AS/400 Data Collection Devices

Retail, warehousing, shipping, and manufacturing businesses are gaining increased productivity through use of wireless data collection applications. The AS/400 Wireless Portable Transaction Computers (PTCs) are battery operated, mobile, radio frequency (RF) microcomputers pre-configured with 5250 Emulation software for communications with the AS/400 through the AS/400 Wireless LAN Adapter. The pre-configured software allows the PTC to appear to the AS/400 as a 5250 type terminal. This enables existing AS/400 applications to be accessed anywhere within the AS/400 Wireless LAN coverage area. Wireless data collection is allowed through the keypad, bar-code laser scanners, or LED pencil wands. Different models of PTCs are offered to meet various customer requirements. The range in which these PTCs operate depends on the building structure, antenna type, and antenna placement. Each PTC uses a spread spectrum, direct sequence radio that operates in the 2.4 GHz to 2.4835 GHz band and supports raw bit data transfer rates up to 2 Mbps.

2482 PTC - Model 520



The 2482 PTC is a battery powered, hand held, data collection RF device. The screen is a liquid crystal display (LCD) that can show up to 16 lines of information, each line up to 21 characters long. Data can be entered into AS/400 applications through the 2482 PTC via an optional bar-code laser scanner, LED pencil wand, or through the PTC keypad. An 800 mAH battery pack and trickle charger, and mono-pole antenna ship with the 2482 PTC. For additional available accessories, see the Ordering Information section below.

2483 Integrated Laser PTC - Models 5S0, 5L0, 5X0



The 2483 Integrated Laser PTC is a battery powered, hand-held, data collection RF device with an *integrated* bar-code laser scanner. The liquid crystal display (LCD) can show up to 16 lines of information, each line up to 21 characters long.

Data can be entered into AS/400 applications using the 2483 PTC via the integrated bar-code laser scanner or through the PTC keypad. The three models of the 2483 PTC indicate the range of the integrated bar-code laser scanner. Model 5S0 integrates the standard range laser scanner, which is designed to scan bar codes from a distance of up to 3.3 feet. Model 5L0 integrates the long range laser scanner, which is designed to scan bar codes from a distance of up to 6.3 feet. Model 5X0 integrates the extra long range laser scanner, which is designed to scan XLR paper label bar codes at distances up to 17 feet and XLR retroreflective label bar codes at distances up to 35 feet.

The integrated laser scanner in the 2483 PTC Models 5S0 and 5L0 is a Center for Devices and Radiological Health (CDHR) Class II scanner. The integrated laser scanner in the 2483 PTC Model 5X0 is a CDHR Class IIIA scanner. The class is used to designate maximum power output. Class II laser devices have a maximum power output of 1.0 milliwatts. Class IIIA laser devices have a maximum power output of 5.0 milliwatts.

A 1400 mAH battery pack, trickle charger, and mono-pole antenna ship with each model of the 2483 PTC. For additional available accessories, see the Ordering Information section below.

2484 Industrial PTC - Models 520, 540



The 2484 Industrial PTC is a battery or AC powered, data collection RF device designed for installation in harsh environments. It features a NEMA-style waterproof case with a heavy-duty industrial bracket for vehicle or work-station mounting. The screen is a scrolling, blue-green, vacuum fluorescent display that can show 8 lines of information, each line up to 40 characters long. Data can be entered into AS/400 applications using the 2484 PTC via an optional bar-code laser scanner or through the PTC keypad. Model 520 is for use on vehicles with 12 VDC batteries. Model 540 is for use on vehicles with 24 - 72 VDC batteries. An optional AC power pack is available and can be used with model 540 to power the 2482 PTC from an AC power source. Both models of the 2484 PTC ship with a mounting bracket, a detachable dipole antenna, and a power cable. For additional available accessories, see the ”Ordering Information” section below.

2486 Integrated Laser PTC - Models



The 2486 PTC is a battery powered, hand held, data collection RF device with an integrated bar-code laser scanner. The LCD can show up to 8 lines of information, each line up to 16 characters long. Data can be entered into the 2486 using either the keypad or the integrated bar code scanner.

Three 2486 PTC Models with laser scanner option are available:

- Standard Range 2 inches (50cm) to 20 inches (500cm)
- Medium Range 5 inches (125cm) to 60 inches (1.5m)
- Extra Visibility Range 3 inches (75cm) to 8 inches (200cm) Utilizes extra brightness to maintain high performance even when reading non-reflective vehicle identification numbers through automotive windshield glass.

A NiCad battery pack with a 600 mAH capacity and a trickle charger is shipped with the unit.

Accessories

Optional PTC Accessories

- **Standard Range Laser Scanner**

  The Standard Range Laser Scanner (FC #9796 on the 2482 PTC - FC #0012 and #0015 on the 2484 PTC) is a Center for Devices and Radiological Health (CDRH) Class II hand-held laser scanner that attaches to the PTC via a cable, which is included. It is designed to scan bar codes from a distance of up to 3.3 feet.

- **Long Range Laser Scanner**

  The Long Range Laser Scanner (FC #9797 on the 2482 PTC - FC #0013 and #0016 on the 2484 PTC) is a CDRH Class II hand-held laser scanner that attaches to the PTC via a cable, which is included. It is designed to scan bar codes from a distance of up to 6.3 feet.

- **Extra Long Range Laser Scanner**

  The Extra Long Range Laser Scanner (FC #9798 on the 2482 PTC - FC #0014 and #0017 on the 2484 PTC) is a CDRH Class IIIa hand-held laser scanner that attaches to the PTC via a cable, which is included. It is designed to scan XLR paper label bar codes at distances up to 17 feet and XLR retroreflective label bar codes at distances up to 35 feet.

- **Pencil Wand**

  The Pencil Wand (FC #9799) is an LED bar code scanning device that attaches to the 2482 PTC via a cable, which is included. It is designed to scan bar codes by sliding the wand across the bar code.

- **External 4-Bay Fast Charger**

  The External Fast Charger (FC #0043 for the 2482 PTC – FC #0061 for the 2483 PTC) has bays for 4 NiCad battery packs. It recharges the battery packs in approximately 2 hours. It ships with an AC/DC convertor.

- **Other Accessories**

  Batteries, battery chargers, holsters, and other accessories are also available.

Technical Information

Physical Specifications - PTCs:

2482 (All Models)
Width: 8.4cm (3.3 inches)
Depth: 4.3cm (1.7 inches)
Length: 22.0cm (8.65 inches)
Weight: 91kg (32.5 ounces)

2483 (All Models)
Length: 21.1cm (8.3 inches)
Thickness: 5.3cm (2.1 inches)
Width: 8.9cm (3.5 inches)
Height: 18.3cm (7.2 inches)
Weight: 87kg (30.0 ounces)

2484 (All Models)
Height: 22.9cm (9.0 inches)
Depth: 7.6cm (3.0 inches)
Length: 30.5cm (12.0 inches)
Weight: 6.8kg (15.0 pounds)

2486 (All Models)

Height: 9.5cm (3.8 inches)
Depth: 5.1cm (2.0 inches)
Length: 24.6cm (9.7 inches)
Weight: 0.6kg (22 ounces)

Physical Specifications - Laser Scanners:

Standard Range (FC #9796, #0012, #0015)
Width: 7.1cm (2.8 inches)
Height: 17.3cm (6.8 inches)
Length: 10.1cm (4.0 inches)
Weight: 210g (7.5 ounces)

Long Range (FC #9797, #0013, #0016)
Width: 7.1cm (2.8 inches)
Height: 17.3cm (6.8 inches)
Length: 10.1cm (4.0 inches)
Weight: 245g (8.7 ounces)

Extra Long Range (FC #9798, #0014, #0017)
Width: 7.1cm (2.8 inches)
Height: 17.3cm (6.8 inches)
Length: 10.1cm (4.0 inches)
Weight: 245g (8.7 ounces)

Operating Environment:

- 2482 PTC
  - Temperature: -18° C to 49° C (0° F to 120° F)
  - Electrical power: NiCad Battery Pack
- 2483 Integrated Laser PTC
  - Temperature: 0° C to 40° C (32° F to 104° F)
  - Electrical power: NiCad Battery Pack
- 2484 Industrial PTC
  - Temperature: -30° C to 50° C (-22° F to 122° F) (-20° C to 50° C in EMEA)
  - Electrical power: Vehicle battery: 10 - 16VDC or 24 - 72VDC
- 2486 Integrated Laser PTC
  - Temperature: 0° C to 49° C (32° F to 120° F)
  - Electrical power: 5 cell Primatic NiCad Battery Pack
- Standard Range Laser Scanner
  - Temperature: -18° C to 50° C (0° F to 122° F)

  - Electrical: 4.5 to 14 VDC
  - Electrostatic discharge: 15kv to any external surface
  - Range: 0 - 1 meter (0.0 - 40.0 inches)
- Long Range Laser Scanner
  - Temperature: -30° C to 50° C (-22° F to 122° F) (-20° C to 50° C in EMEA)
  - Electrical power: 4.5 to 14v DC
  - Electrostatic discharge: 15kv to any external surface
  - Range: 15 - 193 cm (6 - 76 inches)
- Extra Long Range Laser Scanner
  - Temperature: -30° C to 50° C (-22° F to 122° F) (-20° C to 50° C in EMEA)
  - Electrical power: 4.5 to 14 VDC
  - Electrostatic discharge: 15kv to any external surface
  - Range (paper labels): .9 - 5.2m (3 - 17 feet)
  - Range (retroreflective labels): 2.4 - 10.7m (8 - 35 feet)

Regulatory Agency Compliance:

- Complies with FCC Part 15 as a Class A computing device
- Complies with both FCC and DOC regulations for license-free operation in the 2.4 GHz band

Hardware Requirements:

- AS/400 Wireless LAN Adapter (FC #2668)
  - Optional: One or more AS/400 Wireless LAN Access Point RS0s
  - Optional: One or more AS/400 Wireless LAN Access Point E00s
  - Optional: One or more AS/400 Wireless LAN Access Point TR0s

Software Requirements:

None for the PTC devices. However, the AS/400 must have Operating System/400 Version 3 Release 1.0 or later.

System Considerations

When sizing your system for wireless traffic, response times for the wireless devices should be set at one half second less than that necessary to allow for the overhead of the wireless controller functions, wireless network, and device emulation function.

For example, if your maximum acceptable response time for PTCs is 2 seconds and your system is entirely PTC based, the response time to be entered into the system sizer tool should be 1.5 seconds. For systems that are only partially PTC based, the response time target is reduced by the fraction of .5 seconds that the PTCs make of all system transactions.

Sample PTC Configurations

The following sample PTC configurations should be used as guidelines to help you configure your own AS/400 Wireless LAN environment.

- **Sample PTC Configuration 1:**

  The minimum configuration consists of an AS/400 with one AS/400 Wireless LAN Adapter (FC #2663 and #2668). One RF cell is created by an antenna connected to the RF input/output port of the AS/400 Wireless LAN Adapter. A maximum of 49 wireless PTCs executing 5250 emulation can communicate with an AS/400 application from anywhere within the RF cell.

- **Sample PTC Configuration 2:**

  Typically, a larger area than can be covered by one RF cell is encountered, so one or more AS/400 Wireless 2480-RS0 Access Points are used to create a wired and/or wireless backbone for routing traffic between the PTCs and the AS/400 Wireless LAN Adapter. Overlapping RF cells are created in this configuration (one cell per Wireless Access Point RS0). PTC users can ”roam” anywhere within this overlapping RF cell area without losing their AS/400 connection.

- **Sample PTC Configuration 3:**

  An existing AS/400 Ethernet backbone can be used to transport data between the PTCs and an AS/400 Wireless LAN Adapter as follows:

  - An AS/400 Wireless LAN Adapter (Device A) is installed in an AS/400.
  - An AS/400 Wireless LAN Access Point E00 (Device B) is installed on an Ethernet backbone in close proximity to the antenna connected to the RF I/O port of the AS/400 Wireless LAN Adapter.
  - An RF link is established between (Device A) and (Device B).
  - One or more AS/400 Wireless LAN Access Point E00s (Device C) are connected to the Ethernet backbone in the areas in which PTC RF coverage is required.
  - PTCs execute transactions in the RF cell(s) created by the Wireless LAN Access Points E00s (Device C).
  - The path from the PTCs to the AS/400 Wireless LAN Adapter is as follows:

* RF data is transmitted from the PTC to the Wireless LAN Access Point E00 (Device C)
* Data is sent from the Ethernet Access Point (Device C) to the Ethernet Access Point (Device B) on the wired Ethernet backbone
* Data then takes a wireless hop from the Wireless LAN Access Point E00 (Device B) to the Wireless LAN Adapter (Device A) in the AS/400

NOTE: PTC data cannot enter the AS/400 through the AS/400 Ethernet Adapter. It must enter the AS/400 through the AS/400 Wireless LAN Adapter.

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