

ClassNet Terminal User Manual



Data Technology
Hardware • Software
Design • Consulting

The ASP ClassNet Terminal is an Australian product by:

ASP Microcomputers
456 North Road,
Ormond, Victoria, 3204
Australia
Telephone: (03) 9578-7600
Fax: (03) 9578-7727
Email: solutions@asp.com.au
www.asp.com.au

(ASP Microcomputers is a division of Grayline Holdings Pty. Ltd., ABN 81 004 940 729)

Contents

Introduction	2
ClassNet Terminal Overview	2
Operational Overview	3
Cable Download	3
Modem Download	3
DataTag Download	3
Barcodes or IDTags?	4
Student Attendance Programs	5
Barcoded Cards	5
IDTags	5
How do I determine the number of a IDTag?	7
Collecting Data from your ClassNet Terminals	7
ClassNet Anywhere	7
ClassNet Polling Program	7
ClassNet DataTag Utility	8
Installation	10
Setting the Network ID	11
RS-485 Network Cabling	12
Cable Termination	13
Network Expansion	13
Power Requirements	14
RS-485 Connector Wiring	15
Display Codes and Messages	16
Technical Specifications	17
Information to the user	18
EMC Statement	18
Compliance with USA FCC Rules	18
Warranty	18

Introduction

This Manual introduces ASP's ClassNet Terminal, gives overviews of related software and the Intelligent RS-485 Adaptor, discusses barcoded student cards, and outlines installation.

ClassNet Terminal Overview

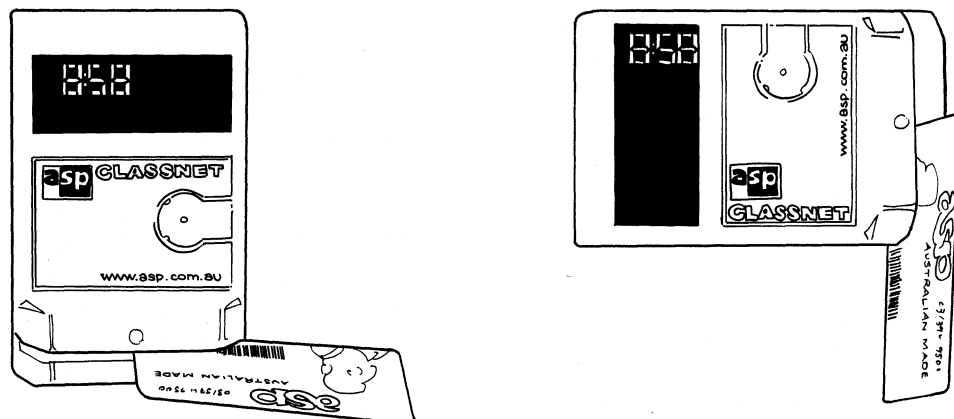
The ClassNet Terminal was designed by ASP Microcomputers as the data collection component for Student Attendance Systems. The ClassNet Terminal is the same size as a standard Australian power point, and is designed for vertical flush or proud mounting using standard power point fitting hardware.

The ClassNet Terminal integrates a time display, barcode card reading slot, and IDTag reading socket (an IDTag is an alternative to barcodes that looks like a lithium battery and is fitted to a key tag or card).

The ClassNet Terminal is normally powered by a low voltage plug pack, and connected on a simple two-wire daisy-chained RS-485 network cable to an ASP Intelligent RS-485 Adaptor, which connects to the serial port of a PC.

The ClassNet Terminal stores time-stamped barcode or IDTag data in battery-backed storage memory, so that it is not lost in the event of power failures. Software periodically communicates with each ClassNet Terminal, collecting the stored information, and stores it for access by data analysis software. During the data collection sequence, the clock in the ClassNet Terminal is also synchronised to that of the computer collecting the data.

The ClassNet Terminal is normally supplied as a vertical mounting unit (as shown on the left below), but it can be ordered in the new horizontal mounting format, as shown on the right.



Operational Overview

In a typical application, one or more ClassNet Terminals are installed near where students enter and leave the classroom. Students are issued with barcoded cards (or, less frequently, with IDTag tags), which they use to indicate that they have attended the classroom.

The student swipes their card through the slot, or touches their IDTag in the receptacle, until a beep is heard. The ClassNet Terminal displays *Card* or *ID* (as appropriate) on its display, and stores the barcode or IDTag number, and the time and date it was scanned.

If the storage memory of the ClassNet Terminal is full, it will display *FULL*, and the data will not be stored. The stored information must then be downloaded before further data can be stored.

The data stored in the ClassNet Terminals can be downloaded in one of three ways:

Cable Download

In this scenario, the ClassNet Terminals are connected via cable to each other and back to a computer, where an Intelligent RS-485 Adaptor is installed. Software running on the computer, such as ASP's Polling Program, automatically downloads the collected data over the cable on a schedule, and saves the data to disk. An administration program can then process the collected data.

Modem Download

If the school has several campuses, but you want to centralise the collection of student attendance information, cabling each terminal back to central office probably isn't possible.

In this case, the solution is to have a modem and Intelligent RS-485 Adaptor at each remote campus, connected to however many ClassNet Terminals are required at the campus.

At the central office, another modem is connected to the administration computer, and ASP's **ClassNet Anywhere** program is used to automatically dial the modems at each remote campus on a schedule, to collect the data and synchronise the ClassNet Terminal clocks.

The administration staff at the central office can then process the data.

DataTag Download

In some schools, cabling can be difficult to run, or the costs can be prohibitive. In these circumstances, data can be downloaded by a student

or staff member going to each ClassNet Terminal and touching a **DataTag** to the IDTag receptacle. The DataTag is then taken back to the main office computer and inserted into a **DataTag Homebase**, where it is read and stored to disk by ASP's **ClassNet DataTag Utility** program.

As in the other download options, the administration staff can then run a program to process the collected data.

Because there is no direct connection to the computer in this scenario, the ClassNet Terminal's clock is set using a special **TimeTag** which is configured using the **ClassNet DataTag Utility**.

See the section later in the manual for details on how to use the ClassNet Terminal with DataTags.

Barcodes or IDTags?

The ClassNet Terminal reads both barcoded cards and IDTags.

Plastic barcoded cards are cheaper than IDTags, and (although it makes them dearer) can be printed with text, logos, photographs, the student's name and signature, and can sometimes be used for other purposes (ie library cards, or identity cards, etc). Plastic cards also wear out.

IDTags are smaller, more robust, more secure (they can't be duplicated, whereas a photocopy of a plastic card will scan as easily as the original), and conveniently attach to a key-ring. However, they are significantly more expensive.

Student Attendance Programs

ClassNet Terminals record raw time and attendance data – that is, the actual time that students clock in to a classroom. Data Collection programs such as ClassNet Anywhere, the ClassNet Polling Program and the ClassNet DataTag Utility, download this data and save it to disk, and synchronise the time and date on the ClassNet Terminal.

Once you've collected the raw times, you need a program to log the attendance times against students, make adjustments as necessary, then finally produce a printed report or a file.

Evaluation versions of ASP programs (on CD) are available on request.

Barcoded Cards

Slot readers make barcodes easier to use by avoiding the possibility of scanning manually on an angle. Students will quickly learn how to use the ClassNet Terminal. The ClassNet Terminal is designed to read the most common barcode symbology, Code 39, of up to 30 characters in length.

The position of the barcode on the card is important due to the fixed location of the slot reading mechanism. The centre of the barcode must be 9.5mm from the outside edge of the card, and if the card is laminated, remember to include this in the calculation of the 9.5mm. As the actual reading spot is only a fraction of a millimetre, tolerances need not be precise, providing the barcode is of a reasonable height.

Barcodes should be medium or high resolution, and samples should be tested with a ClassNet Terminal before committing to the barcode cards to be used - ASP will be happy to assist in this regard.

Barcoded cards should have rounded corners to ease their path through the ClassNet Terminal. The ClassNet Terminal's slot has a stainless steel backing plate, although the plastic lead-in ramp may wear slightly until below the stainless steel floor, but this should not affect operation. Provided the card swipes smoothly through the slot, card thickness isn't a concern.

Note that ASP can supply credit-card sized plastic barcoded cards, pre-printed barcode labels, and the software to produce labels on a laser printer.

IDTags

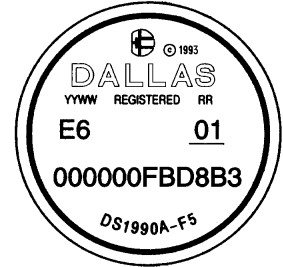
The ClassNet Terminal is designed to read the unique serial number contained in each IDTag device, which is 16 characters long.

IDTags are normally supplied as part of a key tag, but they can optionally be attached to cards or other devices by adhesive or press fit stainless steel retainers. If you have any special requirements, please contact ASP Microcomputers.

How do I determine the number of a IDTag?

If you look at the bottom of an IDTag, you'll see the word **DALLAS**, and underneath that, two characters on the right, two characters on the left (with a underline beneath them), and then 12 more characters below that.

The complete IDTag number starts with the two characters on the left, then the 12 characters below that, then the two characters on the right. For example, on the drawing on the right, the IDTag number is **E6000000FBD8B301**.



Note: IDTag numbers contain only the letters **A** to **F** and the digits **0** to **9**, and are always sixteen characters long.

Collecting Data from your ClassNet Terminals

ClassNet Anywhere

Here's a brief excerpt from the ClassNet Anywhere manual that describes the basic ideas behind the program. For complete details on how to set up and use ClassNet Anywhere, please see the program's manual.

ClassNet Anywhere operates around the idea of **units, locations, and schedules**. A **Location** consists of one or more **Units**, and locations are polled according to a **Schedule**.

Units are individual ClassNet Terminals. One or more units are connected by RS-485 cabling to an **Intelligent RS-485 Adaptor**, which is connected to the serial port of a PC, or to a modem.

Locations can be **Local**, where ClassNet Terminals are attached to a serial port on the computer running the polling program, or **Remote**, where a modem is used to communicate with ClassNet Terminals that are attached to another modem at a separate site. Each location can accommodate up to 31 ClassNet Terminals, and an unlimited number of locations can be defined.

Schedules are used to control when ClassNet Anywhere polls locations. Scheduled polls can be **periodical** (for example, every two hours), or at **specific times** (ie at 9:15am). More than one scheduled poll can be set for each location.

ClassNet Polling Program

For complete details on how to set up and use the ClassNet Polling Program, please see the program's manual. Here's an excerpt that describes the main screen of the program, and how it works.

To manually collect data from the listed terminals, just press the **Download** button. If you want to set the time displayed on the terminals without collecting the data from them, press the **Set Time** button.

In the yellow section of the main screen, you'll see a list of ClassNet Terminal unit numbers that the program has been set to collect data from. While the Polling Program is downloading data, or sending the time to the terminals, the various fields of the main screen will provide status information.

While the Polling Program is communicating with a particular terminal, the line for that unit is highlighted on the screen, a green arrow is displayed to the left of the **Unit Number** column, and the **Status** column shows a "Polling..." message.

When a unit has been successfully polled, a green tick is displayed to the left of the **Unit Number** column, the **Status** column shows a "Done" message, the **Last Time Polled** column shows the time and date of the poll, and the **Number of Scans** column shows the number of items downloaded from the terminal.

If, for some reason, a terminal does not respond to a poll, a dark blue question mark is displayed to the left of the **Unit Number** column, and a "Not Responding" message is displayed in the **Status** column.

ClassNet DataTag Utility

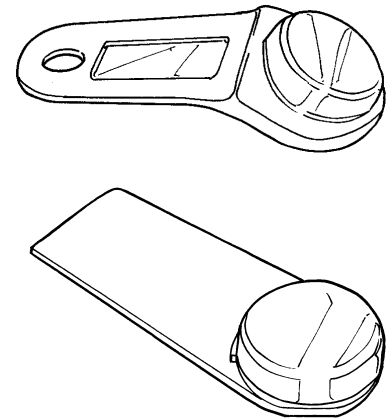
ClassNet Terminals use three different types of tags –

IDTags are used to identify students (fitted with an angled key fob black plastic tag).

TimeTags, which are used to set the clocks in Direct Download mode and initiate setup mode to set a network ID number (fitted with a straight plastic tag and a label "TimeTag").

DataTags, which are used in DataTag Download mode to transfer data between a ClassNet Terminal and a computer (fitted with a straight plastic tag and labeled "DataTag").

The use of IDTags is covered elsewhere – in this section, we address the DataTag Download process, where data is transferred from a ClassNet Terminal without network cabling using a DataTag, and where the time is transferred using a TimeTag.



When you need to download data from a ClassNet Terminal, you take a DataTag to the terminal, and hold it on the tag receptacle. The green indicator on the terminal will start flashing, and the display will count through the number of scans that are being loaded into the DataTag. When the transfer of data from the ClassNet Terminal is finished, the ClassNet Terminal will start beeping and the display will show *done*. You can now take the DataTag to another ClassNet Terminal to collect more data, or take it back to your computer for data retrieval.

If there isn't enough room in the DataTag to download all the data that's stored in the ClassNet Terminal, the ClassNet Terminal will start beeping and the display will show *Load* to signal that the DataTag must be taken back to the PC for retrieval. Any data that couldn't be downloaded into the DataTag is retained in the ClassNet Terminal for later downloading.

The **ClassNet DataTag Utility** is designed to be left running on your computer all the time, ready to pop up when you insert a tag into the DataTag Homebase (pictured on the right), which connects to a serial port on your PC.



As soon as a tag is inserted, a window pops up to show you the data that has been downloaded, or to display various messages. When you remove the tag, the window will close, and the DataTag Utility will return to the system tray, next to the clock at the bottom right of your screen.

The type of tag that you insert determines what the DataTag Utility will do – if you insert a DataTag, the data stored in the tag will be retrieved and stored on the computer, and the DataTag will then be cleared. If a TimeTag is inserted, the DataTag Utility will store the time and date into the tag so that it can be taken to the ClassNet Terminals to update their clocks.

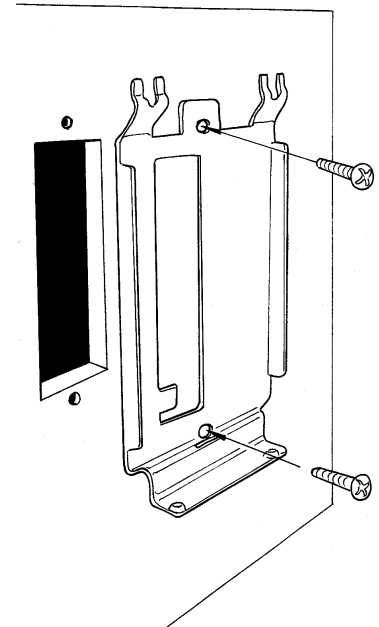
Before you can use a DataTag for the first time with ClassNet Terminals, you will need to format it, although this may have already been done for you by ASP or your dealer. To format a DataTag, insert it into the DataTag Homebase, and when the window opens, select Format from the DataTag menu. You may receive a message telling you that if you proceed with the format operation, the DataTag may not be able to be used with other programs. If you want to use this DataTag for downloading data from ClassNet Terminals, you must proceed with the format.

Finally, to open the DataTag Utility window without inserting a tag, right click on the DataTag icon in the system tray, then select Open. To send the DataTag Utility back to the system tray, press the hide button (the one with the two hands on it), or simply minimize it.

Installation

ClassNet Terminals are usually mounted on walls or partitions, near the entry door, using standard power point mountings and fittings (usually either a plaster wall mounting bracket, or an on-wall mounting block). The power point size of the ClassNet Terminal was chosen to allow use of a wide range of “off the shelf” mounting hardware.

Installation involves running the cables, cutting a hole in the wall if needed, and attaching the supplied stainless steel backing plate to the wall with standard power point fittings, with the 2 “prongs” uppermost (if the ClassNet Terminal is being mounted vertically). Then, the cables are plugged in, and the ClassNet Terminal is fitted onto the backing plate. The diagram on the right shows the metal backing plate of a ClassNet Terminal mounted on a plasterboard wall.



The ClassNet Terminal is supplied with the stainless steel backing plate already attached, and removing the plate will give you the best indication of the installation procedure involved. Undo the 2 black security screws under the ClassNet Terminal, using a 2mm Allen Key. Then pull the bottom of the case forward off the bottom of the stainless steel plate (which also forms the bottom of the scanning slot), and lift the ClassNet Terminal slightly to remove it from the “prongs” at the top of the plate.

Installation is simply the reverse procedure – place the top of the ClassNet Terminal over the prongs on the steel plate, holding the bottom of the case out from the wall, then swing the bottom back over the lip of the steel plate and against the wall, and insert the Allen-headed security screws from underneath. Do not over-tighten the screws, or you may have trouble removing them in the future.

If you are using the ClassNet Terminal’s DataTag Download capability you will not need to connect a data cable, but rather connect an ASP supplied power adaptor cable and plug pack power supply before you attach the Terminal to the wall.

If you’re installing a cabled network (including a modem download setup), you also need to set up the network ID number (covered later in this manual), and install the termination jumper in both the Intelligent Converter and the last ClassNet Terminal in the network.

The ClassNet Terminal termination jumper is located on the back of the circuit board near the network connectors. If the slide-on shorting block

is connecting the two small gold pins, the unit is terminated; if the shorting block is attached to one pin only it is in the non-terminated (ie normal) position. If you are replacing a unit, we suggest you simply check the pin location on the existing unit, and set up the replacement unit the same way. The RJ45 network connectors carry the data and power to the ClassNet Terminal.

Once physically installed, each ClassNet Terminal must be programmed with a network ID number – see below for details on how this is done.

The ClassNet Terminal's clock will have been set at the factory, but this may not correspond to your local time. The clock can be set using data collection software, such as that built into TimeSheet, TimeSheet Express, ClassNet Anywhere or the ClassNet Polling Program, or the ClassNet DataTag Utility and a TimeTag (this being the method used when used in Direct Download mode).

Once the ClassNet Terminals are installed, we recommend maintenance is done by unit replacement by mechanically competent people with minimal special training. Replacement may be needed due to vandalism or breakdown, and a spare ClassNet Terminal, or a unit on loan or hire from your Dealer or ASP, can be quickly fitted and programmed without the expense of a technician. Should you decide to take this self reliant approach, we suggest one person be appointed to this role. This person should also maintain records of all installed units, their location and number on the network, and their serial numbers.

Setting the Network ID

Before you can use a ClassNet Terminal on a cabled RS-485 network or with a modem, you must configure it with a network ID number. Every ClassNet Terminal on your ClassNet network must be set to a different network ID number, between **01** and **98**, with the first terminal set to **01**, and with no gaps in the network ID numbers. (That is, if you have three terminals, they must be set to network ID numbers **01**, **02** and **03**.)

You can set the network ID number in two ways – with a barcoded Terminal Setup card (supplied if your ClassNet Terminal is fitted with the barcode reading option), or with a TimeTag. To enter the network ID number setup mode with the Terminal Setup card, swipe the card through the ClassNet Terminal. To enter the network ID number setup mode with a TimeTag, press and hold the hidden button, touch the TimeTag onto the reading receptacle, then release the hidden button.

The button is hidden behind the label on the front of the unit, horizontally in line with the tag receptacle, and vertically below the SS in the word CLASSNET. It's easy to find – while the ClassNet Terminal is running normally (ie it's displaying the time), just press around the general area

described above until the display changes – once it does, you’ve found the button.

In network ID number setup mode, you first set the “units digit” of the ID number, then you set the “tens digit”. If, for example, you want to set a network ID number of **01**, the units digit is **1** and the tens digit is **0**.

When enter network ID number setup mode, the display will change to **UN-0**, and the number will start counting up from **0** to **9**. When it gets to **9**, it will start again at **0**. This is the units digit, and to set the units digit, you must press the hidden button when the digit you want is being displayed.

If you want to set the ClassNet Terminal to network ID number **01**, press the hidden button when the display shows **UN-1**.

Once you’ve set the units digit, the tens digit will start counting up from **0** to **9**. When it gets to **9**, it will start again at **0**. To set the tens digit, press the hidden button when the digit you want is being displayed.

If you want to set the ClassNet Terminal to network ID number **01**, press the hidden button when the display shows **UN01**.

The ClassNet Terminal will then display the whole network ID number for a short time, and it will sound a beep to signal that the network ID number has been set.

If you make a mistake while setting the network ID number, you should continue setting it, then start the procedure again – there’s no way to go back or make a correction while you’re in network ID number setup mode.

Note that you can’t set the network ID number to **00**, and setting the network ID number to **99** will erase and re-format storage memory, and set the network ID number to **01**.

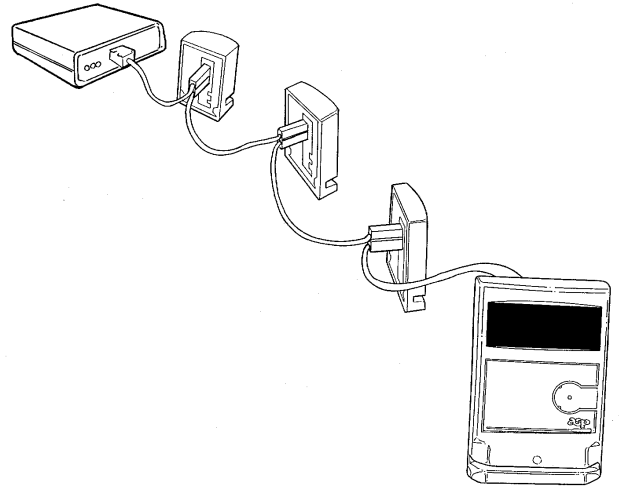
RS-485 Network Cabling

The ASP ClassNet Terminal and Intelligent RS-485 Adaptors are designed to use the “CAT5” type cable commonly used with Ethernet computer networks. These use RJ-45 connectors, and you can buy CAT5 cables off-the-shelf in many places, in lengths from 0.5 to 20 metres or sometimes longer. Alternatively, you or your cabling contractor can custom-make CAT5 cables to suit your requirements. Note that CAT5 cables are used for convenience of installation only, and you CANNOT connect a ClassNet Terminal into an Ethernet network.

Care must be taken with the routing of the cable when it is installed. The ideal situation is for the network cable to be kept as far away from other cabling (ie mains power, telephone, alarm, RF, etc) as possible. Where possible, the network cable should cross other cables at a right-angle.

Although the Intelligent RS-485 Adaptor is normally used at one end of the cable, there is no reason why the adaptor cannot be installed at some point along the cable. This method of wiring may be more convenient in some installations. Note, however, that the cable must be terminated only at the ends. So if an Intelligent Converter starts a network, termination will be at the Intelligent Converter and the last ClassNet Terminal. If the Intelligent Converter is installed elsewhere on the network, it will not have a terminator fitted, and termination will be on the Terminals at each end.

The ClassNet Terminal cabling must be run from one unit to the next, which is often called daisy-chained cabling. In a typical installation, one section of cable is connected to the Intelligent RS-485 Adaptor, and this section runs to the first ClassNet Terminal. Another section of cable is run from this ClassNet Terminal to the next ClassNet Terminal, and so on, as shown in the diagram on the right.



Because of the low data rate used by the ClassNet Terminal, it is acceptable to use a small number (no more than two or three) RJ-45 joiners in the network cabling. ASP can supply special RJ-45 joiners with pins 1, 2, 7 and 8 removed – these can be used to isolate the power supply connections if necessary.

ASP can also supply short RJ-45 to D9 adaptor cables so that you can use the previous version of the ClassNet Terminal (which had a D9 connector instead of RJ-45) in a network with the current model. These adaptors can also be used if you need to install a current ClassNet Terminal into a ClassNet network wired for the older terminals.

Cable Termination

For proper operation, the data wires of the network cable must be terminated at each end. Both the ClassNet Terminals and the Intelligent RS-485 Adaptor are fitted with internal terminating resistors, which are enabled via a jumper.

Network Expansion

Provided the cabling is correctly installed and terminated, RS-485 networks allow a maximum total cable length of 1200 metres, and can

support a maximum load of 31 ClassNet Terminals plus the Intelligent RS-485 adaptor per network.

The easiest method of allowing more than 31 ClassNet Terminals is to split the network into multiple sections, and run each section from its own Intelligent RS-485 adaptor on different serial ports on a single PC. Typical PC's have two serial ports, and multiple serial port expansion boards are available that provide two, four or eight additional serial ports. Remember that each section of the network can be up to 1200 metres long, and can support up to 31 units.

Although we have had some users connect more than 31 ClassNet Terminals together in a single network without experiencing any problems, we do not recommend doing so.

Power Requirements

The ClassNet Terminal requires 8 to 16 volts AC or 9 to 18 volts DC at 100mA, which is normally supplied over the CAT5 network cable.

The Intelligent RS-485 Adaptor requires 9 to 18 volts DC at 100mA, which is normally supplied by a 9v DC 300mA plug pack power supply, via a centre-positive 2.5mm DC connector.

The Intelligent RS-485 Adaptor can be configured (via an internal jumper) to supply unregulated DC voltage (from the plug pack powering the adaptor) to the RS-485 and RS-422 connectors. The maximum current that can be drawn in this way must be limited to either 500mA, or 100mA less than the capacity of the plug pack, whichever is the smaller. Note that this output is not fused or protected. We suggest that when using this capability, the cable length should be restricted to 20 metres.

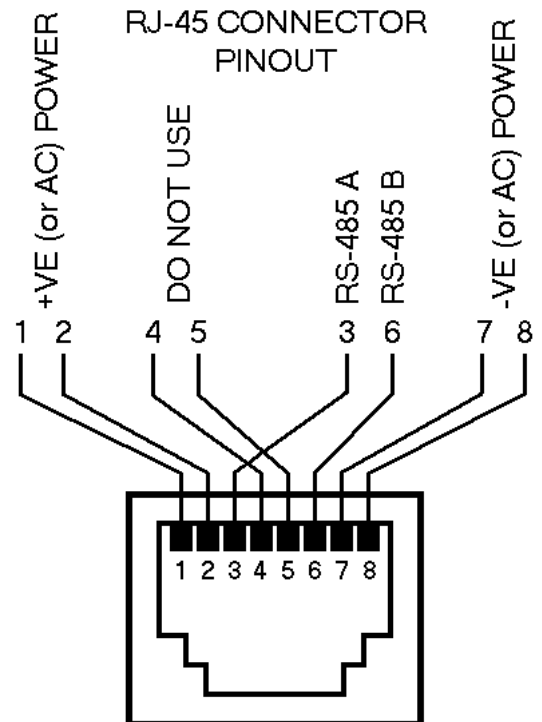
You should realise that the voltage drop over the network cable can be very high, especially if the cable run is long, or a large number of units are being powered. You must ensure that sufficient power reaches each unit.

In anything other than a very small network, it will usually be necessary to use more than one power supply, each powering a number of units on a segment of the cable.

RS-485 Connector Wiring

The ClassNet Terminal is fitted with two RJ-45 connectors, which are wired to suit standard CAT5 computer network cables. The two RJ-45 connectors are wired in parallel to facilitate the daisy-chain wiring scheme that the ClassNet Terminal network requires. As noted above, the ClassNet Terminal **CANNOT** be connected to an Ethernet network.

<u>Pin</u>	<u>Function</u>
1	+ve power input (or AC)
2	+ve power input (or AC)
3	RS-485 data A
4	Do not use
5	Do not use
6	RS-485 data B
7	-ve power input (or AC)
8	-ve power input (or AC)



Display Codes and Messages

When a ClassNet Terminal is turned on, it displays the *RSP* signon message, then *F-**nn*** where **nn** is the firmware revision number, then *U-**nn*** where **nn** is the network ID number of the ClassNet Terminal.

While the ClassNet Terminal is operating normally (ie it's displaying the time), if you press the hidden button then release it, the number of scans stored in memory since the last download is displayed. If you press the hidden button and hold it down, the number of scans, the network number and the firmware revision number are displayed in sequence until the button is released.

If you press the hidden button and then read a TimeTag while you are still holding the button down, the ClassNet Terminal enters the Network ID Setting mode.

Listed below are the various messages that may be displayed on the ClassNet Terminal, along with a brief explanation of what they mean:

<i>RSP</i>	This is what ClassNet Terminal displays at power up.
<i>cAr-d</i>	A barcode has been scanned.
<i>tAG</i>	An IDTag tag has been read.
<i>StoP</i>	This barcode or IDTag has already been read since the last download, and therefore has not been stored again.
<i>PolL</i>	Data is being retrieved from the ClassNet Terminal. Wait until the time display returns before using the terminal.
<i>cLr</i>	The download has finished, storage memory has been cleared, and the internal clock has been synchronised.
<i>SEt</i>	The internal clock has been set using a TimeTag.
<i>donE</i>	A DataTag download is finished.
<i>FULL</i>	Storage memory is full. You must download the stored data before you can make further scans.
<i>LoAd</i>	The DataTag that you're downloading data into is full. You should take this tag back to a PC and retrieve the data from it.
<i>U-nn</i>	Shows the current network ID number (nn can be a number from 01 to 98), or allows the network number to be set.
<i>F-nn</i>	Shows the version of the firmware loaded into the terminal (where nn is the version number).
<i>Err 1</i>	This message signals that an internal error has occurred – the main CPU is not functioning correctly.
<i>Err2</i>	At power up, the storage memory area was found to be invalid, and has therefore been cleared and initialised.
<i>ErrB</i>	You were downloading data into a DataTag, and the DataTag was removed before downloading was completed. You should put the DataTag back to continue the download.
<i>Err9</i>	The DataTag that you're trying to download data into is not formatted correctly.

Technical Specifications

- Barcode:** Decodes Code 39 barcodes of up to 30 characters in length. Barcode scanning is bi-directional. A fixed barcode length can be set.
- IDTag** Decodes the 16-character tag ID.
- Display** Four digit 6mm high seven segment display.
- Clock** The time is displayed and stored in 12 hour format. The clock is battery-backed to maintain the time and date in the absence of power. Each barcode and IDTag stored in memory is time and date stamped.
- Storage Memory** Approx. 30,000 characters are available for data storage. Storage memory is battery-backed to maintain the data when power is off.
- To calculate the amount of data that can be stored between downloads, divide the amount of storage memory (ie 30,000) by the length of the barcode or IDTag number, plus an overhead 8 bytes for barcodes, or 7 bytes for IDTags. The overhead consists of 6 bytes for the time and date, plus one byte to indicate the length of the scan, and one byte for the direction indicator (only for barcodes).
- For example, with 8 character barcodes, 1875 scans would fit in memory (ie $30000 / (8 + 8) = 1875$), while 1304 IDTags would fit (ie $30000 / (16 + 7) = 1304$).
- Network** Up to 31 ClassNet Terminals can be attached to a single RS-485 network, with up to 1200 metres of cable. Network ID numbers can be set from 01 to 98.
- Communications are at 9600 baud, using 8 data bits, no parity and 1 stop bit, using an RS-485 interface.
- To maintain compatibility with the previous model of the ClassNet Terminal, downloading is performed approximately 2000 bytes at a time. If more than this amount of data is stored in memory, the remaining data is retained until the next download.
- The first and last units on the RS-485 network must be terminated using the jumper included on each unit. The first unit in an RS-485 network is usually the Intelligent Converter.
- DataTag Download** DataTags hold approximately 8000 bytes of data. If a DataTag download is commenced and there is more than this amount of data is stored in the memory of the ClassNet Terminal, the DataTag will be filled, the display will show *LoAd* and the DataTag must be returned to the PC for data retrieval. The remainder of the data stored in the ClassNet Terminal's is retained until the next download.

Information to the user

EMC Statement

The ClassNet Terminal has been tested for compliance with the following standards:

USA FCC Part 15, Subpart B, Class A.

Australia Australian Standard AS3548:1993.



Compliance with USA FCC Rules

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her expense.

Warranty

To the extent permitted by law ASP's warranty in respect of the ClassNet Terminal and the Intelligent RS-485 Adaptor and their use is limited to correction of defects in the products due to faulty components or workmanship for a period of 1 year from the date of sale by ASP. It is your responsibility to carefully pack any unit being returned for service, warranty or otherwise, and pay shipping charges to ASP. In the case of repairs accepted as warranty by ASP, freight back to the customer will be paid by ASP.

ASP's liability in respect of ClassNet Anywhere, ClassNet Polling Program and ClassNet DataTag Utility, is limited to correction of "bugs" reported in detail to ASP by the purchaser.

Prudent implementation of any data collection system dictates that extensive testing for suitability and performance be carried out prior to commencing use. Testing must extend to all elements of the system, including barcoded cards. If in doubt about cards we suggest samples be sent to ASP for approval.