



TA715/777

Installation and Operation Guide

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1.0 Technical Specifications

1.1 Common to 715/777 Terminals

The following specifications are common to both versions of the TA-715/777 terminals.

- Magnetic Badge reader (Track II) conforming to ISO 2894/3554/Barcode (Code 39) slot reader model.
- 128K of protected RAM.
- Rechargeable backup battery (one year capacity) for the memory and Real Time clock.
- Rechargeable backup battery for operation with auto shut-off for use during power outages.
- **Alarm** light “!”, the LED lights when at least half the memory is in use, and blinks when the memory of the clock is full.
- RS232 and RS484 communications.
- Audible tones.

1.2 Differences between 715 and 777 Terminals

	TA-715	TA-777
Display	2x16 character LCD with back light display	2x16 character LCD with back light display
Function Keys	10 alpha-numeric keys – 6 programmable function keys (3 special control keys: Enter and backspace.	10 alpha-numeric keys – 8 programmable function keys (4 special control keys: Escape, Return, Line Up and Line Down).
Ethernet (Optional)	Net Card type B	Net Card Type B

1.3 Casings

Metal for TA-777 terminals.
Plastic for TA-715 terminals.

1.4 Optional Components

The following are optional components for the 715/777 Terminals.

- 14,400 bps internal modem.
- 30 VDC 1A relay for controlling an announcement bell or a door lock.
- Ethernet card.
- (RF) Proximity reader/Wiegand (TA-777 only).

1.5 Maximum Absolute Ratings

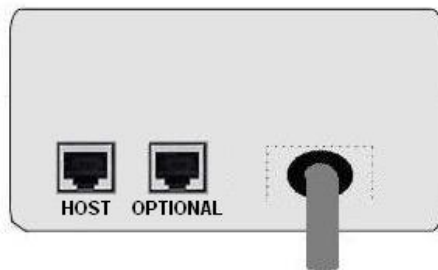
- Voltage: 115 VAC or 230 VAC
- Ni-MH Back-up battery -9V / 160mA (For TA-715)
- NI-Cd Back-up battery -7.2V / 900mA (For TA-777)
- Maximum mains current: up to 100mA for 115 VAC, up to 50mA for 230 VAC.
- Maximum ambient operating temperature for this battery: 0 – 50^o C.

1.6 Bottom Connector Panel

The connector panel is located at the bottom of the casing.

Warning: The "HOST", "Relay", "Sensor", "NET", and "Reader" connections are for indoor use only and not intended for connection to exposed outdoor lines.

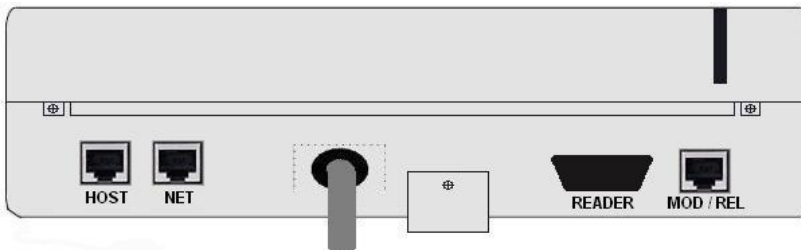
TA-715



Host:
Serial RS232/485

Optional:
Ethernet / Modem / Relay

TA-777



Host: RS232 / RS485
Net: Ethernet / Modem
Reader: N/A
Optional: Relay

1.7 Internal Components

1.7.1 Battery back-up module

The terminal has two back-up battery modules, one for the real time clock memory and the other for operation during a power failure. The standard memory back-up module is a 1 year span lithium battery, keeping the internal clock running and the memory intact.

The battery (in addition to the standard memory back-up) is self-contained. This allows operation of the terminal during a power failure as follows:

- TA-715 – In standard configuration (not including an option-card) for 40 minutes.
- TA-777 – In standard configuration (not including an option-card) for 1-1/2 hours.

A shut down timeout feature enables longer operation time. During a power failure, the user presses the **[ON]** key to activate the terminal. Data can then be entered and stored in the

terminals memory. Timeout will cause the terminal to shutdown automatically after the last use of the terminal, until the **[ON]** key is pressed again.

Note: Plug the terminal into a main power source, for at least 18 hours continuously before relying on the battery backup.

1.7.2 Memory

The TA-715 and TA-777 have 128 Kbyte of user memory, providing storage for data from more than 10,000 simple operations depending on programming table's length, and the complexity of collected data.

1.7.3 Internal Serial Card

The TA-777 terminal has a Serial RS-232/485 internal card for communication.

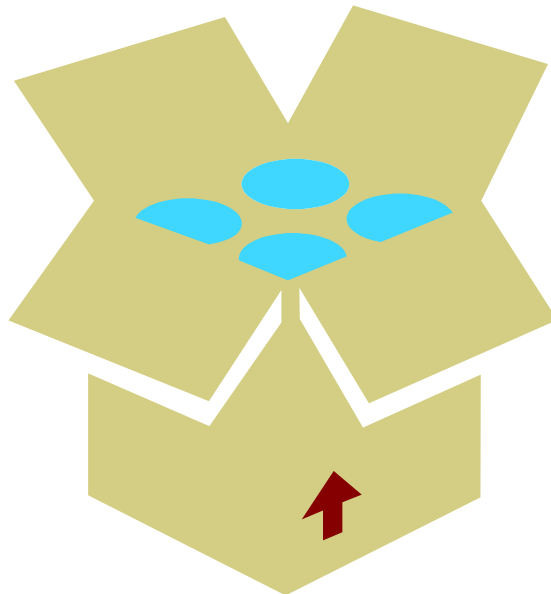
2.0 Unpacking and Inspection

Check the box and the contents for any signs of damage that may have happened during shipment.

2.1 Contents

The following items should be present:

- Terminal
- Mounting Panel
- Connecting/Splitter Box with cable (if ordered as serial clock)
- Communication cable
- Four Phillips flat head 3.5x30mm anchors, for terminal mounting
- Mounting Template
- Connector Cover
- Template for mounting the terminal



3.0 Installation

3.1 Location/Site Requirements

The terminal can be installed in any normal office or factory environment. Controlled environments are not required for proper operation of the terminal. However, installing and operating the terminal under adverse conditions may affect the functionality of the unit.

Warning: The “HOST”, “Relay”, “Sensor”, “NET”, and “Reader” connections are for indoor use only and not intended for connection to exposed outdoor lines.

3.1.1 Selecting a Location

Consider the following environmental factors that may affect the operation of the terminal, when considering a location:

- The cable should not be installed near EMI (Electromagnetic Interference) sources, such as:
 - Motors, generators, alternators and transformers.
 - Air conditioners, elevators, etc.
 - Radio/Television transmitters, signal generators and internal communication networks.
- Cables should not be within:
 - 30 cm. (1 ft.) range from 5 KVA power lines or less.
 - 60 cm. (2 ft.) range from 5-10 KVA power lines.
 - 1.5 meters (5 ft.) range of power lines exceeding 10 KVA.
- Cables should not run parallel to power lines for more than 15 m. (49 ft.)

3.2 Mounting the Terminal

Make sure the unit is unplugged, and that it is not connected to the network/PC.

Caution: The terminal should not be mounted where it will be exposed to extreme heat or cold, water, steam, violent vibrations, high electromagnetic radiation including high voltage power lines and electrical equipment.

Place the terminal near an easily accessible power source. Select an appropriate location for the terminal the recommended height from the floor is 120 cm. (3' 11").

3.2.1 Model TA-715 Mounting Procedure

The following procedure explains how to mount the terminal to the wall.

1. Remove the back panel by lightly pushing outward on the tab and pulling down on the panel. Also remove the connector cover from the bottom of the terminal.
2. Using the Mounting Template that came inside the box, place the template onto the wall at the correct height, making sure that the template is level.
3. Drill holes using a 6 mm. (1/4") drill bit. If the communication cable is to be wired through the wall, wire one end.
 - a. **Warning: Live wires in the vicinity may contain 115v or 230v. Make sure not to drill into any electric wires. Failure to heed this warning may result in serious injury or death.**
4. Using the 4 screws that came with the terminal, screw the panel to the wall.
5. Slide the terminal over the panel hinges.
6. Connect the communication cable.
7. Plug the terminal into the power socket.
8. Re-Place the connector cover at the bottom.

3.2.2 Model TA-777 Mounting Procedure

1. Using the mounting template that came inside the box, place the template onto the wall at the correct height, making sure that the template is level.
2. Drill holes using a 6 mm. (0.23") drill bit, and insert the plastic screw anchors
 - a. *This package contains two sets of screw anchors: a set for a plaster wall and a set suitable for a brick wall. Use the set appropriate to your installation requirements.*
 - b. **Warning:** *Live wires in the vicinity may contain 115v or 230v. Make sure not to drill into any electric wires. Failure to heed this warning may result in serious injury or death.*
3. Mount the holding bracket **C** into hole **B** and use a screw to secure the bracket to the wall.
4. Place two screws into holes **A**, making sure that the space between the screw's head and the wall is approximately 0.16" (4mm).
5. Hang the terminal on the wall using the two screws you just installed.
6. Attach element **C** to the terminal using screw **E**.

3.2.3 Communication Connections

1. Select a location for the connection box.
 - a. *The box must be positioned where both the communication line and the terminal can be connected to it.*
2. Plug the terminal communication cable into the connection box.
3. Wire an additional connection for Ethernet.
4. If an internal modem has been added and the modem is used, plug the phone line into the modem connection. Do not use the terminal communication cable.

4.0 Terminal Configuration

The TA-715/777 Terminals can be connected to the host computer using either RS-232(Direct), RS-485(LAN), Ethernet or Modem.

4.1 Entering Technician Mode

The TA-715/777 Terminals contain a built in configuration program called “Technician Mode”. Technician mode enables the setting up of the following options:

- Real Time Clock (RTC) Calibration
- Baud Rate
- Station ID settings
- Modem Rings
- Network Connection Settings

To enter technician mode:

- For TA-715
 - If the Terminal is displaying the date and time. Press **[F1]** and **[F2]** keys simultaneously 6 times.
 - If the Terminal is displaying “No Prog”, press the **[0]** key 6 times.
 - If the clock has a Barcode reader or a Magnetic reader, using a badge with six zeros (000000) will work as well.
 - Use the **[ENTER]** key to move from one screen to the next. To return to the previous screen, use the **[Back Space]** key.
- For TA-777
 - If the Terminal is displaying the date and time. Press the ↑ and the ↓ keys simultaneously 6 times.
 - If the terminal is displaying “No Prog”, then press the **[0]** key 6 times.
 - If the clock has a Barcode reader or a Magnetic reader, using a badge with six zeros (000000) will work as well.
 - Use the **[ENTER]** key to move from one screen to the next. To return to the previous screen, use the **[Back Space]** key.

4.2 Terminal Setup

The following describes the different selections within Technician mode for setting up the TA-715 or TA-777. On the left in bold is the setting as it is displayed on the clock screen, on the right is the default setting.

4.2.1 Ethernet

- | | |
|---|--------------|
| 1. ADJUST RTC (N/Y): | N |
| ○ Option is for internal clock calibration purposes. | |
| 2. SERIAL PORT 0 FOR BAUDRATE: | 19200 |
| 3. STATION ID: | 0 |
| a. The Station ID is a unique identifier for multi-terminal communication. The range is from 0 to 31, and must match the setting in the software. Default is 0. | |
| 4. MODEM RINGS(0): | N |

- | | |
|--|------------------------|
| 5. NETWORK (N/A/B):
NO/A-CARD/B-CARD | B |
| a. Use the [F2] key to select option B. | |
| 6. POLLING SEC.: | 0 |
| PLEASE, WAIT... | |
| PRESS [ENTER] KEY | |
| 7. MY IP ADDRESS: | XXX.XXX.XXX.XXX |
| 8. GATEWAY ADDRESS: | XXX.XXX.XXX.XXX |
| 9. REMOTE ADDRESS: | 000.000.000.000 |
| a. This option will always be all zeros. | |
| 10. SUBNET MASK: | XXX.XXX.XXX.XXX |
| 11. MY PORT: | 03734 |
| 12. HOST PORT: | 03734 |
| a. Must match My Port from option 12. | |
| 13. DISCONCT SEC: | 30 |
| PLEASE, WAIT... | |
| PRESS [ENTER] KEY | |

4.2.2 Direct / Serial (RS232) or LAN (RS485)

- | | |
|---|--------------|
| 1. ADJUST RTC (N/Y): | N |
| 2. SERIAL PORT0 FOR BAUDRATE: | 19200 |
| a. Note: If using XactTime, the baud rate must be set to 9600. | |
| 3. STATION ID: | 0 |
| a. The Station ID is a unique identifier for multi-terminal communication. The range is from 0 to 31, and must match the setting in the software. Default is 0. | |
| 4. MODEM RINGS(0): | N |
| 5. NETWORK (N/A/B):
NO/A-CARD/B-CARD | N |

4.2.3 Modem

- | | |
|---|--------------|
| 1. ADJUST RTC (N/Y): | N |
| 2. SERIAL PORT0 FOR BAUDRATE: | 19200 |
| 3. STATION ID: | 0 |
| a. The Station ID is a unique identifier for multi-terminal communication. The range is from 0 to 31, and must match the setting in the software. Default is 0. | |
| 4. MODEM RINGS(0): | 2 |
| a. This can be any number between 1 and 9, and is the setting on how many rings before the clock will answer. | |
| 5. NETWORK (N/A/B):
NO/A-CARD/B-CARD | N |

5.0 Maintenance

5.1 Recovery from Memory Error

If the terminal gives a memory error, a message “MEM CRASH” will appear on the screen.

- For TA-715
 1. Press the **[0]** key 6 times.
 2. Press the **[Enter]** key once.
 3. Press the **[F2]** key 3 times.
 4. Press the **[F5]** key twice.
 5. Press the **[F2]** key 3 times.
 - The message “CLEAR MEMORY?” will appear on the display.
 6. Press the **[F5]** key once.
 - The message “MEMORY CLEARED” will appear on the display.
 7. The message “NO PROG” will now be on the display.
 8. Program the clock from within the software.
 - Note – From TA-100Pro or GenPro/SQL on the polling screen when the clock is selected to the right, press CTRL+ALT+A. It will ask you to send the application to the clock, select Yes; then click the poll button.

- For TA-777
 1. Press the **[0]** key 6 times.
 2. Press the **[Enter]** key once.
 3. Press the **↑** key 3 times.
 4. Press the **↓** key twice.
 5. Press the **↑** key 3 times.
 - The message “CLEAR MEMORY?” will appear on the display.
 6. Press the **↓** key once.
 - The message “MEMORY CLEARED” will appear on the display.
 7. The message “NO PROG” will now be on the display.
 8. Program the clock from within the software.
 9. Program the clock from within the software.
 - Note – From TA-100Pro or GenPro/SQL on the polling screen when the clock is selected to the right, press CTRL+ALT+A. It will ask you to send the application to the clock, select Yes; then click the poll button.

5.2 How to Reset the Memory

Warning: This function should be performed by qualified personnel only. It requires working with an open unit. Make sure to unplug the unit wherever the instructions call for it. Take extreme care during the stages where the terminal is plugged into a power source.

5.2.1 Location of Jumpers

Use the following steps reset the memory, causing a Memory Crash.

1. Unplug the terminal and make sure that it is powered off.
 - a. The terminal will shut down after 15 seconds of being unplugged from the power.
2. Unscrew and remove the front panel.
3. Remove the J3 jumper from the 1-2 position and place it in the 2-3 position.
4. Remove the J3 jumper from position 2/3 and put back into the 1/2 position.

5. Replace the front panel, and insert the screws.
6. Plug the Terminal back into a power source and make sure that "MEM CRASH" appears in the terminal display.
7. Follow the steps from section 5.1 on recovering from the "MEM CRASH" state.

5.3 Battery Back-Up Modules

The TA-7xx terminals have two back-up battery modules, one for the real time clock memory and the other for operation during a power failure.

The standard memory back-up module is a lithium battery, which will keep the internal clock running and the memory intact, for 30 days during a power failure.

The back-up battery provided (in addition to the standard memory back-up) is a self-recharging system which allows the terminal to be operated during a power failure. The battery provides power for 1-1/2 net hours of use. A shut down time-out feature enables the terminal to operate for more extended periods of time.

During a power failure, the user presses the **[ON]** key to activate the terminal. Data can then be entered and stored in the terminal's memory. The time-out will cause the terminal to shut down automatically after the last use of the terminal, until the **[ON]** key is pressed again.

Warning: Risk of explosion if the lithium battery is replaced by an incompatible battery. You must dispose of used batteries as per the manufacturer's instructions.

6.0 Field Upgrades and Servicing

One of the features of the TA-7xx series terminals is the ability to do field upgrades and servicing. This section provides an explanation on how to perform the following upgrades:

- Internal Ethernet Card Installation
- Internal Modem Card Installation
- Internal Relay Card Installation

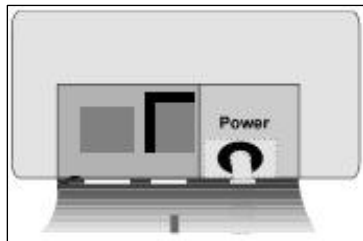
Warning: *These functions should only be performed by qualified personnel only. It requires working with an open unit. Make sure to unplug the unit wherever the instructions call for it. Take extreme care during the stages where the terminal is plugged into a power source.*

6.1 Procedure – Internal Ethernet Card Installation

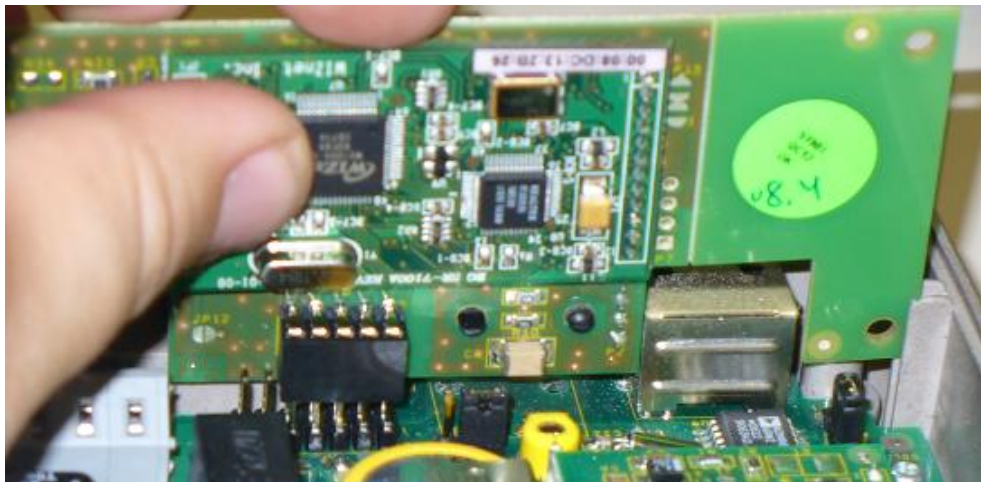
NOTE: *Refer to the section 4.0 for additional information of the configuration setting for this option.*

6.1.1 TA-715 Ethernet Card Procedure

1. Unplug the Terminal and make sure that it is powered off.
 - a. The terminal will shut down after 15 seconds.
2. Unscrew and remove the front panel.
3. You may need to punch out the opening for the accessory connection, and cut away 1/16" on top and 1/16" to the left of the opening to make room for the RJ-45 connector.



4. Install the Ethernet card into the TA-715 terminal using the below image as a reference.



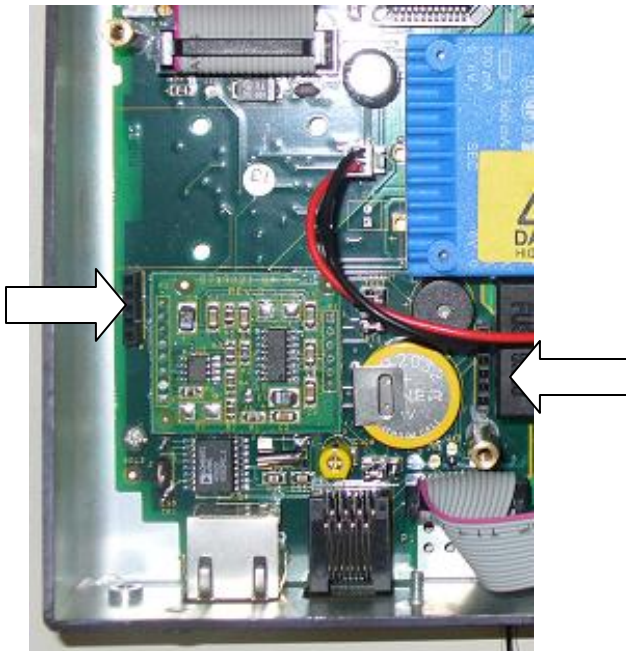
5. Once the card is installed properly, it should look like the image below.



6. Replace the front panel, insert the screws.
7. Plug the terminal back into a power source and make sure that the date/time appears in the terminal display.
8. Plug the Ethernet cable into newly installed Ethernet card.

6.1.2 TA-777 Ethernet Card Procedure

1. Unplug the Terminal and make sure that it is powered off.
 - a. The terminal will shut down after 15 seconds of being unplugged from the power.
2. Unscrew and lift up on the front panel, it will hinge back.
3. Line up the pins to the connectors on the board as shown in the picture below.



- Slide the pins into the connector until the board rests on the two screw mounts. The card should be positioned as per picture below.



- Replace the front panel, insert the screws.
- Plug the Terminal back into a power source and make sure that the date/time appears in the terminal display.
- Plug the Ethernet cable into newly installed Ethernet card.

6.2 Procedure – Internal Modem Card Installation

This section explains how to install the internal Modem card option.

NOTE: Refer to the section 4.0 for additional information of the configuration setting for this option.

6.1.1 TA-715 Modem Card Procedure

- Unplug the Terminal and make sure that it is powered off.
 - The terminal will shut down after 15 seconds.
- Unscrew and remove the front panel.
- Install the Modem card into the TA-715 terminal using the below image as a reference.



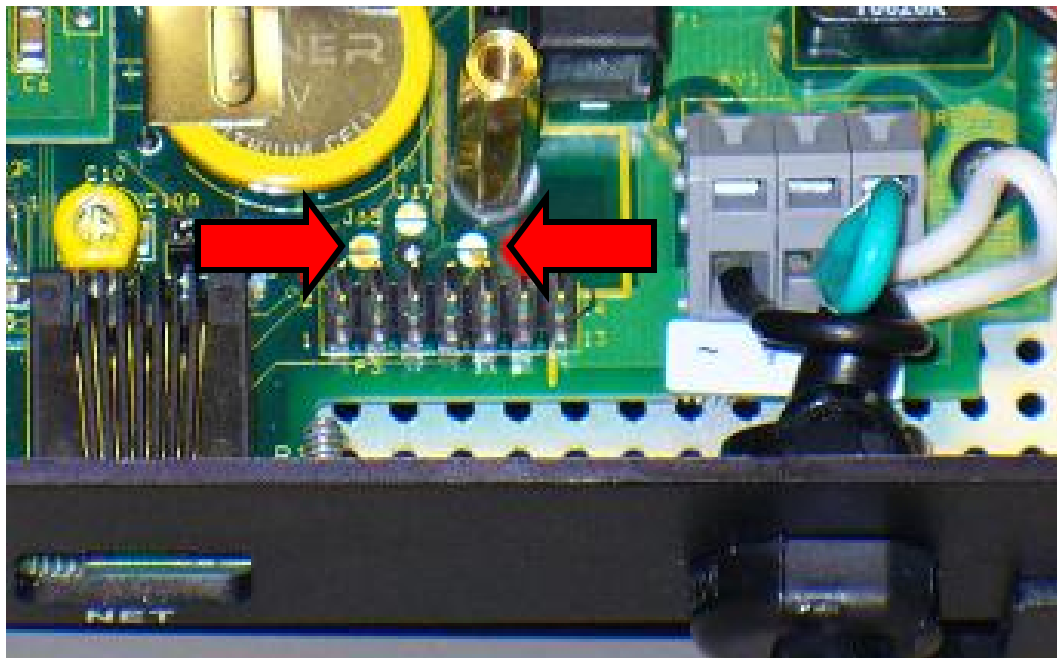
4. Once the card is installed properly, it should look like the image below.



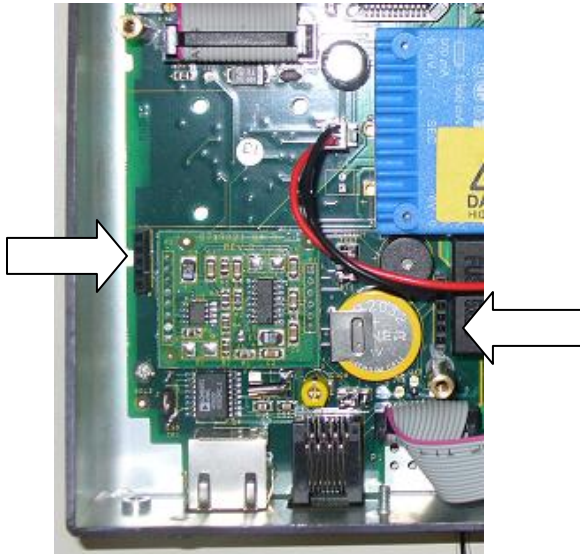
5. Replace the front panel, replacing the screws.
6. Plug the Terminal back into a power source and make sure that the date/time appears in the terminal display.
7. Plug the phone cable into newly installed modem card.

6.1.2 TA-777 Modem Card Procedure

1. Unplug the Terminal and make sure that it is powered off.
 - a. The terminal will shut down after 15 seconds of being unplugged from the power.
2. Unscrew and lift up on the front panel, it will hinge back.
3. Locate locations J15 and J16 on the board. These will need to have the connections soldered together. See image below for a reference.



4. Line up the pins to the connectors on the board as shown in the picture below. Slide the pins into the connector until the modem board rests on the two screw mounts



5. The card should be positioned as per picture below.



6. Replace the front panel, insert the screws.
7. Plug the terminal back into a power source and make sure that the date/time appears in the terminal display.
8. Plug the phone cable into newly installed modem card.

6.3 Procedure – Internal Relay Card Installation

This section explains how to install the internal Modem card option.

NOTE: Refer to the section 4.0 for additional information of the configuration setting for this option.

6.1.1 TA-715 Relay Card Procedure

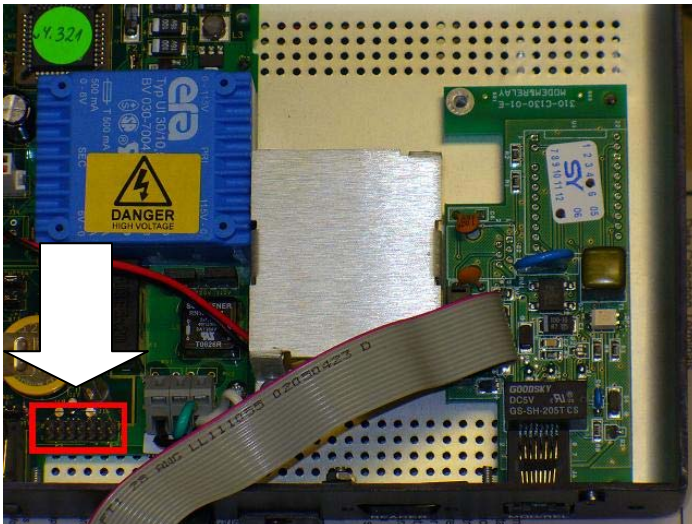
1. Unplug the terminal and make sure that it is powered off.
 - a. The terminal will shut down after 15 seconds.
2. Unscrew and remove the front panel.
3. Install the relay card into the TA-715 terminal.
4. Once the card is installed properly, it should look like the image below.



5. Replace the front panel, replacing the screws.
6. Plug the Terminal back into a power source and make sure that the date/time appears in the terminal display.

6.1.2 TA-777 Relay Card Procedure

1. Unplug the terminal and make sure that it is powered off.
 - a. The terminal will shut down after 15 seconds of being unplugged from the power.
2. Unscrew and lift up on the front panel, it will hinge back.
3. Remove the cover for the MOD/REL port.
4. Place the card as show in the image below, plugging the ribbon cable in the connection with the red square.



5. Replace the front panel, insert the screws.
6. Plug the Terminal back into a power source and make sure that the date/time appears in the terminal display.

Appendix – A

External Wiring Diagrams

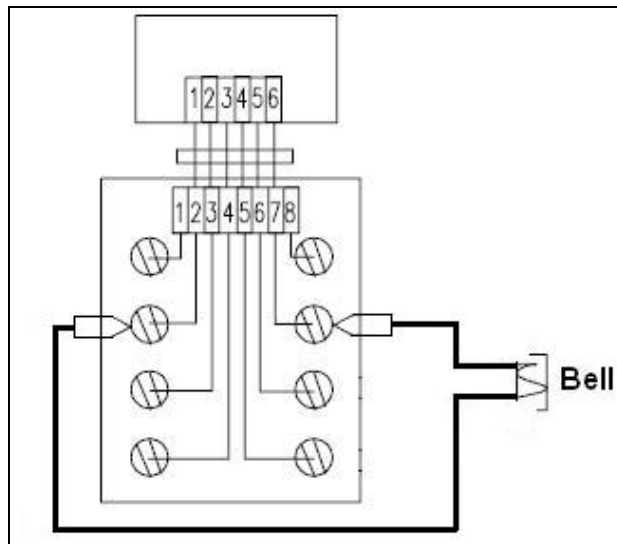
A.1 Bells

To connect a bell system to the clock use the cable and connection box that came with the clock and wire it according to the following diagram:

TA-715 – Cable 620047

TA-777 – Cable 620178

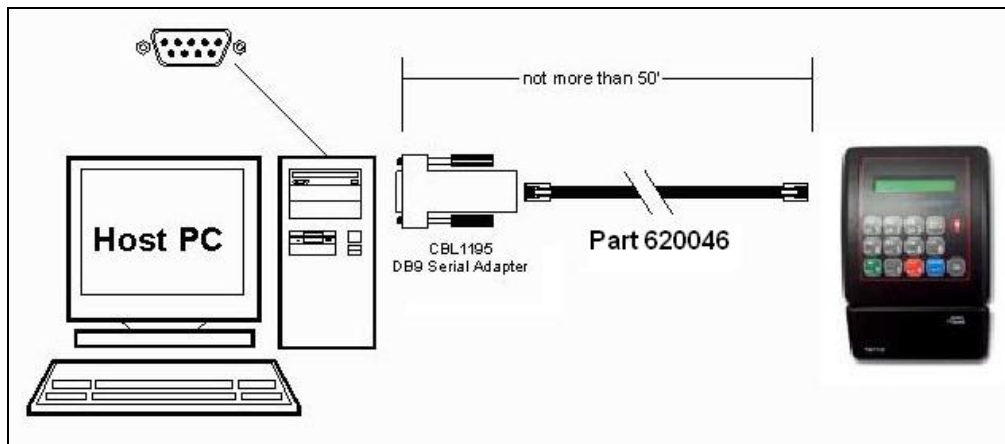
Signal Control: With the optional internal relay card, the terminal can control a 12 VDC, 1 Amp dry-contact circuit. The signal relay can be turned on by time of day for bell ringing. The duration time is also programmable.



A.2 RS-232

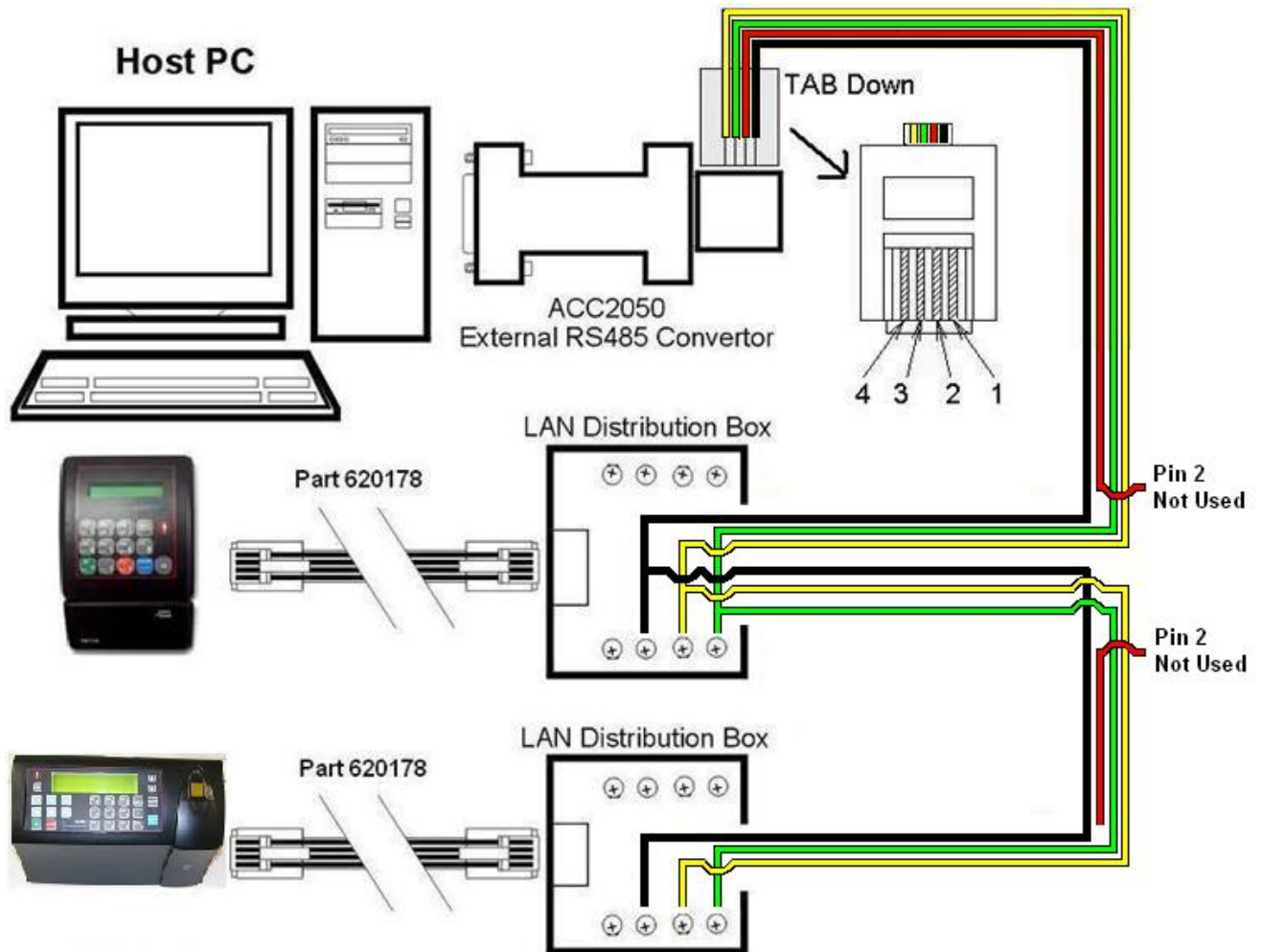
RS-232 uses the DB9 Serial Adapter (Part: CBL-1195) and a serial cable (Part: 620046).

Note: Supported distances for cabling is currently 50 feet.



A.3 RS-485

RS-485 uses the External converter (Part: ACC-2050) and a standard 4 wire phone style cable. Using this method, you can connect multiple clocks thru a single serial connection on the Host PC.



Appendix – B

Adding Transactions

Use the following steps to add transactions into the terminal:

NOTE: The clock is programmed initially with a supervisor badge of 11111. This badge number will normally be cleared the first time you program the clock if you use different badge numbers or badge lengths for supervisors.

- Step 1. Enter the supervisor badge number and press **[ENTER]**.
- Step 2. From the menu select (1) – Add.
- Step 3. Enter the date of the transaction in MM/DD/YY format, then press **[ENTER]**.
- Step 4. Enter the time of the transaction in military time, then press **[ENTER]**.
- Step 5. Enter the badge number of the employee, then press **[ENTER]**.
- Step 6. Enter the function for the transaction.
- Step 7. Terminal will request finger of the employee
- Step 8. Press **[BACK SPACE]**, to get back to the previous menu.

Appendix – C

External Connectors

HOST RJ-45 (8 pin) – P4 Communication with Host computer

Pin	Signal	Value
1	NC	
2	RS-485 (-TRX)	0 – 5 Volt
3	RS-485 (+TRX)	0 – 5 Volt
4	GND	
5	RS-232 (TXD)	-12: +12Vdc
6	RS-232 (RXD)	-12: +12Vdc
7	NC	
8	NC	

RJ-45 (Ethernet – P1 Optional net card)

A. For Ethernet: (Set J15, J16 and J17)

Pin	Signal	Value	Remarks
1	Transmit data	TX+	
2	Transmit data	TX-	
3	Receive data	RX+	
4	NC/Vin/Shield		10Base-T/Power over LAN/100Base-T
5	NC/Vin/Shield		
6	Receive data		
7	NC/GND/Shield		10Base-T/Power over LAN/100Base-T
8	NC/GND/Shield		10Base-T/Power over LAN/100Base-T

B. For 14,400 Modem: (Set J15, J16 and J17)

Pin	Signal	Value
1	NC	
2	NC	
3	Ring	OP-
4	TIP	OP+
5,6	NC	

C. For 2,400 Modem +I/O

Pin	Signal	Function
1	Relay 1	Output
2	Sensor 1	Input
3	Ring	Modem
4	TIP	Modem
5	Sensor 2	Input
6	Relay 2	Output

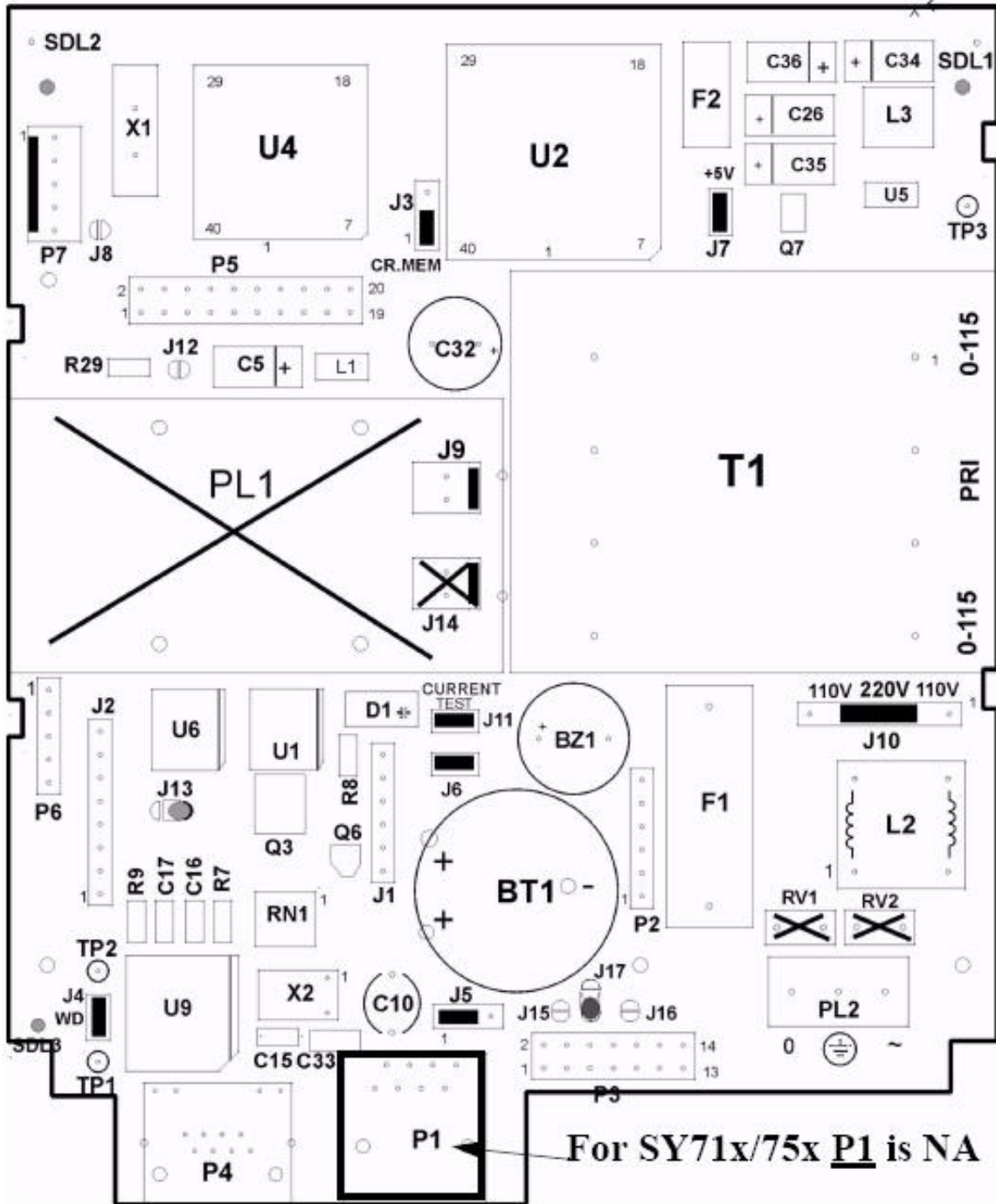
D. For 14,400 Modem: (Set J15, J16 and J17)

Pin	Signal
2	VCC
4	DATA
7	GND

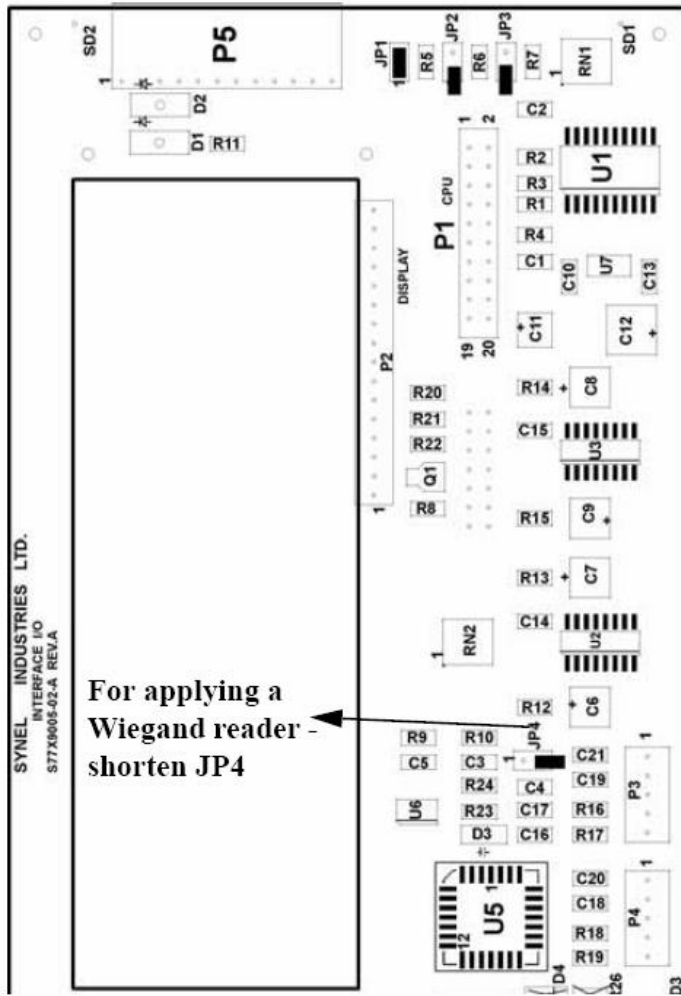
Appendix – D

Jumpers

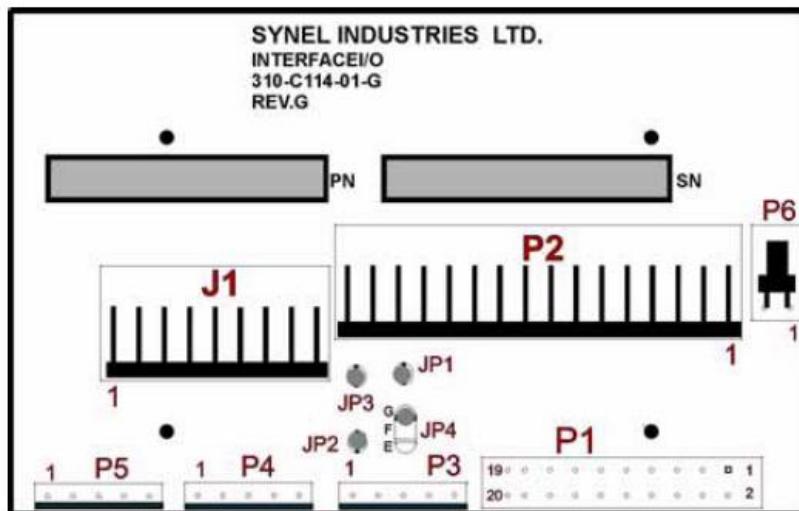
Printed side (PCB No. 310-C112-05-C)



Display Card – TA777



Display Card – TA715



Miscellaneous

Jumper	Description	Value	Default/Note
J3	Memory crash enabled	[1-2] Disabled [2-3] Enables	Disabled
J4	Watch Dog in	Open WDI Disable Closed - Normal work	Closed
J5	RTC	[1-2] Normal work [2-3] Calibration	Normal work
J6	Back-up memory battery (current test)	Closed - Normal work Open - Test current	Closed
J7	VCC (current test)	Closed - VCC ON Open - VCC OFF	Closed
J10	Network voltage selection (~220V/~110V)	[2-3] 220Vac [1-2] [3-4] 110Vac	220Vac
J11	Battery (current test)	Open Battery OFF Closed Battery ON	Closed
J13 (SMD)	Back-up battery voltage selection (9V/7.2V)	[2-3] 9V battery* [1-2] 7.2V battery**	Per terminal: SY71x or SY777
J15/16/17 (SMD)	TCP/IP or modem selection	15 - Open 16 - Open - TCP/IP 17 [1-2] ----- 15 - Close 16 - Close - Modem 17 [2-3]	TCP/IP

* - TA-715 Terminals

** - TA-777 Terminals