



Proxi-Mate Nurse Call



Configuring a Nurse Call Interface (ver 1.0 Jan 2013)

This document is intended for Biomedical Engineering, Building Maintenance and Electrical Services Staff—Please do not remove the back cover or change the interface settings unless appropriately qualified to do so.

PROXIMATE

The Proxi-Mate Nurse Call unit is designed to be used with an existing, installed nurse call system. The unit comes with a 6.25mm '3 terminal' jack plug and in many cases will connect directly to your Nurse Call System with no difficulty. However, there are a number of different nurse call systems in use and, in order to work with as many of these as possible, the Proxi-Mate Nurse Call Unit can be easily customised to suit.

If your system does not use a standard 2 or 3 terminal jack plug then contact your dealer for advice (may need an adaptor or custom plug)

Some systems, particularly in nursing homes, have an option to use a button on the call pendant to turn on or off an over bed light. The Proxi-Mate unit can be configured to do the same* so that, as soon as a resident has activated the alarm, the room light will come on. In addition, the unit can be configured to use a different call pattern when raising an alarm as opposed to the resident pressing the call bell.*

In order to provide this flexibility the Proxi-Mate unit divides a call into 30 x 0.5 second 'time slices' (15 seconds in all). In each of these time slices each terminal on the jack plug can be configured to connect with any other terminal on the plug. Once an alarm is raised the system works through each time slice connecting and disconnecting each terminal according to the pattern set.

Each terminal pattern can be set to operate only on the first 15 second cycle or can repeat in each subsequent cycle. Where there is a need to turn on the over bed light for example, the 2 terminals involved should only connect once, otherwise the light would 'toggle' on and off every 15 seconds as the call pattern repeated itself.

In order to setup the appropriate pattern, the system works through each time slice, connecting the appropriate terminals as indicated in the table below. Where there are 2 or more terminals with a '1' (known as a 'mark') in the table these 2 terminals will be connected for that time slice (0.5 seconds). Where there is a '0' (known as a 'space') that terminal will be excluded. At the end of the table is a 'repeat flag'. Where there is a mark for that terminal, in that space the connection will repeat in each subsequent cycle.

To access the Interface Configuration Tool—Press **'Menu'** and select **'Cnf Edit Intfc'** Follow the prompts to change the settings. The configuration pattern for the Alarm and Pendant call function are edited sequentially.

* Pendant based over head light switches generally 'toggle' the light on and off. So pressing the button when the light is off will turn it on, pressing it again will turn it off. If the over bed light is on when the alarm is activated it will turn the light off instead of on. This poses a potential risk to a patient mobilising unsupervised. It is very important that staff are made aware of this if this function is to be used.





	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	R
Tip	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Ring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blr	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

In this example, once the alarm has been activated, the tip and barrel will be shorted for the first 2 seconds (remember, each column represents 0.5 seconds) and then released for the next 13 seconds. As the repeat flag is set at the end, the sequence will repeat every 15 seconds until the alarm is cancelled.

Where there is a more complex pattern—such as when an over bed light is connected the example below may be more appropriate.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	R
Tip	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Ring	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blr	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

In this example, the Tip and Barrel are connected as before but the ring is added only for the first 2 seconds. As the repeat flag for the ring is not set, that pattern will not be repeated. So, during the second and subsequent cycles only the Tip and Barrel will connect.

Where there is a need to 'latch' the alarm (where there is a mechanical latch on the nurse call pendant) then the pattern can be set as per the example below.

In this case the Tip and Barrel will remain connected until the alarm is reset.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	R
Tip	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blr	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



In some circumstances it may be necessary to permanently short 2 of the terminals—for example, in a system that uses a 2 terminal jack plug—the ring and barrel would be permanently connected. This can be achieved by setting the 'dip switches' inside the unit. After removing the lid, locate the 4 way dip switch on the left. Follow the chart below to select the best options for your system. Note—these connections override the relays and once shorted, will remain shorted until the switch position is changed.

4 Way DIP Switch

DIP Sw 1	Introduces a 10k ohm 'load' resistor between the Tip and the Barrel
DIP Sw 2	Connects the Ring and the Tip
Dip Sw 3	Connect the Barrel and the Tip
Dip Sw 4	Connects the Barrel and the Ring

It may be desirable to distinguish between an alarm raised by the sensor connected to the system and an alarm caused by the resident pressing the call bell button themselves.

For example, for the most effective staff response it may be wise to set the Alarm pattern to activate the call buzzer constantly until the alarm is reset. Whereas it would be less intrusive to set the Pendant pattern to sound the buzzer only for 3 seconds every 15 seconds for example.

In order to accommodate this the system offers the opportunity to set a different call pattern for the pendant—see below.

EDIT ALARM PATTERN

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	R
Tip	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Ring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bar	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1



This pattern will sound the buzzer for 7.5 seconds every 15 seconds (50% duty cycle) for an Alarm.

Where...

EDIT PENDANT PATTERN

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	R	
Tip	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bit	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Will only sound the buzzer for 1 second every 15 seconds however long the call button is pressed for.

The default is for the Pendant Pattern to duplicate the Alarm Pattern unless specifically changed.

In some facilities the call buzzer is used as an emergency 'Code Blue', 'MET Call' or other emergency code. If you need the call buzzer to respond in this way please use a 'splitter' adaptor, available from your supplier. This will allow the Proxi-Mate system and the existing pendant to function independently. Please note that the existing pendant can only operate through the Proxi-Mate system while there is power available (either battery or plug pack)

It will not operate if the batteries in the unit have been allowed to go flat.



Working out the pattern

Given that the 3 terminal jack plug is such a simple connector there are several different ways in which it can be configured. In some installations only 2 of the 3 terminals are used. In others the ring is the common connector with the ring and tip sounding the buzzer while the ring and the barrel illuminate the room number light.

The first step in determining which configuration is needed is to obtain a WORKING example of a nurse call pendant meant for the call point in question. Note, experience shows that some facilities have several different systems in their facility—often installed at different stages of the building construction—**Not all call systems are the same—even in the same facility.**

	TIP	RING	BARREL
OFF			
1/2 Press or Nurse Call Button			
Full Press or 2nd button			

Using a multimeter set to the 'continuity range'—use the chart above to indicate which terminal is connected to which as the call bell is pressed.

Use this information to translate the action you wish the Proxi-Mate Unit to duplicate on the chart below. Note that some pendants have a mechanically latching switch for the room light or enunciator. Adapt the table to suit

Once this is done for both the alarm and pendant interface work through the menu on the Proxi-Mate unit to match. Note, you can exit the menu at any time by pressing '**menu/esc**'

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	R
Tip																															
Ring																															
Bar																															



Wiring

In addition to using the firmware configuration tool, it is possible to manipulate the electrical interface by changing the internal wiring.

For example, some facilities have an 'AUX' input to their nurse call system—this may be used for a 'wet bed' sensor or an ICU ventilator monitor etc. These AUX inputs often need a Normally Closed (NC) connection.

The Proxi-Mate nurse call system has a NC terminal for this purpose. When used, this terminal provides a NC connection between the Tip and NC terminal. If this facility is used then set the output pattern as per example below.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	R
Tip	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bri	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note that systems of this sort rarely need to either latch or repeat the connection—one the NC connection is briefly opened the nurse call system will activate and manage the call as per it's own protocol.—For example, this may initiate the call as a 'Cord Out Alarm' rather than a standard 'Nurse Call'

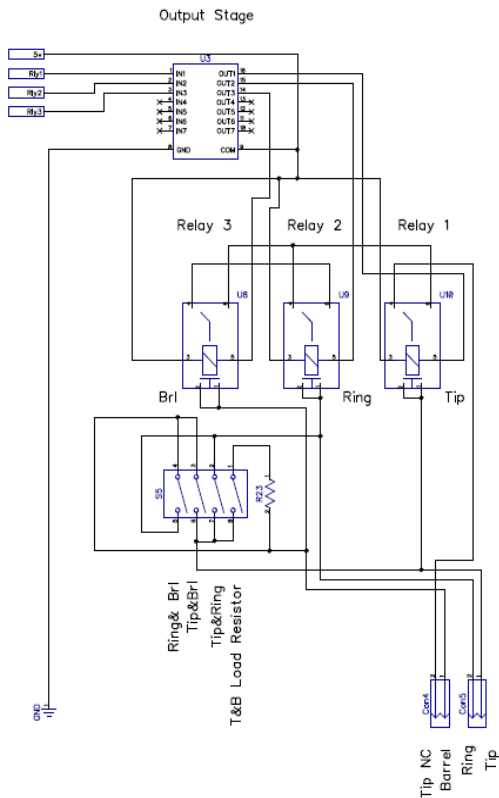
(Note: The installed nurse call system is beyond our control—all questions regarding how the nurse call system responds should be directed to the manufacturer or service agent for the nurse call system in question)

Fig 1 shows the output stage schematic, when read in conjunction with the charts overleaf this should cover all of the possible output combinations. Please don't hesitate to call your supplier if you have difficulties.

Should it be necessary, other, non standard, connectors can be used. Typically these would include RCA (2 terminal type), Octal (8 way) and Sontel® type plugs. Please contact your supplier to discuss obtaining custom adaptors if required.

The schematic overleaf also shows the 4 DIP switches and their effect on each terminal.

Fig 1





Battery Charging—the Proxi-Mate Nurse Call Unit has 2 internal NiMH rechargeable cells. The charging function is fully automatic and the charger supplied should be left connected and switched on at all times.

The Batteries are intended as a backup power supply should the main supply fail, however, there is sufficient power for the unit to run for some hours independently from the power supply. The battery life is dependent on many factors, including the number and duration of alarm events. In the standard operating mode, the unit will run for several days without the need to charge.

Once the batteries start to run low an indicator icon will appear in the bottom right hand corner of the display. Once this icon appears the unit should be put on charge.

Please **DO NOT** turn the charger on and off—it is safe and desirable to leave it connected and turned on at all times.

When the unit is charging another icon will appear on the display—this will appear and disappear from time to time as the automatic charging function monitors the batteries. It is normal for the unit to become warm when charging and this does not indicate a fault.

From flat, the batteries can be charged in around 4 hours. Please **DO NOT** use any other charger than that supplied with your unit.

The Nickel Metal Hydride Cells will tolerate approximately 500 charge / discharge cycles. This equates to a total expected life of approximately 2 years (depending on the circumstances in which they are used).

Should the cells ever need replacing please contact your supplier. NEVER fit standard AA cells (non rechargeable or Nickel Cadmium type) - Also never mix Nickel Cadmium, Nickel Metal Hydride or any Primary battery (Carbon or Alkaline) - If these guidelines are not carefully followed then there is a risk of battery leakage and subsequent damage to the PCB—Such damage is **NOT COVERED BY WARRANTY**.

In addition, use of incorrect batteries or incorrect battery charging could lead to battery outgassing and subsequent personal injury. Do not remove the rear cover of the unit unless qualified to do so.

If batteries are replaced please dispose or recycle exhausted cells in an approved manner.

Note: From flat, the unit can take several minutes to charge sufficiently to startup. This does not indicate a fault.



Technical Specifications

Size	120mm x 35mm x 100 mm excluding cable
Connection	6.25mm 3 pin 'jack' plug—other connectors / adaptors available as needed—contact your distributor.
Weight	0.55kg—with bracket
Electrical	2 x AAA NiMH Cells 1.2v nominal 700maH each 12v 1.0a Switch Mode, Regulated Supply Standby current (when on) 0.02ma (depending on the connected sensor) 400ma when charging
Output	3 x 1 amp relays—do not exceed 125W each or 375W in total. Use external relays if higher current capacity is required
Complies with:	AS/ANZ 3200.1.0 and 3200.1.2 ARTG No. 116081 Australian Patent No. 2004900753

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The Proxi-Mate Nurse Call unit is designed to be used with an existing, installed, nurse call system. **No warranty**, express or implied is offered that this system is compatible with any installed system. In some circumstances installed systems expressly forbid 'third party' connection to their service. In this case please **DO NOT** use the Proxi-Mate Nurse Call System. Consider the Proxi-Mate Wireless System instead.

Warranty:

PCT Remote Sensing Pty Ltd (PCT) offer a 2 year "Limited Liability"[™] warranty on all products it manufactures. PCT will, at its sole discretion, either repair or replace products that prove to be defective in materials or workmanship.

Return of Goods

Faulty products must be returned, in the original or other appropriate packaging, to PCT (or the original supplier) together with a clear description of the problem. **The customer is responsible for the cost of removal and return of the product.**

3rd Party products supplied by, but not manufactured by PCT are covered by the original manufactures warranty.

*Limitation

- 1) This warranty extends only to the original purchaser and is not transferable to any subsequent party.
- 2) Warranty claims will not be considered where any of the following exists:
 - a) Damage or failure resulting from improper installation, use or misuse.
 - b) Unauthorised repair, tampering, improper connection or operation outside of the electrical or environmental specifications of the product concerned.
- 3) The warranty does not cover acts of god, which include fire, any water / liquid damage whatsoever, whether caused by slow ingress or flood. Adverse weather including electrical storms, high winds, physical impact and/or damage.
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- 5) Under no circumstances will the liability of PCT exceed the original purchase price of the product – regardless of the form of the claim (to the extent permitted under law)
- 6) No other warranty is expressed or implied. PCT specifically disclaims any implied warranties of merchantability and fitness for a particular purpose.

This warranty is in addition to any statutory warranty that may exist where the product was purchased.

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