time for a ','. The user may have to experiment to achieve the desired result.

```
remote prg pin=0005
….
```

This sets the security number (PIN) used to establish a remote modem connection in Program Mode. This allows the user to remotely setup the EDAC700 RTU as if it was connected directly to the local RS232 port.

Example: Remote command; "ATDT <PHNUMBER>, , , , , , , 5, , 0005"

```
Group priority
*No…
```

This sets the sequence of alarm notification calls made when multiple Groups have triggered alarms.

No (default)
When set to "No" the EDAC700 RTU will make alarm notification calls alternatively from each triggered Group.

Yes
When set to "Yes" the EDAC700 RTU will consider the lowest numbered group (Group 1) to have the highest priority. It will always dial the lowest triggered Group number, and will keep dialling the same Group until acknowledged. It will then dial the next lowest group.

Note! When using "Group Priority = Yes", the EDAC700 RTU must be set up so that Group 1 has the highest priority alarms wired into it, then Group 2, Group 3 etc.

Note! The EDAC700 RTU will not make any calls while in the Wait state, which happens between alarm notification calls. If Group Priority = Yes and a second lower priority group is triggered no alarm notification calls will be made for this second Group until the first group is acknowledged.

```
Pin report,call in
*report pin…
```

This option is used in the Spoken Menu. When a user dials the EDAC700 RTU and this option is set to "report pin", menu option '1' will require a PIN. If this option is set to "report pin not req", the user will not have to enter a PIN.
Menu option '1' speaks the status of reporting inputs.

```
Save changes? <ok>
…
```

Press <OK> to save and exit, or press <Esc> to discard any changes.

5.8   Configure Speech   (Speech Menu)

This Menu lets the user configure the default speech records for the EDAC700 RTU.

Program Mode -> Configure Dialler -> Configure Speech

```
Speech Menu
  site message…
```

Selecting this option allows the user to listen to the site message (if it exists) or record the site message. The site message usually contains the company name or the site location.

```
site message
*=play #=record…
```

Several messages are displayed while the RTU prepares to record. Wait for the EDAC700 RTU to beep before you start your recording.

```
    RECORDING VOICE
Press any key to end
```

Press any key when you are finished recording. The EDAC700 RTU will play your recording back to you. Press <Ok> to stop listening to the recording playback, then <Ok> to move to the next setting.

```
Speech Menu
  System msgs…..…
```

Note! A System PIN protects selection of this option. This is only available to EDAC Accredited Service Centres. Please contact your local EDAC representative for further information.

5.9   Configure Miscellaneous (Misc Menu)

This menu allows the user to setup other miscellaneous options of the dialler.

Program Mode -> Configure Dialler -> Configure Misc.

```
Misc Menu
  Change date & time…
```

Select to change the date and time.

```
dd/mm/yy hh:mm day
01/08/02 01:58 Thu
```

The default time is displayed on the second line until a number key is pressed and a change is initiated.   The digits all need to be entered, but the delimiters (the "/" and ":") do not.

The day is edited by entering a number as shown below:

> 0:Sun 1:Mon 2:Tue 3:Wed   4:Thu 5:Fri   6:Sat 7:Sun

Press <Ok> to save, or <Esc> to discard any changes.

```
Misc Menu
  RS232 config…
```

This option allows selection of the RS232 speed of the EDAC700 RTU serial port. This must be one of:

> 19200, 9600,   4800, 2400, 1200 or 300 baud

Press <Ok> to save, or <Esc> to discard changes.

```
Misc Menu
  Up/Download config…
```

Note! This setting controls the method for reloading the RTU firmware. This option is only available to EDAC Accredited Service Centres. Please contact your local EDAC representative for further information.

```
Misc Menu
  Erase config_
```
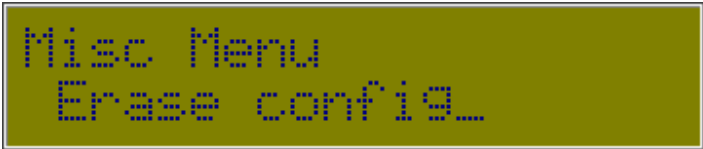
Use this option to clear all site-specific configuration.

WARNING! This option will delete ALL database records and voice files (not including system messages).

```
Check Memory
  Database Usage_
```

Use this option for checking the status of user memory.   Select from either Database Usage or Voice File Usage using <Up> & <Down>, then press <Ok>.

Database Usage
This option will display the percentage used of the Database and draw a simple bar graph representation of the database usage. If the size exceeds 95% a warning message is displayed.

```
 Database 15% Full
E[▓▓▓▓▓........... ]F
```

Voice File Usage
This option will display the same usage graph as the Database usage, except it shows the percentage of the Voice Message File usage.

```
File Area 15% Full
E[▓▓▓▓▓........... ]F
```
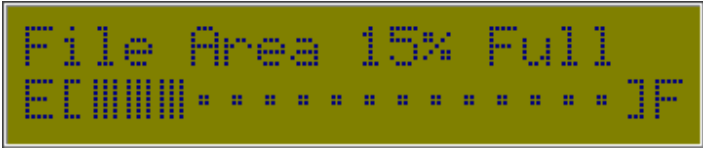
Note!   Deleting Voice files will not create more room in the database and visa versa. The database and the voice file area are totally independent!

6 Outputs active when Alarm triggered

When an Input is triggered and goes into an Alarm state, it is possible to configure the dialler so that it switches an Output. This output could be connected to a siren or flashing light. Or if a 4-20mA sensor is used on a reservoir it could be used to turn a pump on and off.

The Output will stay on until the Alarm condition is Acknowledged, or alternatively if the Input trigger is removed or goes back to its normal operating state the Alarm condition will self clear, and the Output will be turned off.

Step 1. Go to Program Mode.

Step 2. Configure an Input or Inputs, mapped to Group 1 (default) or what ever number you would like to use. Via the EDAC 700 menus you can configure an alternative Group when you are mapping the Input to a Group.

Step 3. Configure an Output or Outputs, and map them to the SAME Input Group as that which has been configured above. Ie the Output does not get mapped to an Output Group it gets mapped to an Input Group.

Step 4. Program Phone numbers and call lists

Step 5. Go to Run-Mode and test.

7 Mapping Multiple Inputs to One physical Input

In some cases it can become necessary to be able to provide an ability to generate an alarm from an input, but also get a status reading relating to that input. This applies more to analogue Inputs than digital.

To do this we must configure two inputs, but have them both mapped to the same physical input terminal.

For example we have a analogue 4-20mA pressure transducer measuring reservoir level. We require a low level alarm, a high level alarm, and the ability to establish what the current level is at any time by ringing into the product and hearing a spoken level reading.

1. Configure Analogue Input, set up so it is reporting only, option *"D always report"*, in *"Input Type"*
2. Configure new Analogue Input, use the same Input No as used above, use calibration values from above. Set this one to *"Analogue trig type: outside set/reset point"*.

This will now provide a solution that when the product is rung or rings out with an alarm, it will always report the current reservoir level.
When the reservoir goes above or below the Set point or Reset point an alarm will be generated.

8   TAP Configuration

In order to use Alpha paging or SMS you must arrange access to a TAP server/host. The EDAC700 RTU uses standard TAP protocol; it does not use ETAP or Pacnet.

If you are going to use SMS messaging to a cell phone, you may also need to subscribe to an additional service. In New Zealand for Telecom or 025 cell phones, this is called "Mobile Note". This service enables the individual cell phone to receive SMS text messages from the TAP host.

If you are in New Zealand and have a GSM or 021 cell phone you need to talk to the manufacturer for up to date information on where to go to arrange access to a TAP host.

To configure the dialler for Paging or SMS, you must configure the TAP access numbers and the Pager number or cell phone number.

The Tap service is configured via the **"Configure TAP"** menu. The table below gives the information required for use in New Zealand.

Service Type	Service No	Service ID	Service PW	Service Speed
Alpha Paging	026,4001283	PG1		14400
Mobile Note (025)	026,199999	PG1	zmnote	14400
Vodaphone (021)				

If using a pager you will need its RIC code. It is the number you dial via a normal phone to activate the pager. This is normally located on the back of the pager, however your service provider should have provided this number when you signed up.

The next step after configuring the TAP access is to configure your phone numbers for notification on the Alpha/ numeric pager or cell phone.

In the **"Configure phone num"** menu, you should enter a suitable name, and the access number. If using a pager, enter the RIC code. In New Zealand this will start 026. If you are using SMS, you will enter your cell phone number here. The following table provides the information required for use in New Zealand with Telecom 025 cell phones.

Cell phones starting with	Enter as is, do not enter the 025
027….	Enter as is, including the 027
025…Plus 7 digit number	5301… then drop the 1st digit of 7 digit number
025…Plus 6 digit number	5300…then all the 6 digit number

After entering the phone number work your way down the menu and select the "SMS/alpha-numeric pager" option. If you have not previously set up your TAP host you will be given an opportunity to do so here. If you have, you can select the TAP service you have previously set up.

The pager message comes from the Input configuration. See **"I/O Menu"** and select the Input sensor that you want to generate paging messages.

If the input selected is configured for analogue, the analogue reading will be added to the end of the text message entered above.

When configuring a pager notification or SMS text message a delay must be set between each call. This is to allow the user to call into the EDAC700 RTU to cancel/Acknowledge the alarm. It also allows the EDAC700 RTU to check if the input

trigger has been removed or gone away, and then self cancel. This delay can be configured via the **"Configure Call list"** menu, option "Wait aftr call(m)=0".

When receiving an Alpha paging message, some pagers will not display a second notification if they receive the same message string more than once. This will give the impression that paging is not working reliably. In order to get around this, you should delete the pager message from the pager shortly after receiving it. This will allow it to display a second notification from the same group or trigger.

Please contact your dealer if you require local TAP settings, or contact EDAC Electronics, New Zealand if you have any other queries regarding this section.

APPENDIX 1

Technical Specifications

Electrical
- Input Voltage: 10VDC to 30VDC
- Power Supply cut off voltage, switches to battery at: 9.3v
- Input Current: 300mA normal operation, with battery connected
- Battery Backup: 12V 7A/Hour battery capable of over 24 hours normal operation
- Battery charge current: 50mA
- Auto power down at: 10.8v, protects battery from full discharge

Configurable Input/Output - Alarm, Monitor and Control
- 20 physical I/O configurable as digital or analogue input or digital output

- 2 messages per physical I/O

- Configurable as "report only" or "alarm notification".

- **Digital Inputs**
  Up to twenty digital inputs
    - Normally Open Contact
    - Normally Closed Contact
    - +30VDC maximum
    - +1.5VDC trigger
- **Analogue Inputs**
  Up to twenty 12 bit analogue inputs configurable for either
    - 0V to 1V
    - 0V to 10V
    - 4 mA to 20mA
- **Outputs**
  Up to twenty controlling digital outputs
    - Open collector
    - 150mA maximum current

- Zener diode protected inputs up to 24VDC.
- Inputs also reverse polarity and over Voltage protected by crowbar diode.

Communication
- 2 line 20 digit LCD display
- 18 key splash-proof keypad
- RS232 port
- Internal 14k4 modem, with PSTN Line Interface - standard RJ45 connectors

All functions are programmed using the keypad and LCD display, the RS232 port or via the modem.

Mechanical
- Weight: 10 kg
- Height: 303 mm
- Width: 343 mm
- Depth: 120 mm

Voice and Pager Messages

- Up to 300 seconds of System and User Recordable Voice Messages
- 20 second voice messages per input and group (default 20 seconds can be extended)
- 40 digit alpha-numeric or numeric pager message per input or group

Groups
- 1 to 20 inputs per group
- 1 to 9 outputs per group
- 1 group name message per group
- groups can be either input or output but not both

Call Lists
- 1 to 20 telephone numbers per call list

Time Frames
- choice of timeframe (day/night)

Rosters
- unlimited rosters
- only one active roster at a time

Programmable Parameters
- Up to 20 telephone or pager numbers per call list.
- One alphanumeric pager and SMS message per physical input and I/O group.
- Up to 40 digits for telephone or pager number.
- Reporting and System Messages
- 4 digit security PIN numbers
- Groups, Call Lists, Rosters, Time Frames

Optional Expansion Unit

The 32-bit Pulse/RunMeter Unit is an optional extra for the EDAC 700. This unit features 8 Pulse Accumulator Inputs and 8 Run-Time Meter Inputs or alternatively an additional 20 digital Inputs.
The unit fits inside the EDAC 700 Case and derives its power supply from the EDAC 700.
When configured for Pulse/RunMeter Inputs it will give reports, but will not generate alarms.
When configured as Digital Inputs, the EDAC 700 will generate alarm notification calls

- Input Voltage Range: 0-20V
- Input Trigger Voltage: 0V
- Power Supply: 12V (derived from the EDAC 700)
- Current Consumption: 30mA
- 8 Pulse Accumulator Inputs:
    - Input Frequency: 5kHz
    - Maximum Count: 4294967296
- 8 Run-Time Meter Inputs:
    - Resolution: 0.1 Hour

Lightning Protection

The EDAC 700 RTU must be provided with an earth discharge circuit to allow for lightning and mains surge discharge.

This can be accomplished by connecting a cable with a M3 crimp terminal attached, to the M3 mounting screw located beside the RJ45 PHONE socket, at the bottom left corner of the main EDAC 700 PCB. This cable should then be connected back to a suitable earth point. This would normally be the common earth buzz bar at the switchboard, or an external earth stake, located beside the building.

Installation Template

266

343

295

303

700 PCB

+12v 6AH
Battery

20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Com Com Com Com Com Com Com +15 Com

Line Phone

1" Cable entry holes

Decal

R 3

R 6

10

15

25

APPENDIX 2

Frequently Asked Questions (FAQ)

EDAC700 RTU beeps intermittently and asks for a PIN number

Normally this means an alarm trigger is present and the dialler is not fully configured.
A valid phone number, and "Call List", must be present before the EDAC700 RTU can generate an alarm notification call successfully.

It may be trying to generate a battery or power fail alarm. Ensure the battery is connected and the power supply is connected and working. You will need to enter a PIN to cancel the alarm, or go to Program-Mode and back.

PIN not working

If the PIN will not work or you forget your PIN you can momentarily press the reset button located in the top right corner of the main board and continuously hold down a key on the EDAC700 RTU keypad while the EDAC700 RTU re-boots. It will start in Program Mode. You can then go to the "Configure System" menu to check or change PIN numbers if required.

Hang up with "" not always working**

When the dialler is speaking it cannot always hang up when you use "**".   This works best when the dialler is speaking the "site message". It will not work if it is speaking "reporting only" inputs or acknowledged inputs. Wait for the "site message" to start speaking again, then enter "**", or else simply hang up. The EDAC700 RTU will hang up the phone after a preset time-out period.

"#" re-start speech, not always working

In an alarm notification call, "#" should make speech restart from "site message". This does not work all the time. Works fine for call-in, when in "spoken menu" part.

No positive "beep, beep" response for Pin number entry

In some places this positive feed back may not happen, will give one beep for correct PIN or no beep. The voice message that follows from a correct pin will reflect that the pin has been accepted.

Message "Invalid Option" spoken when in Rosters or Outputs

This message is normally played if you select a key press that is not going to do any thing or is a wrong key. It also can be heard if you select "2" for Rosters or "3" for Outputs, if no rosters or "Outputs have been defined. This will happen after entering the PIN. Because there are no rosters defined or Outputs configured, the EDAC700 RTU will report the pin as an "invalid Option" this is because it does not have configuration associated with the option you have selected.

Problems with entering PIN Numbers

This problem is with "Cancel by PIN number", not "Cancel by any key". "Cancel by any key" will work fine if the rules outlined below are observed.

With one Group configured, the user can enter a PIN at any time, like after the active input message. There is no problem with this set up.

When we have multiple groups, triggered at the same time, and one call list, it can be difficult to get a PIN accepted if it is not entered at the correct time. This is due to each group potentially having different PIN numbers, and the correct PIN must be entered while the EDAC700 RTU is speaking the appropriate Group message or active input message.
With multi groups you can only enter your PIN number while the appropriate group message, or the active input message for that group is being spoken.
It is logical to want to enter a PIN after hearing the group and active input message. This cannot be done, as the window for the correct pin has closed. The EDAC700 RTU will now be speaking the next group message and active input messages.

This could be problematic, with some users. The user needs to wait until the message replays from the start and enter the PIN during the group message.
The first digit of the pin should be held down slightly longer, this allows the EDAC700 to hear the key press and pause the speech while the user enters the rest of their PIN number.

This problem will only show up under quite specific conditions when two or more groups get triggers and are connected to one call list and PIN numbers are being used rather than "cancel by any key".

This PIN problem could possibly make for problems with training end users. We do not think it is acceptable to try and train operators to enter PIN numbers at exactly the correct time. You should be able to enter any group PIN at any time and have it applied to the correct group.
This problem will be fixed as a high priority in an upgrade that will be available in the near future.

I cannot dial in to cancel an alarm when notified by Alpha Paging/SMS text messaging & it also does not self-cancel when the trigger is removed

When doing paging or SMS, if the wait time is zero (default) the EDAC700 RTU will not update input status between calls, while in the wait state, which happens between alarm notification calls.
If the Input trigger clears itself, it may take several calls before the EDAC700 RTU stops making alarm notification calls. You need to set the wait time between calls to 1 minute.

The wait time is in "Call List" configuration. If it is not set to 1 minute or more the user cannot ring into the EDAC700 RTU to cancel the alarm.

The Alpha paging or SMS message has a number after the text, what is it?

If you have configured an analogue input, and when it is triggered it reports to a pager or cell phone text message then the current analogue reading is added to the end of the message. Your pager message needs to reflect that this reading will be added on.

Example: Use pager messaging entry like this "High WL Alarm, the reading is: "
On alarm notification call the text message might be "High WL Alarm, the reading is: 12.3".

Data Base Repair "ERROR: db repair" what does this mean?

Due to the EDAC700 RTU being a computer-based product, it is possible for it to occasionally get its memory scrambled. If this should happen it will report that the database has been repaired while re-booting. In most cases the EDAC700 RTU will be fine, however you should consider using the "Erase Config" option from the "Configure misc" menu if this should happen. If you don't use this option you should test that your configuration is working correctly.

You should also use "Erase Config" after an Operating System upgrade, to ensure that all parameters line up correctly.

APPENDIX 3 - GLOSSARY

Acknowledged: When an Input has triggered an alarm, the dialler has made an alarm notification call, and the operator has indicated to the dialler that the alarm has been received, then the alarm is acknowledged. This means the dialler can cancel any further alarm notification calls.

Alarm Notification Call: When the dialler makes an outgoing call, and uses its recorded voice and pager messages to notify the called party that there are one or more triggered alarms.

Application Voice Messages: Short messages recorded for each I/O point and Group giving site-specific labels.

Armed: Dialler is in Run Mode and monitoring its I/O. See Normal State.

Cancelled: See Acknowledged.

Com/Gnd: Common or Ground electrical connection.

Call Lists: Selections of one or more of the numbers stored in the Master Phone List. Each List is mapped to an input Group being monitored for alarms.   If an alarm is triggered, the RTU will use the Call List to make alarm notification calls in the order listed. There can be a number of Call Lists constructed to accommodate different requirements.

Default Pin Number: The factory default PIN number for access to Program Mode is 0000.

Dialler: EDAC700 RTU.

Database: The memory area where all the site-specific configuration information for the dialler is stored. This includes Input, Group, Call List, and Roster configurations as well as Phone numbers and security settings such as PIN numbers.

Groups: A collection of Inputs is mapped to a Group. Groups can be either one input or any number of inputs or I/O points. These Groups can be used to trigger an alarm. Multiple Groups can map and re-use I/O points. If an "Input" is triggered or out of range the group it is mapped to generates an alarm. You cancel a Group rather than an input.

Input: Input signal for alarm testing or reporting. Can be configured in a number of different ways.

I/O: Abbreviation of Input/Output. This refers in this manual to an individual dialler screw terminal. Each terminal can be configured as either an Input or an Output.

Master Phone List: All telephone numbers and the associated names are entered into the Master Phone List. When constructing a Call List the numbers must already have been entered into the Master Phone List.

NO: Normally Open Input.

NC: Normally Closed Input.

Normal State: Dialler is in Run-Mode and no alarms are present. See Armed.

Output: A dialler terminal configured to Output a signal.

Password: Normally a "Personal Identification Number" (PIN).

Physical I/O Point: The physical screw terminal that will be wired to an external device.

Program Mode: The operation state used to configure the EDAC700 RTU.

RTU: Remote Terminal Unit.

Run Mode: The normal armed state of the EDAC700 RTU.

Rosters: A collection of one or more Call Lists. There can only be one Roster active at any one time.

SCADA: Acronym for "Supervisory Control And Data Acquisition".

System Voice Messages: Spoken words programmed at the factory to provide the basic vocabulary in messages. These Include numbers, units and other keywords.

Triggered Input: The state when the signal on a physical I/O point has changed to a value that is outside its programmed operating parameters.

Time Frame: This refers to the division of a time period into two parts. Call Lists are assigned to a Time Frame within each Roster. The dialler will determine which Call List to use based on the current Time Frame as well as the current Roster.

Wait State: Dialler is in Run mode and there are alarms present. The dialler is waiting for an acknowledgment of its alarm call.

Zone: Same as Group, security industry terminology.

WARRANTY

This product is guaranteed by EDAC Electronics Ltd to be free of manufacturing defects or faulty materials, for a period of TWELVE MONTHS from the date of invoice.

This warranty covers the repair or replacement, of goods returned to EDAC Electronics Ltd. Expenses incurred in returning the EDAC 700 RTU are not included.

Goods may be repaired or replaced at EDAC Electronics Ltd's discretion. Repairs by parties other than EDAC Electronics Ltd during the warranty period will not be reimbursed and will end the warranty agreement.

This warranty extends to the repair of the EDAC 700 RTU unit only and does not cover consequential damage or damage to itself or faulty operation due to poor installation, incorrect programming, use of incompatible peripherals, mechanical or electrical abuse, use in unsuitable mechanical or electrical environments, or Acts of God.

This warranty only applies when clean contact, voltage-free (relay type) Input triggers are used. This warranty will be void if any source of voltage is applied to the Inputs of the EDAC 700 RTU.

A full document of TERMS and CONDITIONS is available from EDAC Electronics Ltd, NZ

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