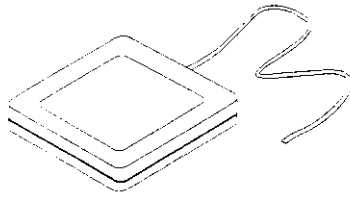


15.203 Antenna Information

The LA 3000 wireless LAN PC Card family is attached to its antenna via a unique coaxial connector. The coaxial connector is an MMCX style. It is available from Amphenol. The Amphenol part number is 908-22100. The mating connector for coaxial cable is part number 908-43300. Drawings of these connectors are attached. The other end of the coaxial cable is attached to a polarized BNC connector. The polarized BNC connector is similar to a regular BNC type connector but it is made unique by swapping the inner conductor sex. These connectors can be purchased by the manufacturer, M/A-COM Inc. A drawing of this connector is attached. In some cases the coax cable is directly soldered to the antenna. The following antennas are options for antennas for the LA 3000 family wireless LAN PC Card:

1) Plane Antenna



<i>Location</i>	Indoor
<i>Type</i>	Omni
<i>Gain</i>	0 dBi
<i>Physical</i>	2.5" x 2.5" x 0.75"
<i>Cable</i>	4 ft (Plenum-rated)
<i>Symbol P/N</i>	ML-2499-PSA1-00

The Plane antenna is made by Tecom Industries part number 505042C, box shaped. This antenna is 0 dBi omni-directional in azimuth plane. It is 2.5 x 2.5 x .75 inches and mounts with Velcro. The antenna is attached to coaxial cable terminated in the polarized BNC connector. A drawing of this antenna is attached.

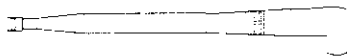
2) Ceiling Mount Dipole Antenna(s)



<i>Location</i>	In/outdoor
<i>Type</i>	Omni
<i>Gain</i>	3 dBi (4ft), 0 dBi (15ft)
<i>Physical</i>	14" (l) x 1.25" (dia.) pole
<i>Cable</i>	4 or 15 ft (Plenum-rated)
<i>Symbol P/N</i>	ML-2499-HPA1-00 (4 ft) ML-2499-HPA2-00 (15 ft)

The Ceiling Mount Dipole Antenna is made by Cushcraft Signals Corp. part number S2403BE, Collinear Omni-directional, Pole shaped. This antenna is 5 dBi. 9 inches tall, with coaxial cable terminated in the polarized BNC connector. This antenna has a dipole style pattern. A drawing is attached.

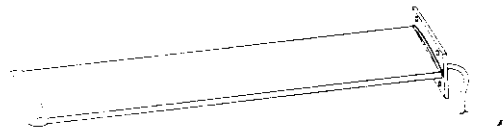
3) Rubber Duck Dipole



<i>Location</i>	Indoor
<i>Type</i>	Omni
<i>Gain</i>	1 dBi
<i>Physical</i>	7" (l) x 0.5" (dia.) pole
<i>Symbol P/N</i>	ML-2499-APA1-00

Dipole Rubber Duck Antenna made by Centurion corp. part number EXR-2400-BNC-RP. Made by. The antenna is 1 dBi and has a dipole style pattern. The polarized BNC connector is molded into the antenna. A drawing of this antenna is attached.

4) Yagi Antenna



<i>Location</i>	In/outdoor
<i>Type</i>	Directional 30° beam
<i>Gain</i>	9 dBi
<i>Physical</i>	27" x 4" x 1.5" blade
<i>Cable</i>	20 ft (Plenum-rated)
<i>Symbol P/N</i>	ML-2499-YGA1-01

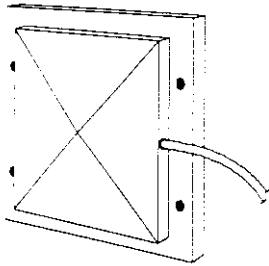
The Yagi Antenna made by Cushcraft part number PC2415N, 9 dBi when adjusted for cable loss from a 20 foot coaxial cable terminated in the polarized BNC connector. A drawing of this antenna is attached.

5) Patch Antenna

<i>Location</i>	In/outdoor
<i>Type</i>	Directional 70° beam
<i>Gain</i>	4 dBi
<i>Physical</i>	5" x 5" x 0.5" panel
<i>Cable</i>	6 ft (Plenum-rated)
<i>Symbol P/N</i>	ML-2499-PTA1-01

The Patch Antenna is made by Cushcraft part number S2406PL, 6 dBi with coaxial cable terminated in the polarized BNC connector. A drawing of this antenna is attached.

6) Panel Antenna



<i>Location</i>	In/outdoor
<i>Type</i>	Directional 22° beam
<i>Gain</i>	5 dBi
<i>Physical</i>	8" x 7" x 1" panel
<i>Cable</i>	20 ft (Plenum-rated)
<i>Symbol P/N</i>	ML-2499-PNA1-01

The Panel Antenna is made by Tecom part number 505021, 7 dBi when adjusted for cable loss from a 20 foot coaxial cable terminated in the polarized BNC connector. A drawing of this antenna is attached.

7) **End Cap Antenna** made by Symbol Technologies is attached directly to the LA 3000 family PC Card. This antenna is less than 0 dBi in all planes. The End Cap Antenna uses an inverted F style antenna similar to those used in several other Symbol products. A drawing of the end antenna and connector is attached.

8) **Symbol 4140 Antenna** is integrated in the Symbol Technologies PPT 4140 hand held computer. The gain is less than 0 dBi in all planes. A drawing of this antenna is attached.

9) **Symbol 4640 Antenna** is integrated in the Symbol Technologies PPT 4640 hand held computer. The gain is less than 0 dBi in all planes. A drawing of this antenna is attached.

10) **Symbol 2140 Antenna** is integrated in the Symbol Technologies PDT 2140 hand held computer. The gain is less than 0 dBi in all planes. The 2140 Antenna is an inverted F style antenna similar to those used in several other Symbol products. A drawing of this antenna is attached.

11) **Symbol 6140 Antenna** is integrated in the Symbol Technologies PDT 6140 hand held computer. The gain is less than 0 dBi in all planes. The 6140 Antenna is an inverted F style antenna similar to those used in several other Symbol products. A

drawing of this antenna is attached.

12) **Symbol 6840 Antenna** is integrated in the Symbol Technologies PDT 6840 hand held computer. The gain is less than 0 dBi in all planes. The 6840 Antenna is an inverted F style antenna similar to those used in several other Symbol products. A drawing of this antenna is attached.

13) **Symbol WSS1040 Antenna** is integrated in the Symbol Technologies Wearable WSS 1040 computer. The gain is less than 0 dBi in all planes. The WSS 1040 Antenna is an inverted F style antenna similar to those used in several other Symbol products. A drawing of this antenna is attached.

14) **Huber Suhner Dipole** made by Huber and Suhner part number 9090.16.0001. The antenna is a dipole with a gain of 1.8 dBi. The antenna is attached internally is permanently mounted to a hand held computer. A drawing of this antenna is attached.

15) **Parabolic Grid** made by Conifer part number ????. The antenna has 13 dBi gain when used with 30 ft of cable. A drawing of the antenna is attached.

16) **Folded Dipole** made by Vocollect part number VTC303. The antenna has a nominal gain of 3 dBi. A drawing of the antenna is attached.

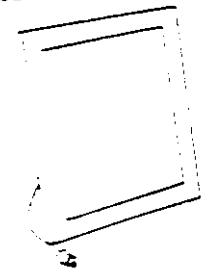
17) **Criticare Antenna** is integrated into a computer made by Criticare. The gain is less than 0 dBi in all planes. The antenna is an inverted F style antenna similar to those used in several other Symbol products. A drawing of this antenna is attached.

18) **DirectLink Corner Patch** is made by Cushcraft part number S2307, 7.5 dBi with coaxial cable terminated in the polarized BNC connector. A drawing of this antenna is attached.

19) **Ceiling Mount Panel** is made by Cushcraft part number SQ2303, 3.6 dBi with coaxial cable terminated in the polarized BNC connector. A drawing of this antenna is attached.

Patches for both 902, 2400 and 5800 Linear and Circular Polarization

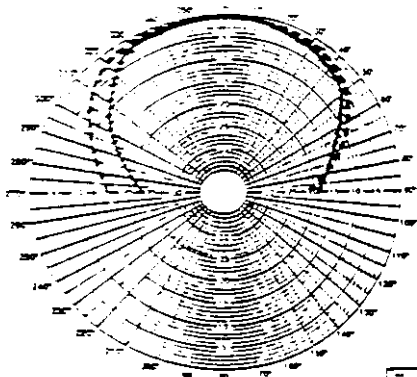
Patch antennas lend themselves well to many data collection applications. They are flat and unobtrusive in most environments. Their patterns are much like a horn Yagi. Patches are available in either linear or circular polarty. The choice of polarty and the convenient shape of the patch makes it the right choice for many applications. Patches are most commonly wall mounted. Occasionally ceiling mounted patches are the right answer. We can also design patches so that they may be an integral part of the enclosure for data transceivers.



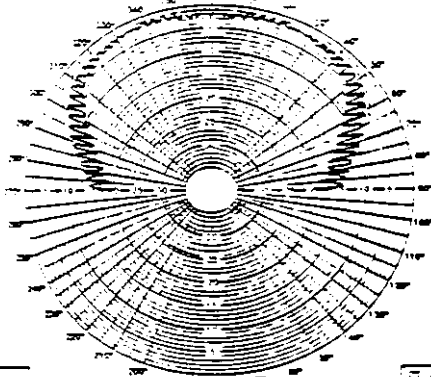
PATCHES

Model	S9026PL	S9026PC	S2406PL	S2406PC	S5806PL	S5806PC
Type	Patch	Patch	Patch	Patch	Patch	Patch
Polarity	Linear	Circular	Linear	Circular	Linear	Circular
Frequency, MHz	902-928	902-928	2400-2500	2400-2500	5725-5850	5725-5850
Gain	6 dBi	6 dBi	6 dBi	6 dBi	6 dBi	6 dBi
Front to Back, dB	18	18	18	18	18	18
Bandwidth, 1.5:1, MHz	25	25	100	100	125	125
-3 dB beamwidth						
E-Plane, degrees	65	65	65	65	65	65
H-Plane, degrees	75	75	75	75	75	75
Connector Type	N-female	N-female	N-female	N-female	N-female	N-female
Enclosure Material	ABS plastic	ABS plastic	ABS plastic	ABS plastic	ABS plastic	ABS plastic
Dimensions, in	11 x 12 x 7/16	11 x 13 x 7/16	5 x 6 x 7/16	5 x 6 x 7/16	2.5 x 2.5 x 7/16	2.5 x 2.5 x 7/16
Dimensions, cm	(27.9 x 30.5 x 1.1)	(27.9 x 33.0 x 1.1)	(12.7 x 15.2 x 1.1)	(12.7 x 15.2 x 1.1)	(6.35 x 6.35 x 1.1)	(6.35 x 6.35 x 1.1)
Weight, oz, g	22 (616)	22 (616)	3 (224)	3 (224)	4 (112)	4 (112)
Mount Style	Optional	Optional	Optional	Optional	Optional	Optional

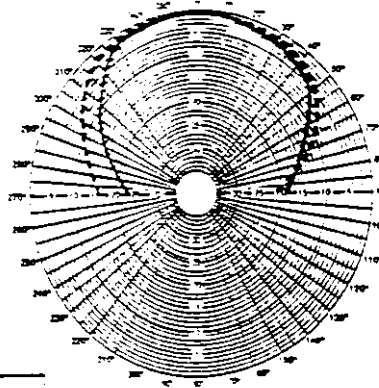
S9026PL
6 dBi



S9026PC
6 dBi

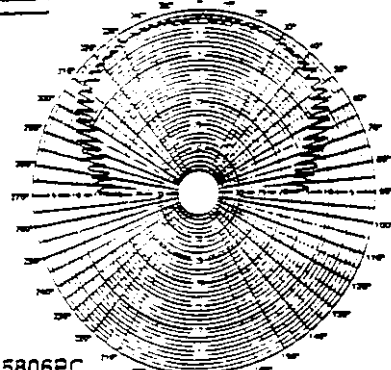
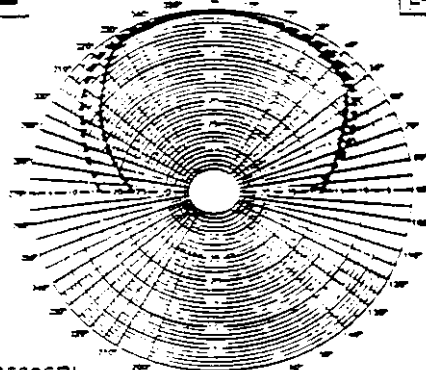
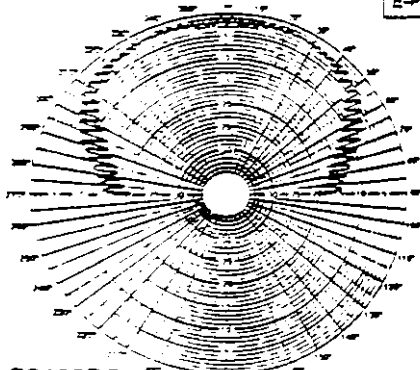


S2406PL
6 dBi



H-Plane - - -
E-Plane - - -

H-Plane - - -
E-Plane - - -



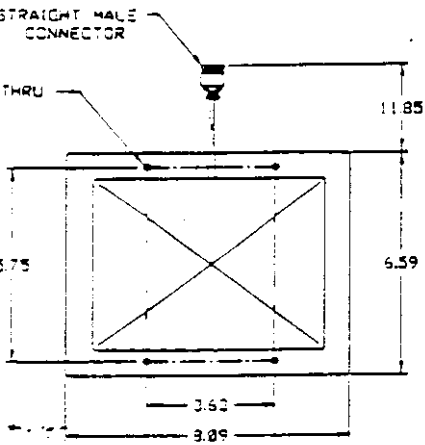
S2406PC
6 dBi

S5806PL
6 dBi

S5806PC
6 dBi

#6

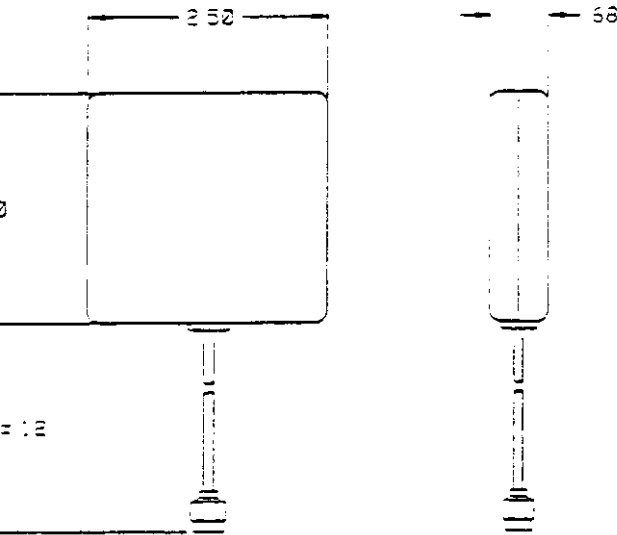
Type 505021
HIGH-GAIN CP PANEL



SPECIFICATIONS

Frequency:	2.4 To 2.485 GHz
VSWR:	2:1 Max.
Gain:	-11 dBic
3 dB Beamwidth:	$\pm 22^\circ$ (Typ) E-Plane $\pm 18^\circ$ (Typ) H-Plane
Side Lobe Level:	≥ 15 dB E-Plane ≥ 15 dB H-Plane
Front/Back:	≥ 20 dB
Polarization:	RHCP (LHCP)

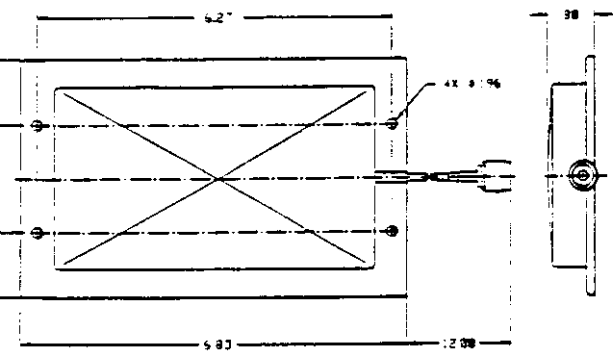
Type 505022
LOW-GAIN CP PANEL



SPECIFICATIONS

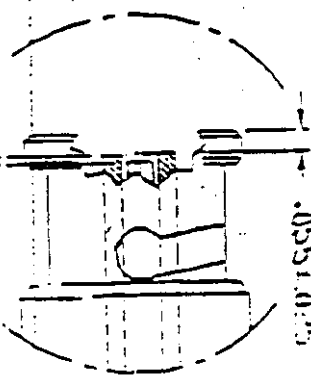
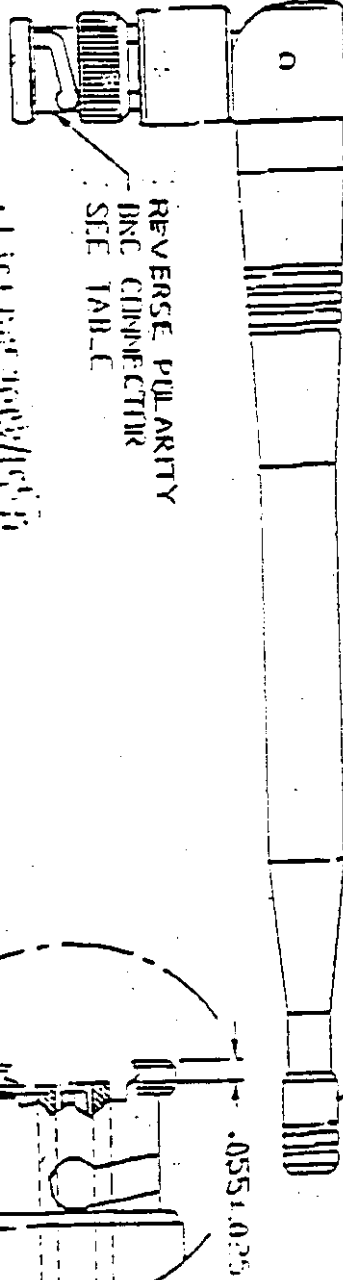
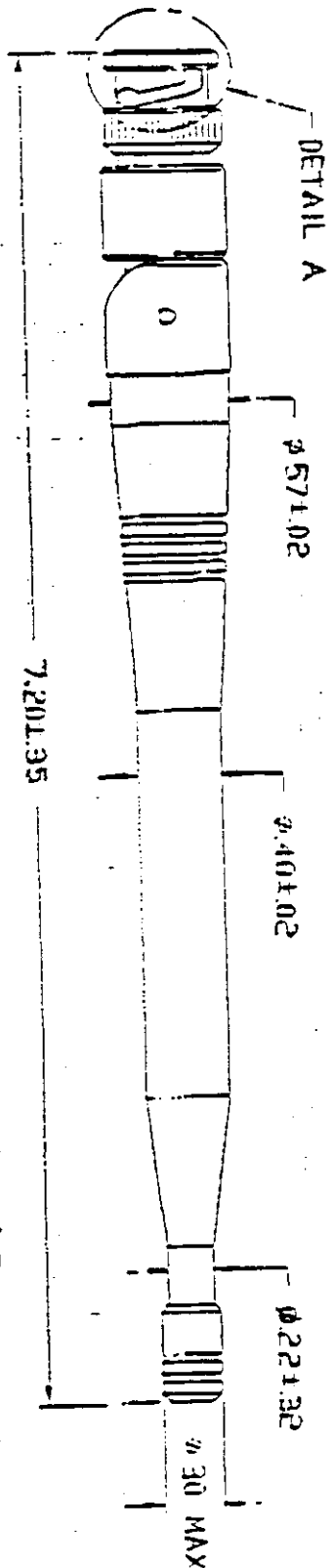
Frequency:	2.4 To 2.485 GHz
Polarization:	RHCP (LHCP Available)
VSWR:	2:1 Max.
Gain:	-5 dBic Nom. @ Zenith
3dB Beamwidth:	70° Typ
Front/Back:	≥ 20 dB
Connector:	SMA-Male Polarized

Type 505023
MEDIUM-GAIN CP PANEL



SPECIFICATIONS

Frequency:	2.4 To 2.485 GHz
Polarization:	RHCP (LHCP)
VSWR:	2.0:1 Max.
Gain:	9.0 dBic
3dB Beamwidth:	$\pm 22^\circ$ (Typ) E-Plane $\pm 45^\circ$ (Typ) H-Plane
Front/Back:	≥ 15 dB
Connector:	TNC-Male



MANUFACTURED BY
 HAN 99 1996

PIN MAX EXTEND
 010 MAX ABOVE
 INSULATOR

ALL DIMENSIONS ARE IN INCHES

NOTES:

- SPECIFICATIONS:
 GAIN: 10.0dB
 OPERATING TEMPERATURE: -40°C TO +85°C
 FLEX TEST PER MIL-STD-883C
 PULL TEST: 2000G LINEAR PULL
 HISSILE TEST: 20 W-105
 POWER RATING: 50 WATTS
 VSWR: 1.5: MAX AT RESONANCE

CENTURIUM PART NO	AMP PART #	AMPLIFIER PART #	FREQUENCY RANGE
CAF28767	4-5146-1	11-5722-4050M	2.4-2.5GHz
CAF28768			2.4-2.5GHz

REV	REVISION	DATE	CK	APP	SCALE	DR TA	SK/DW	GEN/URIN	INC	MATERIAL	DATE	DWG NO	REV
A	ECP95103	09/95	CCC	RS	1:1			CENTURIUM INT. INC.		4 ANI EXR-2400	09/11/95	CAF28767	1/3
B	ECP951304	10/95	CCC	RS									
C	ECP951947	12/95	CCC	RS									
D	ECP951504	12/95	CCC	RS									
E	ECP96333	03/96	CCC	RS									

CONFIDENTIAL

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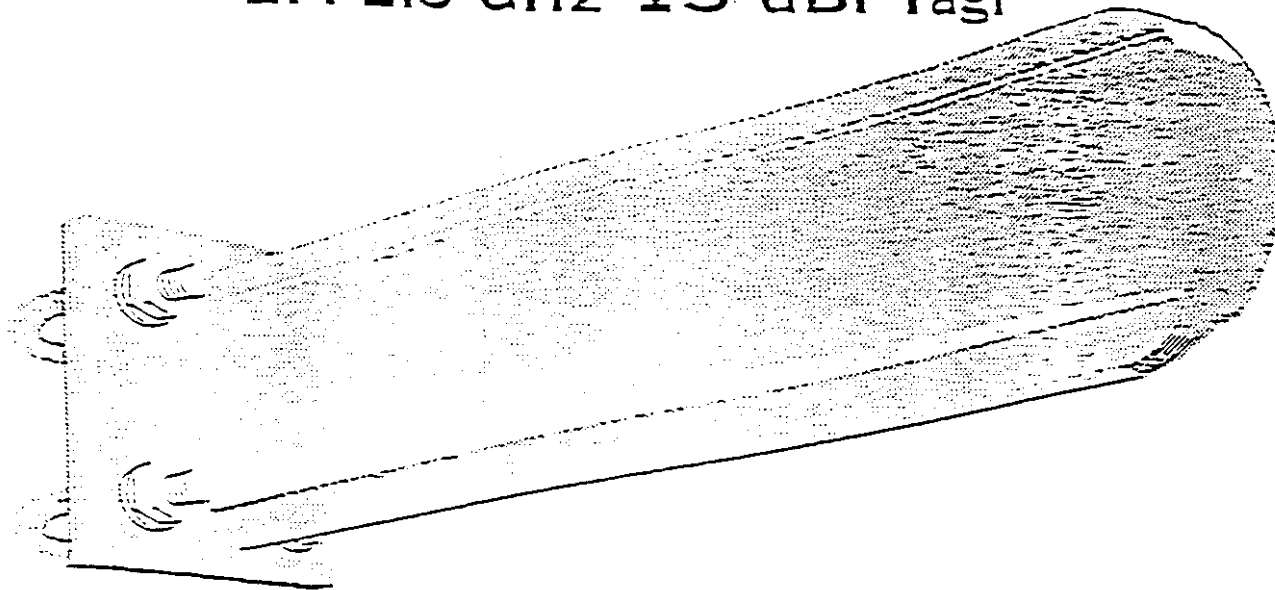
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W

#4

PC2415N

2.4-2.5 GHz 15 dBi Yagi



JAMES J. NUGNES
SALES MANAGER

cushcraft
CORPORATION

COMMUNICATION ANTENNAS

4680, MANCHESTER, NH 03108, U.S.A.
377 / FAX 800-227-1754 Email: sales@cushcraft.com
E: 800-258-3860 • FAX: 800-258-3858

SPECIFICATIONS

15 Element Yagi
Frequency: 2400-2500 MHz
Gain: 15 dBi
Beamwidth: H-plane: 34 degrees
E-plane: 30 degrees
Front to Back: > 17 dB
Weight: < 1 lb.
Wind Load: 4 ft²
Radome Length: 26 in. max.
Thickness: .725 in.
Radome Material: Lexan
Color: NEUTRAL
Mounting Hardware: Stainless Steel
Mounting Plate: 4" x 3-7/16"

 **cushcraft**
CORPORATION

Ceiling Mount Dipole

Omnidirectional Antennas Above 800 MHz

Cushcraft Signals offers a broad line of high frequency omnidirectional antennas for data collection applications. As designed, these antennas feature PCB board etched radiators, handcrafted matching and decoupling networks and fiberglass enclosures. They may be mounted in many ways. They are provided with hardware designed for mounting on round members such as pipes up to 2 inches in diameter. Also,

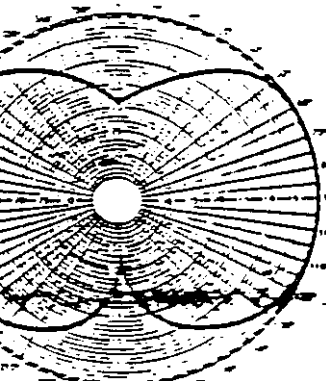
ceiling mounting and V-beam diamos can be used to place these antennas in the best possible locations. These omnis are mass produced using techniques assuring long life and consistent performance. Production models are available covering frequency ranges from 800 through 960 MHz and 2.4 through 2.5 GHz. Models for 1.7 through 1.9 GHz and 5.725 through 5.850 GHz will soon be available.

CMNIS ABOVE 800 MHz

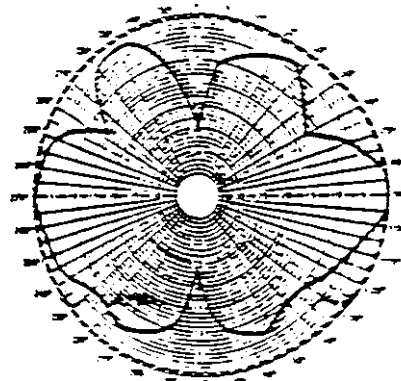


Model	S6960B	S6963B	S6964B	S2400B	S2403B
Type	Omn	Omn	Omn	Omn	Omn
Frequency, MHz	800-960	800-960	800-960	2400-2500	2400-2500
Gain	Unity	3 dB	4 dB	Unity	3 dB
Front to Back, dB	NA	NA	NA	NA	NA
Bandwidth, 1 dB, MHz	84	84	84	100	100
1 dB Beamwidth					
E-Plane, degrees	75	45	25	75	45
H-Plane, degrees	360	360	360	360	360
Connector Type	N-type	N-type	N-type	N-type	N-type
Enclosure Material	Fiberglass	Fiberglass	Fiberglass	Fiberglass	Fiberglass
Height, inches (cm)	17 1/2 (44.3)	20 (50.8)	20 (50.8)	20 (50.8)	10 1/2 (26.7)
Weight, lbs. (g)	9 (408)	10 (454)	10 (454)	6 (272)	6 (272)
Mount Style	Pipe clamp	Pipe clamp	Pipe clamp	Pipe clamp	Pipe clamp
Max Mast Dia., in (cm)	2 (5.1)	2 (5.1)	2 (5.1)	2 (5.1)	2 (5.1)

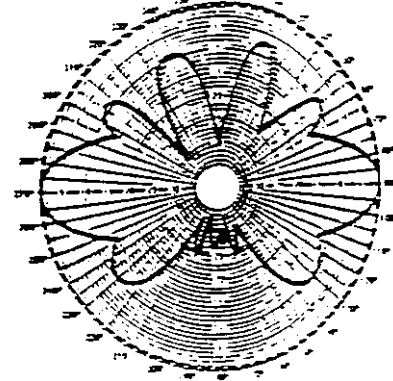
S6960B
0 dB



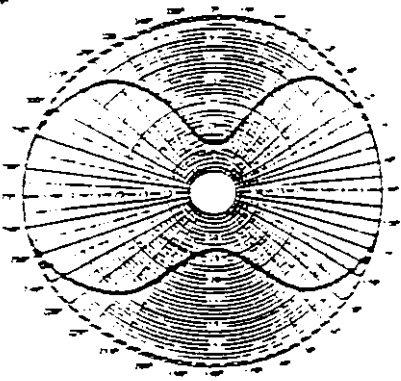
S6963B
3 dB



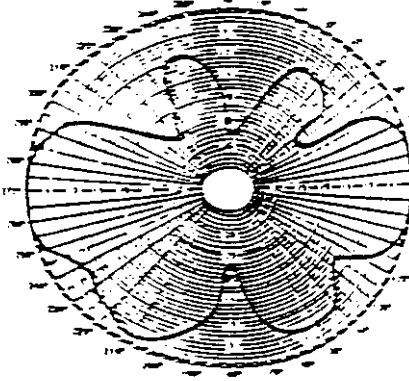
S6964B
4 dB



S2400B
0 dB



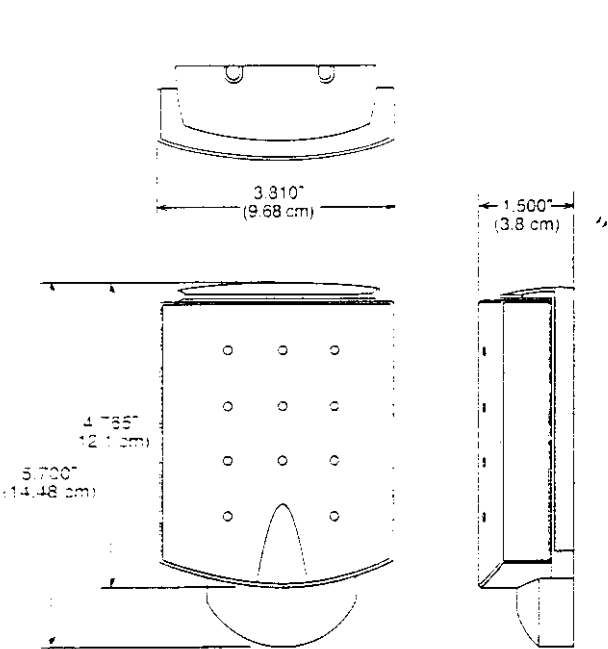
S2403B
3 dB



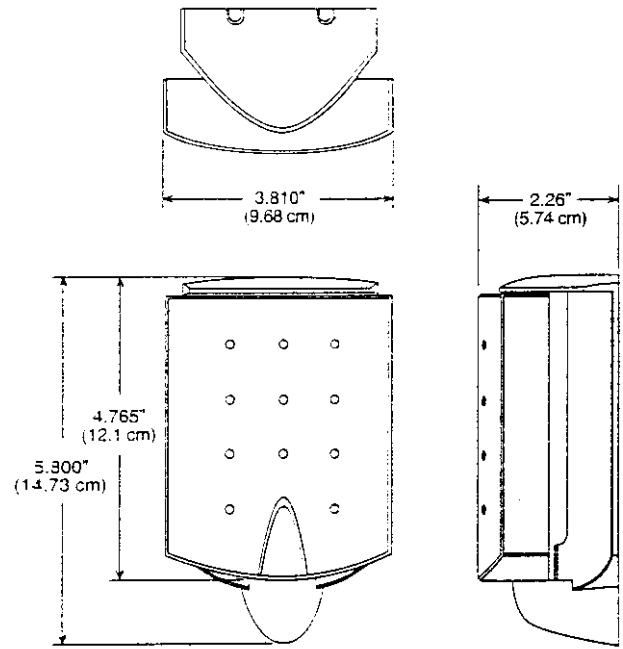
H-Plane - - - - -
E-Plane - - - - -

DirectLink Series Antennas

18



STANDARD WALL MOUNT



**ARTICULATING MOUNT
(±30 degrees)**

FREQUENCY MHz	MODEL	GAIN dB	3dB Beamwidth, deg.		VSWR	F/B dB	Connector (Female)	Articulating Versions
			E-Plane	H-Plane				
1710-1880	S1716AMP10SMF	7.5	60	55	1.5:1	12	SMA	Yes
1710-1880	S1716AMP10SMF	7.5	60	55	1.5:1	12	SMA	No
1710-1880	S1716AMP10TNE	7.5	60	55	1.5:1	12	TNC	Yes
1710-1880	S1716AMP10TNE	7.5	60	55	1.5:1	12	TNC	No
1850-1990	S1857AMP10SMF	7.5	55	50	1.5:1	12	SMA	Yes
1850-1990	S1857AMP10SMF	7.5	55	50	1.5:1	12	SMA	No
1850-1990	S1857AMP10TNE	7.5	55	50	1.5:1	12	TNC	Yes
1850-1990	S1857AMP10TNE	7.5	55	50	1.5:1	12	TNC	No
2200-2500	S2207AMP10SMF	7.5	50	55	1.5:1	12	SMA	Yes
2200-2500	S2207AMP10SMF	7.5	50	55	1.5:1	12	SMA	No
2200-2500	S2207AMP10TNE	7.5	50	55	1.5:1	12	TNC	Yes
2200-2500	S2207AMP10TNE	7.5	50	55	1.5:1	12	TNC	No
5150-5850	55760	12	35	50	1.5:1	12		Yes
5725-5850	55725	12	35	50	1.5:1	12		Yes

Specifications subject to change without notice

Power Handling: 50 Watts (25 Watts at 5 GHz)

Polarization: Linear

Dimensions & Weight:

Articulating versions - 5.90 x 3.81 x 2.26 in. (14.73 x 9.68 x 5.74 cm)

8 oz (.23 kg)

Non-articulating versions - 5.70 x 3.81 x 1.50 in. (14.48 x 9.68 x 3.80 cm)

5 oz (.14 kg)

Connectors: SMA, TNC. Other connector types available on special request.

Mounting: Standard units for wall mounted. Mast mount kits available.

Custom mount configurations available for volume users.

Cable: Low loss "pigtail" provided

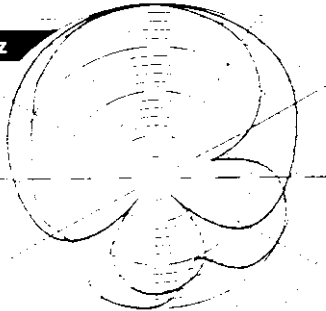
Product also available in private labeled versions for volume users.

Notes: Specifications for 5 GHz versions are preliminary. First available in second half 1997.

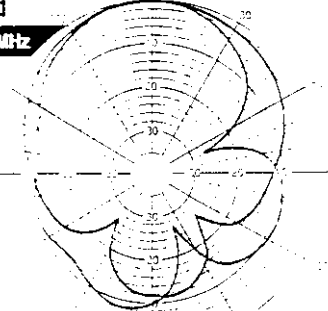
ISM Band
23 - 24 GHz



PCS Band
1850-1990 MHz



PCN Band
1710-1880 MHz



— E-Plane
— H-Plane



CUSHCRAFT
COMMUNICATIONS ANTENNAS



PDT 4640

40 is the RF version

Antenne #9

PPT 4600 Series Portable Pen Terminals with Integrated Scanners

Ruggedized Pen-Based Systems with Advanced Scanning and Wireless Communications

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- [Performance Characteristics](#)
- [Software](#)
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- [User Environment](#)
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Applications

- [The Power of Information - Whenever, Wherever Your Officers Need It.](#)

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The Data Capture and Decision Support Tool That Goes Where You Go



Mobile data capture is all-important for transportation companies.

Introducing the PPT 4600 Series of Portable Pen Terminals with Optional Integrated Scanners from Symbol Technologies. Designed for high-performance data management applications where mobility is a must and the environment is often tough, the PPT 4600 Series is ideal for transportation, courier and route accounting companies, utilities, warehousing and distribution operations. It's equally valuable for public safety organizations, health care facilities, retailers and others whose need for data can't be confined to controlled environments.

That's because the PPT 4600 Series is rugged, reliable and powerful. It's available in a range of models to meet your current application needs, and it expands easily as your requirements change. It offers 486 performance to support popular DOS and Windows® applications, plus a selection of communications and data collection options. Yet it's easy to learn and easy to operate....A comfortable, lightweight ergonomic design makes the PPT 4600 a truly portable productivity tool.

What's more, the PPT 4600 Series is designed, built and supported by Symbol Technologies. Symbol understands how important your strategic vision is to the future of your enterprise in today's demanding business environment. All too often, however, what you see lies beyond the reach of ordinary information technology. Symbol's innovative products, industry systems expertise and global support overcome those boundaries...and transform your vision into a vision without boundaries.



Ticket issuance is one of many public safety applications.



Flexible and Expandable to Meet Your Exact Needs

Through a powerful standard feature set and a selection of high-performance options, the PPT 4600 can be configured to meet any application requirements. Two screen sizes are available: a 5.6"/14.2 cm diagonal model and a larger 7.8"/19.8 cm diagonal version. Both screens integrate pen/touch capabilities to support Graphical User Interface (GUI) applications. MS-DOS® is installed and Microsoft® Windows® for Pen Computing is available to ensure your applications run in today's most popular environments.

This breakthrough series of portable terminals redefines ergonomics. The PPT 4600 is extremely lightweight and perfectly balanced for extended use without operator fatigue or motion injury. An adjustable leather strap and rotating scan head ensure equal comfort and ease of use for right- and left-handers.

A range of communications and data capture options lets you configure the product that is exactly right for you. Radio frequency (RF) communications is available for wireless connection with local area networks (LANs) and wide area networks (WANs).



Data capture options include pen-input as well as traditional one-dimensional linear bar code scanning. You can also opt to capture the benefits of PDF417, the two-dimensional symbology which carries up to 1.1 kilobytes of machine-readable data in a space no larger than a standard bar code. Unlike traditional one-dimensional bar codes, which depend on real-time links to a larger database, PDF417 symbols are the database, so they go anywhere and on almost anything - from paper to parts to packages. Another option, a magnetic stripe reader, may also be incorporated in either PPT 4600 Series model, making them ideal for ID and other "card" applications.

Fair weather or foul, utilities can be assured of dependable performance.

The PPT 4600 Series is the perfect solution for all kinds of applications in all kinds of environments. For example:

Transportation companies - looking for a flexible tool to track shipments, capture signatures and much more will find the PPT 4600 goes where the goods go. Add PDF417 or vehicle mounted cradle options for even more freedom and productivity.

Utilities - are assured of performance that's predictable and reliable day-in and day-out - even when the weather's not - because of the PPT 4600 Series' rugged construction and sealed case.

Public safety agencies - appreciate the PPT 4600 Series' combination of light weight and rugged durability. Both models are comfortable for the user, but designed for heavy duty in a wide range of applications, including vehicle identification, ticketing and crime scene investigation.

Warehouse and distribution operations - receiving, tracking, sorting, storing and retrieving are just some



of the functions that will be faster, easier and more accurate with the help of the PPT 4600 Series capabilities. The back-lit screen is easy to read, even under dim lighting conditions.

Retail organizations - access databases remotely using the PPT 4600 with RF capabilities for on-the-floor product information and sales transactions, as well as inventory control and stock management.

Health care facilities - add RF capabilities to the PPT 4600 and patient identification, prescription and diagnostic information is available where and when it's needed most.

Rugged, reliable and flexible, Symbol Technologies' PPT 4600 Series of Portable Pen Terminals with Optional Integrated Scanners gives you everything you need for the ultimate in data collection and transmission on the go. They're the best portable productivity tools for your business - today and tomorrow - in the palm of your hand.

The PPT 4600 Series Features

The PPT 4600 Series features two easy-to-read screen sizes: 5.6"/14.2 cm diagonal or a larger 7.8"/19.8 cm diagonal version.



The PPT 4600 Series features two easy-to-read screen sizes: 5.6"/14.2 cm diagonal or a larger 7.8"/19.8 cm diagonal version.

Starting at less than 2 pounds/900 grams, the PPT 4600 is one of the lightest products in its class and is ergonomically designed for comfortable single-handed use over an extended period of time. Fits snugly in the palm.

- A. Optional rotating scan head facilitates use in either hand and allows users to adapt to the requirements of individual jobs.
- B. Battery slides in here. With 6- to 8-hour battery life, operators will spend their time using PPT 4600 Series Terminals - not recharging them.
- C. Adjustable strap and triggers on both sides allow right- or left-handed use with equal ease and comfort. Strap also lets users relax their grip, reducing the fatigue associated with repetitive tasks.
- D. Icons control power status, speaker volume, backlight level and screen contrast.
- E. Touch or pen-based input combined with Graphical User Interface (GUI) techniques provide intuitive, point-and-click operation and the ability to capture signatures. Ideal for applications involving transactions, confirmations and approvals.
- F. Back-lit screen is easy to read for improved productivity and reduced eye fatigue - even in warehouses, trucks and other poorly lighted environments.
- G. Type II and Type III PC card slots support quick, easy expansion.



Retailers benefit from increased customer service and satisfaction.

Rugged construction, sealed case and advanced design allow the PPT 4600 Series to withstand repeated 6.6-foot/2-meter (half screen model) drops to concrete without damage to the display, scanner or frame, and protects against extreme conditions, including wind-blown rain and dust.

Both models offer the power of a 486 processor (up to 50 MHz), 2 MB or 4 MB flash memory, 2 MB to 16 MB onboard RAM, plus the ability to accommodate future expansion.

All PPT 4600 Series products are designed, built and supported by Symbol Technologies, the world leader in bar code-driven data management systems, with consultations from industry experts, including ergonomists, kinesiologists, and our customers to bring you the best, most advanced portable terminals possible.

PPT 4600 Series Options

Feature

Data collection options: pen-only, linear bar code (1-D) and PDF417 scanning

Communications options include Spectrum24® radio cards with integrated antenna for durability, and different wide area networks such as RAM Mobile Data and CDPD Cellular Cards

Wired modem

Vehicle mount or depot cradles can be chained in a series

Holster

Benefits

Input, scanning and swipe options to meet the user's exact data capture needs. Options include: Standard ID, Long Range, High Visibility, Klasse Eins, and PDF417.

Gain the freedom, flexibility and productivity of wireless communications with proven, widely accepted RF technology. Ideal for weigh stations, loading docks, garages and other remote locations, and vitally important for public safety and trucking applications.

Supports remote communications, including wired communications.

For storage and data transfer; holds the PPT 4600 securely when not in use. Terminal cradle provides battery charging. Up to 60 depot cradles.

Comfortable, adjustable holster provides storage and protection for the PPT 4600 when it's not in use; allows easy access to terminal. Ideal for foot patrol, retail floor and other on-the-go applications.

PPT 4600 Series Specification Highlights

Physical Characteristics

Half Screen:	Weight: 30 oz./851 gm with battery, add 5-7 oz./142-198 gm for scanner options; Size: 5.4" W x 9.6" L x 3.5" D/13.72 cm W x 24.4 cm L x 9 cm D; Display: 320 X 480 VGA, (5.6"/14.2 cm diagonally), back-lit, 16 level gray scale
Full Screen:	Weight: 36 oz./1022 gm with battery, add 5-7 oz./142-198 gm for scanner options; Size: 8.8" W x 9.6" L x 3.5" D/22.4 cm W x 24.4 cm L x 9 cm D; Display: 640 X 480 VGA, (7.8"/19.8 cm diagonally), back-lit, 16 level gray scale

Performance Characteristics

Touch Panel:	Resistive, 180 dots per inch/70 dots per cm
Pen:	Passive
Processor:	486 SLC/25 MHz or 486 SLC/50 MHz
Memory:	2 MB or 4 MB Flash, 2-16 MB RAM
PCMCIA Slots:	One Type II and one Type III
Communication Ports:	Infrared RS-232, physical RS-232, second physical RS-232 optional

Software

System:	Microsoft DOS, Microsoft Windows for Pen Computing optional
Application Development:	C, C++, PenPal, PenRight!, Visual Basic, Powerbuilder

Power

Battery:	Lithium Ion
Battery Recharge Time:	2 hours
Backup Battery:	Rechargeable Lithium

User Environment

Drop Spec:	Half screen: 6.6 ft./2 m to concrete; Full screen: 3.3 ft./1 m to concrete
Sealing:	Mil STD 810E and IP 54
Operating & Storage Temperature:	-4° to 122° F/-20° to 50° C
Hazardous Locations:	FM Approved as nonincendive for Class I, Division 2, Groups A, B, C, D; suitable for Class II, Division 2, Groups F, G; Suitable for Class III, Division 1,2 hazardous locations
EMI/RFI:	FCC Part 15 Class A, EMC Directive, Australian SMA (C-Tick) ●N410
Electrical:	Certification to UL1950, CSA C22.2 No. 950, EN60950/IEC950

symbol

PDT 2140

Antenna #10



Increase market share and store profitability while delivering new levels of customer service.

There's an innovative retail system that both improves the consumer's shopping experience and provides you with a strong advantage in today's competitive retail environment. It's Symbol Technologies' Portable Shopping System.

The Power to Move Your Business Full Speed Ahead

Symbol Technologies' Portable Shopping System is a dramatically different approach to retailing...and its many dimensions will fundamentally change your relationship with your customers.

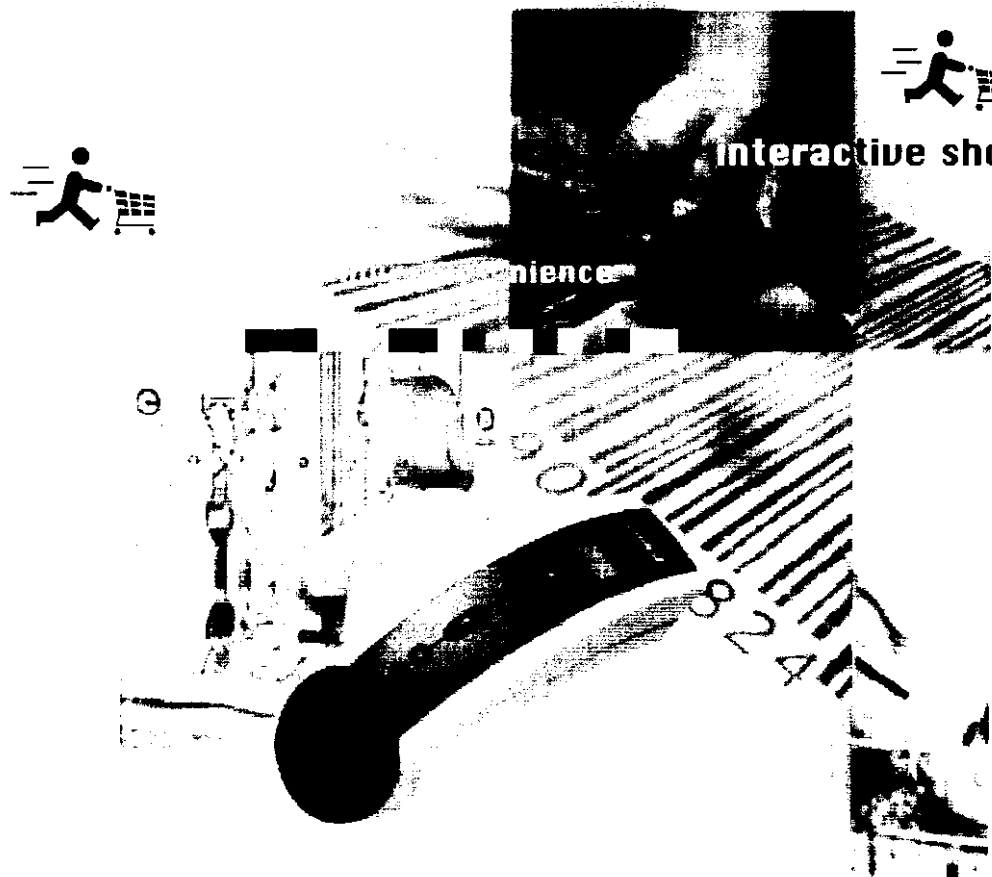
Proven at mass merchandise, food, warehouse and other retail operations around the world, this breakthrough system enables you to communicate with your customers as they're shopping—while they're in your store aisles at the point of decision. It simultaneously collects shopper information—

who they are, what they buy and when they buy it—*during* the shopping process. Capturing this data enables you to create strategic merchandising programs that are timely, targeted and highly personalized.

Shopper Satisfaction: Enjoying the Experience as Never Before

The Portable Shopping System eliminates the one part of the shopping experience consumers dread—the checkout line. Instead, it offers convenience, control and even fun.

The system utilizes a hand-held scanner—the Portable Shopper—similar



in size and shape to a telephone handset. Customers pick up the Portable Shopper when entering your store and use it to scan and tally their purchases while shopping (see back page for more information). When shoppers are done, they simply pay for their purchases and they're on their way. No more waiting in line and they're freed up to spend more time shopping.

Because the Portable Shopper keeps customers informed while they are shopping, there's no need for shoppers to keep a rough total of how much they're spending in their heads.

This actually gives customers the confidence to spend more money, and has proven to increase basket size up to 20 percent.

It also means fewer returned goods at the checkout counter and less time and expense for returning items to their shelves. This streamlined system allows you to, in turn, redeploy your staff from behind the checkout counter into the aisles where they can assist customers while assuring smoother, more productive store operations.

You and Our Customers Will Both Profit from the Experience

There's a whole new interactive shopping experience in store for customers when they use Symbol Technologies' Portable Shopping System. For retailers, it's a whole new way to realize increased sales, higher profits, and improved efficiency while offering greater customer service.

The Portable Shopping System from Symbol Technologies: Let this innovative system improve your customers' shopping experience while providing you with a strong advantage in today's competitive retail environment.

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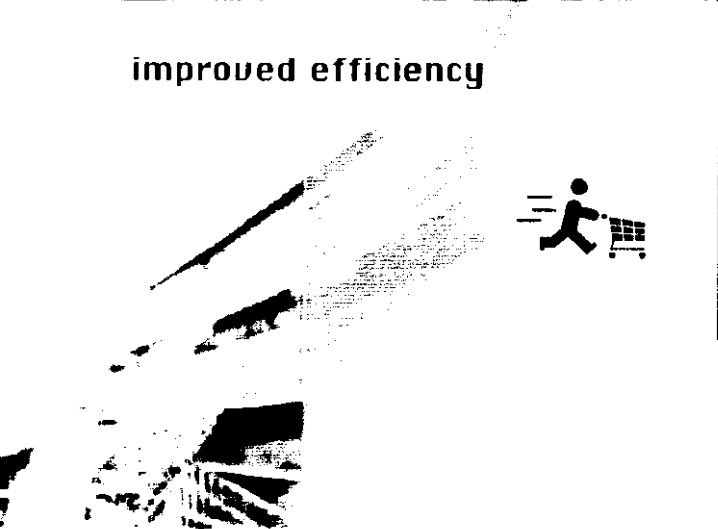
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HIGHER PROFITS



improved efficiency



INCREASED SALES



The Portable Shopping System:

Here's how shoppers use it

When customers enter your store, they use a store-issued identification card to obtain a hand-held scanner—the Portable Shopper—from the Portable Shopping System dispenser rack. The Portable Shopper can be held or slipped into a special holder on the shopping cart.



The easy-to-use scanner has three keys. The "plus" key records a purchase. The "minus" key deletes a purchase. The "equals" key totals all the items selected. As customers finish shopping, they return their scanner to the rack where they receive an automatically dispensed bar-coded ticket.



With ticket in hand, they proceed to an express checkout station where the cashier scans the ticket and accepts any coupons. Customers pay as usual, receive their receipt and are on their way.



Specifications are subject to change without notice. Portable Shopping System is a trademark of Symbol Technologies, Inc.

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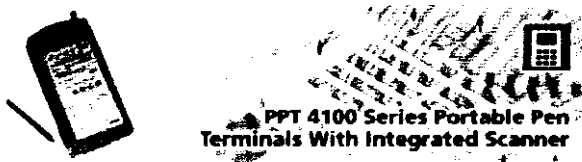
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Technologies, Inc.



PDT 4140

40 is the RF version

Ant # 8

PPT 4100 Series

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Portable Pen Terminals With Integrated Scanner

The Hand-Held Information Management Terminal

The Mobile Tool for Real-Time Decision Making

In today's fast-paced business environment, knowledge is power -- the power to make the right decision based on reliable, up-to-the-minute information collected and analyzed on the spot.

Realize Your Vision with the PPT 4100

Symbol Technologies enables the power of vision without boundaries with the PPT 4100 Series -- designed specifically for mobile, information-intensive applications. These portable pen-based terminals increase efficiency and effectiveness in serving customers while improving bottom-line results in service and sales, manufacturing, distribution, retail environments, and more. Users gain instant access to point-of-sale, back office, inventory, customer profiles, pricing, product information, even up-to-date headquarters information -- anywhere, any time. Your personnel always have the latest information to run your business and, most importantly, serve your customers -- without relying on an office-bound computer.

Profit from Accurate Information...Everywhere You Need It

Field Operations...

The PPT 4100 enables field service and delivery operations to provide the latest in customer service. Accurate order fulfillment, product data and customer tracking are accomplished by using the integrated bar code scanner to collect data; use the pen screen to record customer signatures, update orders and service requests in the field. Information can be transmitted via low-cost standard telephone lines, using a PCMCIA Modem Card, maximizing information flow to and from the home office at minimal cost while providing customers with improved service.



In Manufacturing...

Getting things done in the plant or warehouse just got easier -- and with enhanced speed and accuracy. If you are in production control, manufacturing engineering, quality, operations or other manufacturing functions, you can do your job at the point of activity instead of at your remote workplace. Take the PPT 4100 with you on vendor quality audits and get immediate results back to the plant via a PCMCIA Modem Card. Whether operating on-line over the Spectrum One® RF network or in batch mode, manufacturing personnel are empowered and productive.

In Distribution...

Managers, auditors and expeditors can now take their computer with them to the far reaches of the distribution center. Management information, lost goods tracking, cycle counting and numerous other tasks are handled effortlessly and immediately. Empowered DC personnel achieve improved efficiency and customer responsiveness.

In Retail...

Now, with the PPT 4100, the store manager can utilize a port-able information tool that provides instant information access for improved real-time decision making. Symbol's PPT 4100 is ideal for data-intensive applications such as shelf space planning, inventory replenishment and control, sales promotion analysis, labor scheduling, "merchant's workbench" and support for Quick Response and Efficient Consumer Response (ECR) initiatives. Customers will appreciate the improved and innovative service levels from store associates for personal shopping, merchandise recommendations and location, gift registry, lay-aways and instant credit.

Pen-Based and Palm-Sized for Ease of Use and Portability

Operating in an industry-standard, PC-compatible DOS environment, the PPT 4100 Series combines pen input with a Graphical User Interface (GUI), integrated bar code laser scanning, and wireless LAN technology. The integrated scanner utilizes Symbol's patented Mylar® scan element, a unique technology that creates motion without wear or tear for nonstop reliability. In fact, the Mylar scan element is so reliable that it is backed by its own limited lifetime warranty.*

Two PCMCIA card slots allow the PPT 4100 to be easily configured (and reconfigured) to keep pace with changing needs. Industry-standard/Symbol-certified PCMCIA cards provide user-selectable functions which include modems, SRAM and your choice of wireless communications including, Spectrum One® and Spectrum24®. Memory is easily expandable to permit complex applications and large database storage.

ROI: Return on Information

The PPT 4100 portable pen terminal with integrated scanner offers ROI (return on information) by allowing you to make more informed decisions, optimizing the productivity of your largest investments -- people, inventory, information architecture, and product data. Symbol Technologies, the leader in bar code-driven data management transaction systems, with more than 5 million bar code scanners and terminals installed, enables you to gain the competitive edge with better information at your fingertips for more accurate and timely decisions.

*The Mylar scan element consists of a Mylar strip, frame, mirror assembly and magnet. The entire unit carries Symbol's standard warranty. All Symbol warranties apply to the original owner and do not cover repair due to misuse or physical abuse. Standard warranty and warranty service information are described on the warranty card enclosed with each product or can be obtained directly from Symbol. Contact Symbol for details.

Feature	Benefit
Integrated bar code scanner	Quick, error-free data entry
Mylar scan element with limited lifetime warranty	Ultimate reliability for years of trouble-free operation
Superior ergonomics	Compact and lightweight design increases productivity and



PDT6140

40 is the RF version

Antenna # 11

PDT 6100 Series Portable Data Terminals

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Establishing New Benchmarks in Portable Data Terminals

Building on the legacy of our industry-leading [PDT 3100 Portable Data Terminals](#), the PDT 6100 Series combines superior ergonomics, a high-performance scan engine and optimum battery life to provide you with unsurpassed performance for gathering, displaying and communicating the critical data that drives your business. Available in both retail and industrial versions, the PDT 6100 Series provides you with broader, more robust bar code-driven data management than ever before.



Superior Ergonomics and Advanced Features

The PDT 6100 Series has been ergonomically designed to provide the maximum in user comfort over extended periods of use. Its small, lightweight, contoured form factor rests easily in the user's hand. The PDT 6100 also allows for both left- or right-handed operation and a choice of conveniently spaced 35- or 46-key alphanumeric or 21-key numeric keyboard configurations for easy input-even for users who need to wear gloves.

The PDT 6100 offers a choice of brightly lit, easy-to-read display options. The 4- or 8-line by 20-character or the 16-line by 21-character liquid crystal display with optional backlighting and adjustable contrast setting allow clear reading. Signature capture is useful for proof-of-delivery and tracking or tracing of goods, parcels, and packages. Each display is scratch-resistant and sealed against moisture and dust.

Premium Scanning Performance

The PDT 6100 incorporates Symbol's standard, high-performance SE 900 Scan Engine - the smallest, lightest and brightest scan engine available today! Just 15% the weight and 20% the size of the SE 1200, it is designed to provide the highest scanning performance in the smallest package possible.

Power When You Need It

The dramatic improvements in the PDT 6100's battery life will pay dividends to your company's data-intensive applications wherever you use them. From retail operations where portable data terminals increase speed and efficiency of shelf pricing, audits, price checking, order entry, and inventory control, to transportation and logistics companies who need to perform package/baggage tracking, picking, receiving and cross-dock applications, the new PDT 6100 NiMH battery gives you 40% more life than PDT 3100 batteries - for true full-shift capabilities, no matter how intensive the demands.

Tough Enough for Any Environment

The PDT 6100 Series industrial version has the ruggedized housing you need for mobile applications, even in the most demanding indoor or outdoor manufacturing environments. It incorporates IP54 standards for protection against the elements. The PDT 6100's tough construction can easily withstand

multiple 4 ft/1.2 m drops to concrete.

Improved Communication Anywhere in Your Enterprise

The PDT 6100 comes in both batch processing and RF models that employ Spectrum One[®] or Spectrum24[®] wireless LAN technologies. This means you have more options for collecting data easily and communicating it to your host computer, and for keeping track of information generated anywhere in your organization. For batch processing applications, you can even choose RAM options from 1.2MB to a powerful 7.6MB.

Profit from Symbol's Strength

Symbol is the worldwide leader in bar code-driven data management systems with more than 30,000 wireless network installations and over 5.5 million scanners and terminals in use. To find out how the PDT 6100 can work for you, call any of our convenient locations or visit us at <http://www.symbol.com/ST000121.HTM> via the Internet.

PDT 6100 Specification Highlights

Physical Characteristics

Dimensions:	PDT 6100 with 4- or 8-line display with 1-D scanning: 2.2" D (at top), 1.5" D (at handle) x 3.25" W (at top), 2.75" W (at handle) x 7.75" H/56 mm D (at top), 38 mm D (at handle) x 83 mm W (at top), 70 mm W (at handle) x 19.7 mm H
Weight:	15.5 oz./440 gm to 16.9 oz./480 gm

User Environment

ESD:	15KV electrostatic discharge to all surfaces without loss of data
Humidity:	0% to 95% noncondensing at 122°F/50°C
Drop:	Unit functions normally after 4 ft/1.2 m drop to concrete
Operating Temperature:	32° to 104°F/0° to 40°C (retail configuration); -4° to 122°F/-20° to 50°C (industrial configuration)
Storage Temperature:	-4° to 185°F/-40° to 85°C

Performance Characteristics

Microprocessor:	80c88 type (8MHz/V25)
ROM:	System EPROM 128KB (DOS, BIOS, and terminal diagnostics)
Nonvolatile Memory:	256KB for program storage in a protected area
RAM Memory:	Up to 7.6MB for data and/or program storage
Keyboard:	21-key hard key cap; 35-key, or 46-key conductive rubber; side alpha-shift key and scan trigger
Display:	4-line or 8-line by 20 characters, 16-line by 21 characters, supertwist (STN) LCD, back light, reverse video, double-high and double-wide characters
Real-Time Clock:	Time and date stamping under software control; Year 2000 compliant
Interfaces:	DE9: tethered laser scanner or contact wand; RJ-41: for cradle, cable or printer interface

Batch Communications



PDT 6840

40 is the RF version

Antenna #12

PDT 6800 Series Portable Data Terminals

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Portable and Rugged Terminals for Scan-Intensive Applications

The PDT 6800 Series are rugged, lightweight portable data terminals combining mobile computing and optional wireless communications with comfortable, well-balanced "forward-scanning" ergonomics. Designed for harsh environments, the PDT 6800 is excellent for industrial markets such as transportation and distribution, yet small enough for scan-intensive applications in retail, such as inventory management and replenishment, price management and receiving.



Carrying on the legacy of Symbol's popular Laser Data and Laser Radio Terminals, this single-handed productivity tool offers a spacious 35- or 46-key alphanumeric keypad, internally mounted radio antenna, and your choice of standard, long-range or high-visibility scanning options.

Communications options include both Spectrum24[®] or Spectrum One[®] wireless LAN connectivity for real-time high-performance data transfer. Or, choose batch communications with an extended memory option for onsite processing and quick uploading/downloading to your PC. Additionally, the PDT 6800 was specifically designed to make full use of existing LRT/LDT cradles and peripherals, providing a total system solution without the added cost of changing the accessories.

Flexible Computing Where You Need It

The PDT 6800 incorporates a convenient and powerful DOS-based industry standard architecture that allows for efficient programming and development of demanding interactive, information-intensive applications. Whether your application calls for inventory counts, shelf price audits, receiving, stock transfers, markdowns or purchasing, the large 16-line backlit display provides greater data content and readability. Easily connect a portable printer and you can generate new bar codes for price markdowns or shelf label changes-right on the sales floor!

This tough terminal also has a ruggedized housing to withstand multiple 4 ft/1.2 m drops to concrete-across its entire operating temperature range-and is environmentally sealed against severe weather conditions, including dust and rain. Add in Spectrum24[®] wireless LAN connectivity with a high-visibility scanner and you have a durable decision support tool for real-time data management that reads bar codes accurately in full sunlight outdoors or in high intensity artificial light indoors. Includes a large capacity battery, making the PDT 6800 Series ideal for increased productivity in warehouses, distribution centers and trucking operations.

Symbol is the worldwide leader in bar code-driven data management systems with more than 30,000 wireless network installations and over 6 million scanners and terminals in use. To find out how the PDT 6800 can work for your application, call any of our convenient locations on the back address panel or visit us at www.symbol.com via the Internet.

Summary of Features

- Forward-scanning ergonomics
- Large 16-line backlit high-visibility display
- 35- or 46-key alphanumeric keyboard
- Internal radio antenna
- Reliable DOS-based industry standard architecture
- Ruggedized to withstand multiple 4 ft/1.2m drops to concrete
- Environmentally sealed against rain and dust (IP54)
- Large capacity battery
- Choice of standard, long-range or high-visibility scanning options
- Choice of Spectrum24[®] or Spectrum One[®] wireless networks, or Batch Communications
- Extended memory options

PDT 6800 Laser Data Terminal Series Specification Highlights

Physical and Environmental Characteristics

Dimensions:	7.0" H x 3.5" W x 8.8" L/178 mm H x 89 mm W x 224 mm L
Weight:	
Batch:	24 oz./672 gm with NiCAD battery
Wireless:	26 oz./728 gm with NiCAD battery
Operating Temperature:	-13° to 122° F/-25° to 50° C (Industrial version)
Storage Temperature:	-13° to 140° F/-25° to 60° C
Humidity:	95% relative humidity, noncondensing
Drop Spec:	Multiple 4 ft/1.2 m drop to concrete
Environmental Sealing:	IP54 (Industrial version)
ESD:	15KV electrostatic discharge to all surfaces without loss of data
Keyboard, Standard:	35 or 46 large, hard, alphanumeric keys
Keyboard, IBM:	46 key, IBM 5250 or 3270 keypads and overlays
Display:	16-line by 21-character FSTN LCD, back light, reverse video, double-high and double-wide characters
Power:	Removable, rechargeable 780 mAh NiCad pack

Computer

CPU:	80C88 type @ 8 Mhz
Operating System:	DR-DOS
ROM:	128 KB EPROM (DOS, BIOS, Terminal Diagnostics)
RAM:	640 KB Standard (up to 6.1 MB for batch option)
Non-Volatile Memory:	256 KB Standard (up to 1.2 MB for RF option)
Application Development:	Symbol Series 3000 Applications Development Kit

Peripherals & Accessories

Cradles:	Single slot and four-slot cradles available
Printers:	Supports extensive line of Symbol-approved printers, cables and accessories



WSS1040

40 is the RF version

Antenna # 13

WSS 1000 Wearable Scanning System

Breakthrough technology and ergonomics that revolutionize productivity in the workplace

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Tasks that involve the movement and tracking of physical objects will never be the same again. Symbol Technologies has created the ultimate workstation. Coupling powerful information gathering and processing capabilities with simplicity and ease of use, it is enabling quantum improvements in productivity while delighting users with its comfort and light weight. The WSS 1000 Wearable Scanning System. Nothing else comes close for form, fit and function. Nothing else can so dramatically increase the efficiency of your workplace.

Free to handle objects, free to go anywhere to gather and communicate data instantly

Symbol Technologies' WSS 1000 Wearable Scanning System empowers users to achieve totally new levels of productivity and accuracy. At the same time, advanced ergonomics make the system easy to use and comfortable to wear.

Never before could scanning, portable computing and wireless networking be performed while the user's hands remained totally free for handling packages, products, inventory or materials. The WSS 1000 System also represents breakthroughs in miniaturization, performance and data transmission. Already, its all-encompassing capabilities are changing the definition of productivity and ease of use in warehousing, transportation/logistics, manufacturing, retailing and other industries.



Between index finger and forearm, a scanner and a computer

The WSS 1000 System consists of two components. The RS 1 Ring Scanner is worn on the index finger and activated by pointing the finger at the bar code, while pressing the thumb against a trigger at the base of the finger. Scanning is performed by pointing the finger at the bar code and activating the scanner by pressing the thumb against a trigger at the base of the finger. The RS 1 Ring Scanner is the smallest wearable laser scanner in the world, weighing only 1.7 ounces/48 grams and standing just .9 inches/23 mm high.

The WSS 1000's computer is worn on the forearm, and includes a CPU, display, keyboard, battery pack, and optional batch or wireless communications:

- Spectrum One[®] - A fast, interference-free wireless network solution featuring a high-performance cellular design for reliable throughput while providing excellent long-range operation and data security.
- Spectrum24[®] - Symbol's next-generation wireless LAN featuring a more robust environment for larger, more complex networks. This inherently secure architecture is ideal for business-critical applications requiring high levels of data throughput.

No compromise when it comes to performance

The WSS 1000 System is engineered to perform. The RS 1 Ring Scanner features a rugged and reliable laser scanner that scans quickly and accurately-even if the bar code is damaged or poorly printed. Its tiny scan engine permits a low profile design, allowing it to avoid most bumps and knocks. But, we've given it a scratch-resistant coating on the window just in case.

The wrist computer offers powerful information gathering, processing and communications performance, yet is easy to use. It features a programmable keyboard and backlit display, both optimally positioned for effortless keypad input and viewing, even in dimly lit environments. It weighs just 9.5 ounces/279 grams and is powered by a long-lasting lithium ion battery. The ring scanner and computer are connected via an unobtrusive, lightweight cable.

Optimum design: High tech balanced by human touch

When it comes to productivity, comfort and ease of use are every bit as important as performance. Symbol's design engineers thoroughly tested the WSS 1000 Wearable Scanning System, putting it through more than 40,000 user test hours with active participation from customers. The result is maximum comfort and flexibility.



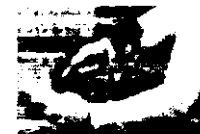
The RS 1 Ring Scanner fits fingers of all sizes and it's reversible, allowing it to adapt equally well for right-and left-handers. The lightweight WWC 1000 Wearable Wrist Computer adapts to fit every wrist. Both the ring scanner and wrist computer mount to straps that stay with each operator, eliminating worries about hygiene. Safety's not a concern, either, because the ring breaks away under 20 pounds/9 kg of pressure.

The WSS 1000 Wearable Scanning System from Symbol Technologies: In handling-intensive, high-throughput environments, it's what the empowered workforce is wearing.

Miniaturized ring scanner and wrist-mounted computer keep operators' hands free for moving, picking, packing or receiving packages, products or materials.



High-performance laser scanner and superior ergonomics allow fast "aim-and-shoot" operation, even on poor quality bar codes. Scanning range is from 4 inches to 25 inches/10 cm to 64 cm.



Wrist computer has a 27-key alpha-numeric programmable keyboard, 4- or 8-line x 20-character display and RF data transmission for advanced computing and communications. DOS compatibility means easy integration.



Superior ergonomic design includes "personal" attachments for hygiene, adjustable straps for comfort, ambidexterity for right or left-handed operation, and breakaway feature.



WSS 1000 Wearable Scanning System Specification Highlights

WWC 1000 Wearable Wrist Computer

Physical Characteristics

Weight:	WSS 1000: 8.5 oz./240 gm WSS 1010: 9.5 oz./270 gm WSS 1040: 11.3 oz./320 gm (12.3 oz./350 gm w/ short-range microradio)
Size:	4.8" W x 3.4" L x 2.9" H/122 mm W x 86 mm L x 74 mm H
Display:	4 line x 20 character or 8 line x 20 character backlit FSTN LCD
Keyboard:	27 key backlit membrane keyboard

Performance Characteristics

Processor:	NEC V25 running at 16 MHz
Memory:	640 K RAM
Communication:	Short-range microradio (wireless printing) optional
Software:	DR DOS
Cradle Interface:	38.4 K max baud rate IR serial connection Power
Batteries:	Single-cell lithium ion battery pack (1200mAh)
Charge Time:	140 minutes
Backup Power:	Super capacitor yields 15 minutes backup time

User Environment

Operating Temperature:	-4° to 122° F/-20° to 50° C
Storage Temperature:	-40° to 140° F/-40° to 60° C



#14

SUHNER

DIPOLE ANTENNA 2.45 GHZ

FOR WIRELESS COMMUNICATION

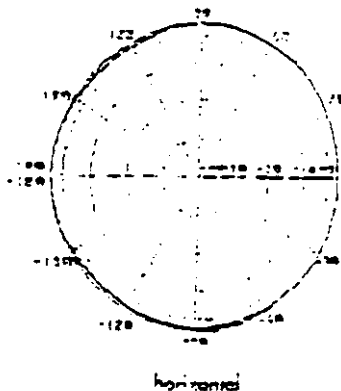
Type No. 9090.16.0001



Technical Data

Electrical properties	
Frequency range	2.4 - 2.5 GHz
Impedance	50 Ω
VSWR	≤ 2.0
Polarisation	vertical
Gain	11.5 dBi
Pattern	Omnidirectional
Permitted power on entrance	1 W (CW) at 25 °C
Standard connector	right angle MOX-male
Mechanical properties	
Length	79 mm
Connector case	ABS
Antenna case	ELVAX 550
Color	Pantone cool grey 11c
Operating temperature range	-20 °C to +65 °C

Radiation Pattern



HUBER+SUHNER AG

Radio Transmission
Department

CH-9100 Herisau

071 53 41 11

071 53 45 00

88 27 29

Data Sheet 02 95 / Edition 1, 231GHA/st

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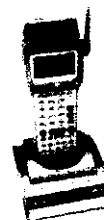
This terminal
uses the Huber
Schaer Dipole (Ant #14).

PDT 3200 Series Portable Data Terminals

Hand-Held Computers with Superior Performance...and Value-Priced

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Symbol Technologies offers the PDT 3200 Portable Data Terminal, a series of scanner-integrated, hand-held computers that provide fast and accurate data management along with improved flexibility, ease-of-use, durability and ergonomic comfort. DOS-based, the PDT 3200 series is available in several models, including batch and radio frequency (RF) versions, both with integrated laser scanning. Each model provides excellent value and outstanding performance.



Open Architecture and Expandable Memory

The PDT 3200 in cradle.

The PDT 3200 features an integrated, PC-compatible, 32-bit, 386 microprocessor with programmable speed of up to 25 MHz that accelerates data collection and then quickly redistributes the data into your network. The PDT 3200 complies with open architecture standards and features the latest ROM-DOS 6.22 operating system, so there's no need to learn proprietary programming languages.

With 2 MB RAM and 1 MB of Flash memory, the PDT 3200 is ideal for data-intensive applications. By placing an ATA Flash card into its user-accessible PC card slot, the PDT 3200 holds up to 64 MB of memory to support the most demanding batch applications. Or, simply install Symbol's Spectrum24® PC card to integrate Symbol's latest-generation wireless LAN technology.

Spectrum24® is Symbol's frequency-hopping spread spectrum cellular network designed to operate within the 2.4 to 2.5 GHz bands around the

world and is designed to comply with the IEEE 802.11 standard for wireless LANs. Spectrum24 enables easy, real-time access to applications and information anywhere on your network with ease of installation, high throughput, expandable capacity and superior interference immunity.

Features that Set the PDT 3200 Apart

The PDT 3200's high-performance integrated laser scanner has two side-mounted triggers and a rotating head to quickly adapt for right- or left-handed operation. The working distance for scanning 55 mil labels is 36"/91.4 cm, and for 5 mil labels from 3"/7.6 cm.

Other PDT 3200 features include:

- User-accessible PC card slot for memory expansion, network connectivity or a fax/modem card.
- 41 alphanumeric, splash-resistant keys. The PDT 3200's large numeric keys include 10 function keys, providing quick and easy touch data entry.
- A backlit LCD display that provides easy-to-read graphics capability. The PDT 3200 also offers an adjustable font size of up to 8 lines by 21 characters.
- Three AA alkaline or a rechargeable NiMH or NiCad battery pack, together with the Advance Power Management system provide enough power for hours of operation. A rechargeable lithium backup

battery preserves data for several hours. In addition, the PDT 3200 can be recharged in just two hours with its stand-alone battery charger and conditioner.

A Superb Hand-Held Data Terminals Brought to You by Symbol

The PDT 3200 Portable Data Terminal Series offers high- performance capabilities at a terrific price. Side-scanning ergonomics, power-packed performance, and rugged durability are just some of the outstanding features that set the PDT 3200 apart. It's the ideal solution for a wide variety of data-intensive applications, including warehousing, shipping and receiving and data collection in such industries as retail, healthcare, manufacturing and transportation. And it's brought to you by Symbol Technologies -- the world leader in hand-held computers, scanning and networking solutions.

PDT 3200 Specification Highlights

Physical Characteristics

Dimensions:	Without laser: 8.2" L x 1.5" D x 3.5" W at top (2.7" W at grip)/208 mm L x 38 mm D x 89 mm W at top (69 mm W at grip)
With integrated laser:	9.3" L x 1.5" D x 3.5" W at top (2.7" W at grip)/236 mm L x 38 mm D x 89 mm W at top (69 mm W at grip)
Weight (includes battery pack):	PDT 3200 Batch w/laser: 16.7 oz./473gm PDT 3200 RF w/laser: 18.6 oz./527gm

User Environment

Drop:	4 foot/1.2 m to concrete
Operating Temperature:	32°F to 104°F/0°C to 40°C
Storage Temperature:	-4°F to 158°F/-20°C to 70°C
Construction:	Industrial, high-strength polycarbonate/ABS blend plastic; chemical and splash-resistant
Ambient Light Immunity:	Immunity to direct exposure from normal office and factory-level lighting

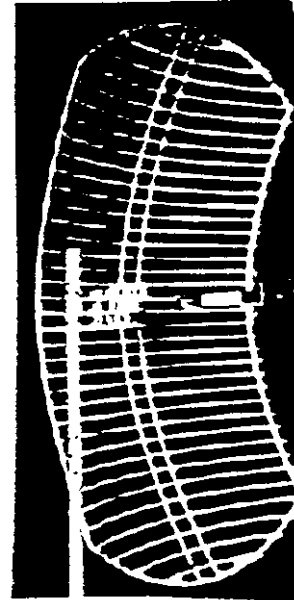
Performance Characteristics

Operating System:	ROM-DOS 6.22
Microprocessor:	AMD Élan™ Am386® SC300 low power, 32-bit microprocessor with system logic; programmable speeds from 1 to 25 MHz
Real-Time Clock & Calendar:	Time and date stamping under software control
Memory:	Expandable up to 64 MB with ATA Flash PC card
Flash Memory:	1 MB or 2 MB (system, applications, data)
RAM Memory:	2 MB (system operation, virtual-disk data)
Display:	Supertwist graphics LCD backlit programmable time out; 128 x 64 pixels; up to 8 lines x 21 characters
Keypad:	41 alphanumeric keys, conductive rubber keypad; 10 function keys; direct Western-European characters support; 2 programmable side triggers
PC Card:	User-accessible PC Card Type I/II slot; supports ATA Flash cards, fax/modem cards, network cards and Spectrum24 wireless LAN radio cards

PERFORMANCE SPECIFICATIONS*

#15

Reflector Material	Cast Magnesium Alloy
Mounting Hardware	Stainless Steel
Gain	13 dBi with 30 ft cable
Input Frequency	2400 - 2500 MHz
-3 dB Beam Width	7.5°
Cross Polarity Rejection	>26 dB
Front to Back Ratio	>31 dB
Impedance @ Output	50 OHMS
Elevation Adjustment	Optional
VSWR (Average)	1.4:1 @ 2450 MHz
Overall Size (Inches)	23.5 x 39.25 x 15 (58.75 x 98.13 x 37.5 cm)
Weight	5.4 lbs. (2.43 Kg)
Mounting	1" - 2" O.D. Mast (2.5 - 5.0 cm)



*Specifications subject to change without notice.

MANUFACTURED IN BURLINGTON, IOWA

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#19

SQ2403PS72RSN

Freq. Range:	2.4-2.5 GHz.
Gain (72" coax):	1.82 dBi
VSWR:	<2.0:1
Power Handling:	25 watts
Polarization:	Linear
E plane Beamwidth:	45 degrees
H plane Beamwidth:	360 degrees
Coax pigtail:	72 inch, plenum
Connector:	Reverse BNC
Length:	4 3/32 inches
Width:	4 3/32 inches
Height:	7/8 inches
Mounting hardware:	Mounting clips