



**2007 IDSA
Award and
2008 Human Factors &
Ergonomics Society
Award**

The Wearable Product Line

Always review Solution Builder for current part numbers and list prices

Market Background

**Symbol created the wearable computer product category
16 years ago!**

1992

- APS 3395 launched
(*Gladiator*)



1995

- WSS-1000 & RS-1 launched
(*Saturn System*)



1997

- WS 1200 LR launched
(*Titan*)



2001

- SRS-1 launched
(*Signet*)



2003

- CRS-1 launched
(*Emerald*)



2006

- WT4090/RS409 launched



Our current wearable product line

WT4090

Over 60,000
shipped!



Wrist Mount



Ring Scanner: RS409



Updated "Titan": RS309



Voice-picking
support

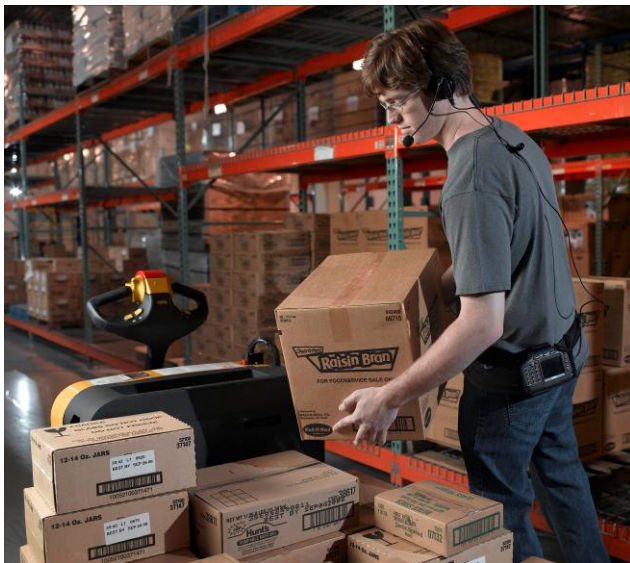


Charge Cradles

Hands Free

Hands Free Technology delivers:

- Both hands available to handle material
- Significant productivity improvements
- Improved pick accuracy
- Ergonomically sound solution



Hands Free
Wearable Computing
Voice Directed Computing

WT4090 delivers improved productivity & accuracy

Productivity improvements in UK at major WW food retailer

With RS409 ring scanner vs. older SRS ring scanner:

99.9% first time scan success; 22% faster product bar code read

With RS309 wearable scanner vs. older WS1200 scanner

100% first time scan success; 11% faster product bar code read

Marked improvements in ability to read faint, crumpled, or cellophane-wrapped barcodes

- **In package handling vertical, major shipping company seeing 30% productivity improvement vs. older wearable system in scan-intensive task**

Major Improvements on the WT4090



**Larger, brighter, color display
Better backlighting**



Microsoft CE 5.0 OS



**Connectors support all RSx09
scanners + headsets**

PLUS...

- ✓ Lighter weight
- ✓ More comfortable arm mount
- ✓ Bluetooth
- ✓ Speaker: play .wav files
- ✓ Longer battery life

Improvements from the WSS1060 to the WT4090

	<i>WSS1060</i>	<i>WT4090</i>	<i>Benefit</i>
OS	DOS	CE Pro 5.0	Industry Standard O/S, compatible with other devices across the enterprise
Display	Mono, 8 line x 20 character	Color QVGA (pixel-addressable)	Bright, crisp, backlit display; Asian language support
WLAN	802.11b	802.11 a,b,g	Latest standards supported
Sealing	None	IP54	Increased protection against blown dust and moisture
Weight	12 oz with battery	11.3 oz with standard battery	Lighter, reducing fatigue factors
Keyboard	Only one option (color-coded for alpha entry)	Legacy or new cell phone alpha entry ; improved wear resistance	Two choices to use what is most applicable to the particular user/location
PAN radio	None	BT 1.2	Enabling use of wireless accessories
Voice-picking capability	None	VP-ready, plus headset connection means	An alternative to manual input, for more efficient hands free operation
Scanner connection	Unique terminal for each scanner model	Mix-n-match scanner connectors	Increased flexibility of terminal assets
Mounts	Wrist only; limited breathability	Wrist and hip; more breathable; washable personal component	Additional flexibility in how to wear; improved hygiene for multiple users of one device

Wearable Terminal: Basic Specs

- **CE 5.0 Pro, 520 MHz CPU**
- **64MB Flash, 128MB SDRAM or 128/128 memory**
- **Voice-directed application ready**
- **2.8" color QVGA display with backlight**
- **Photon-based 802.11 a/b/g WLAN (Fusion 2.5)**
- **Bluetooth 1.2**
- **23 position keypad with backlight**
 - Two configurations: legacy color-coded or cell phone-like
- **Headset jack via an adapter (mono w/mic)**
- **Speaker (can play .wav files)**
- **2,330 mAh Li-ion battery or extended 4,600 mAh minimum**
- **No touch panel version, for increased reliability; or new touch panel version**
- **IP54 sealing, 4' drop**
- **-20C to 50 C operating temperature**
 - Operation in freezer pouch extends range to meat & ice cream freezer:
- **Wavelink terminal emulators pre-licensed and pre-loaded**
- **Full MSP support**



WT4090 Keypad types. All keys fully programmable.



Legacy two-color keypad for alpha entry.
Fast entry of single letters & trained workers appreciate.

WT40XX-X2XXXXX

This keyboard allows workers to leverage cell phone experience

Nickname: "triple tap"

WT40xx-X3XXXXX



Of wearables and touch screens

The unique environment of the wearable, being mounted on the arm, subjects it to an enormous amount of surface abrasion that no other mobile computer experiences

As the inventors of and market leaders in wearables, we know this from first-hand experience!

Touch screens are never as hard as a protective window over a display can be: scratches not only dim the visibility of the display, but they can also destroy the touch screen

Our protective window is 5 times harder than some competitor's touch screens
And we STILL offer a protective overlay for it, for customers who want extra scratch protection!

It is not appropriate to use a touch screen wearable in all of the environments and for all of the applications that a non-touch wearable is ideally suited to

For appropriate environments, we do offer a touch screen version

Protective Overlay Mandatory with Touch wearable

- The touch screen is 4 times harder with the protective overlay than it is without it
- For a TP wearable, this extra scratch resistance is vital to the health of the touch screen
- The WT4090TP ships from the factory with a protective overlay installed
- The overlay is a customer-replaceable part, KT-114032-01R is a 3-pack of replacements
- Not using an overlay on this product qualifies as abuse, as does using harmful implements to activate the touch screen

New Extended Battery

- **Standard battery (BTRY-WT40IAB0E) is 2330 mAh minimum**
- **New extended battery (BTRY-WT40IAB0H) is 4600 mAh min.**

Backwards-compatible to all WT's, cradles, battery chargers, and wrist mounts

Requires new freezer pouch however

New WT4090 configs ship with extended batteries*



* See Solution Builder

Pop-up Navigable character keypad

To make entering characters easier, BSP35 OS version contains a pop-up character keypad, activated from the star (*) key, fully navigable by keypad



Selecting “ABC” toggles to an alphanumeric keypad

Hitting * key again toggles off the pop-up keypad

RS409 Ring Scanner

High-performance, decoded, 1D laser scan engine w/ wide scan angles

Excellent isolation of scan engine from shock

Housing designed for reduced abrasion from cardboard

Unique swivel feature for easy switch from left-handed to right-handed use

Removable finger strap assembly can be individually assigned, for hygiene

Changing it couldn't be easier!

Superb trigger ergonomics

Version with long cable for connection to hip-mounted terminal



Trigger Optimized for all Scanning Positions

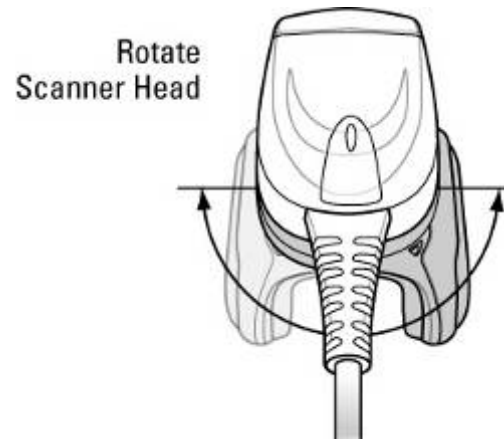
Near Field Scanning



Mid Range Scanning



Ambidextrous rotating trigger



RS409 ring scanner



RS409-SR2000ZZR, cables to wrist-mounted WT4090



RS409-SR2000ZLR, cables to hip-mounted WT4090

50-12500-073 cable clip
sold separately



Removable RS409 Ring Strap: SG-WT4023031-02R

The finger strap can easily be removed in case of damage or wear. It helps to isolate the user from the scanner and affords different users a hygiene barrier.



1.



Press down on the release tab

2.



Slide strap out

Field replaceable Trigger: SG-WT4015231-01R



The trigger is designed to exceed 1 million actuations.

Should it break, however, the trigger assembly can easily be replaced in the field for customer convenience.

Trigger assembly is part number SG-WT4015231-01R

Trigger Assembly replacement

1.



With the strap removed, you can see the rotation lock

2.



Loosen the rotation lock with a standard Philips-head screwdriver

3.



Twist the trigger assembly so that the trigger is pointing towards the exit window

4.



The trigger assembly comes off

RS309 Back-of-Hand Scanner

Select RS309 when you need:

Extended scanning range

- 7' typical for 55 mil Code 39
- 30 to 50 C operating temperature
- Freezer config has desiccant pack



SE1224 decoded scan engine

provides fuzzy logic algorithms for improved performance when scanning poor-quality barcodes

Also offered with a long cable to a hip-mounted WT4090

RS309 Back-of-Hand Scanner





RS309-HP2000ZZR
Shown with:



25-85767-01R trigger cable

25-85975-01R cable to wrist-mounted WT4000

The alternative is to use
25-85986-01R cable to hip-mounted WT4000



RS309-HP2000FZR
Comes with one desiccant kit

Desiccant replacement is
KT-41040-01R



SG-WT40240-01R Hand mount (glove) for RS309

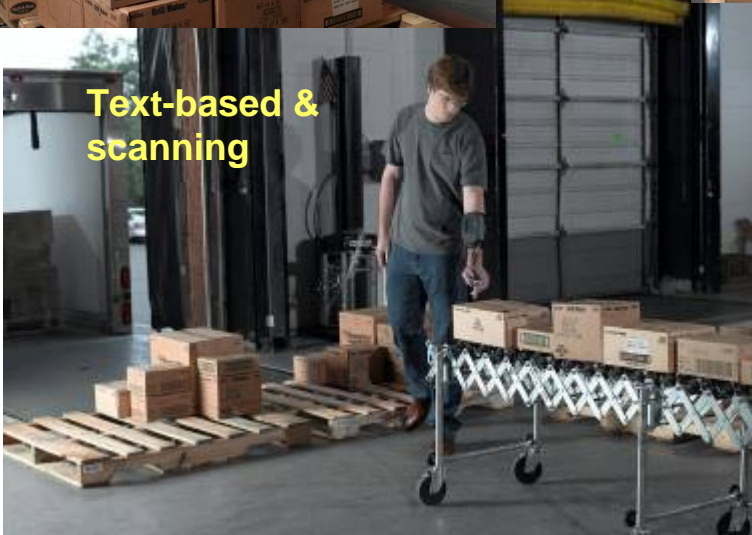


Replacement O-ring kit is
KT-36430-01



Note that topfile kits are available to buy an RS309 + accessories.
See Solution Builder

Wearing the WT4090: Multiple Options



WT4000 Modes of Use

Based on frequency of display viewing and keypad entry



Arm

Frequent keying and display viewing



Front/low

Moderate keying and display viewing



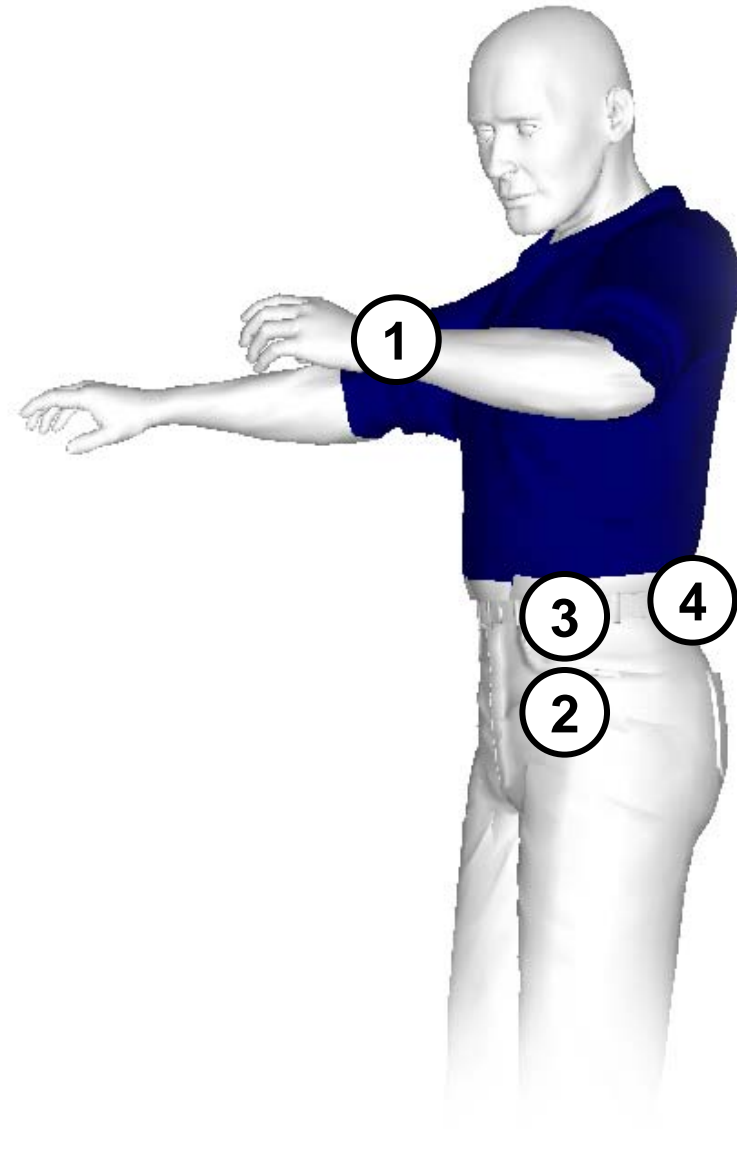
Front/belt

Occasional keying and display viewing

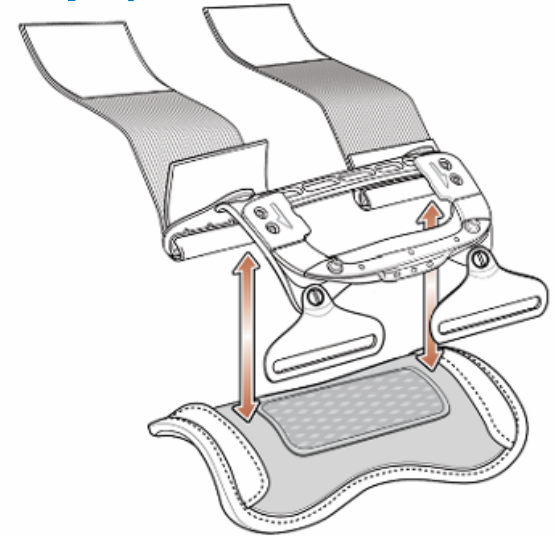


Back/belt

No keying and display viewing



Wrist Mount SG-WT4023020-03R (regular straps) and -04R (extended straps)



**Replaceable, washable pad:
SG-WT4023021-01R**



**Replaceable, washable straps:
regular length set SG-WT4023221-01R
8" and 11" (21-98686-01R & 21-98686-02R)
extended length set SG-WT4023221-02R
13" and 16" (21-98686-03R & 21-98686-04R)**



Hip Mounting



11-08062-01R belt



SG-WT4021010-01R hip mount pouch

WT4090 worn hanging at Hip (mode 2)



Spacer mounting hook point

Can use a wrist mount strap
(e.g. 21-98686-01R)



WT4090 worn at waist (mode 3&4): tilt up to see display



Belt loop created by webbing
on back of hip mount or
freezer pouch



Voice-Application Related Accessories



**Headset Adapter
25-114186-01R**



**Hip Mount
SG-WT4021010-01R**



Headset 50-11300-050R
Offered for sale as a convenience

**Customers should buy the headsets their
Voice Application Provider recommends**
➤ **Software is tuned to the headset!**

Protective Accessories

Rugged boot or “skin”

SG-WT4024000-01R

Screen Protector (overlay)

KT-114032-01R

3 pack

Freezer Pouch: allows WT4090 to
be used in meat & ice cream freezers

SG-WT4026000-01R or -20R for 2X battery

Buy belt or wrist straps separately

Do not leave suspended WT4090 in freezer



Charging Accessories

See Solution Builder for kits that contain power supplies & cables also

Single Slot Cradle:
USB communications
Spare battery slot
Ring scanner well



CRD4000-1000UR
with spare battery
BTRY-WT40IAB0E

Four Slot Cradle: Ethernet Communications



CRD4000-4000ER

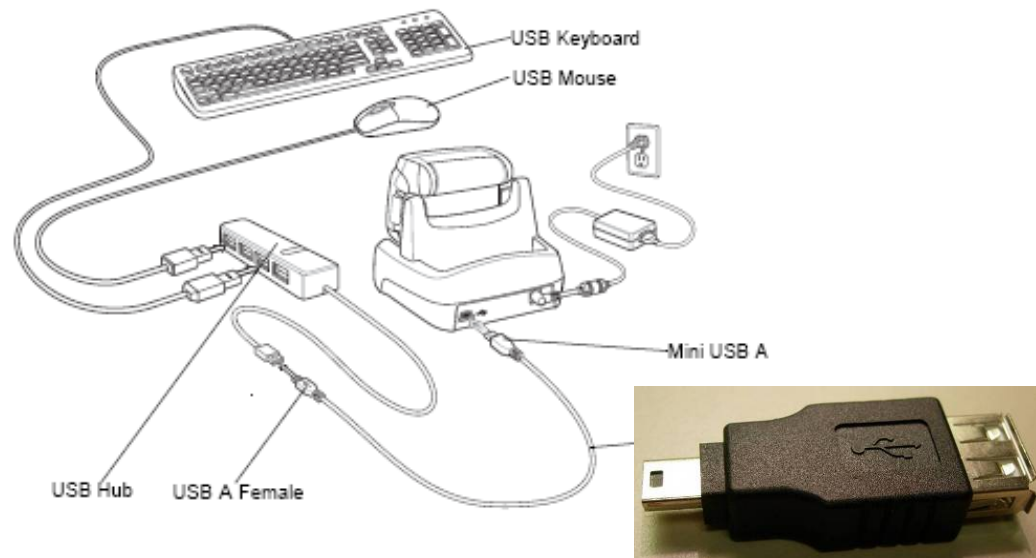
4-slot Battery Only Charger



SAC4000-4000CR

USB accessory adapter

- **Developers & administrators working with the WT4090 enjoy the use of USB peripherals off the single-slot cradle for the WT4090**

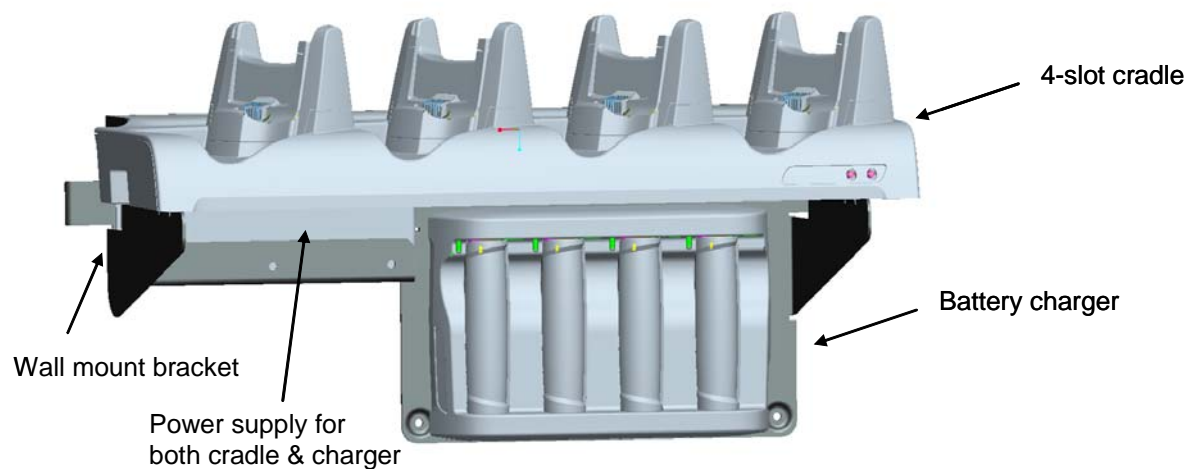


Our adapter (p/n **RDUYS08220007**) has the USB mini-A on the cradle side and the USB A Female connector required to use USB hubs, mice, keyboard, *and memory*

Developers also use Active Sync Remote Display commonly

Wall Mount for 4-slot cradle & 4-slot battery charger

KT-WT40CRD-01R contains everything except line cord & Ethernet cable



21-86630-01R
Wall mount bracket alone



Cables for charging multiple cradles off single 50-14001-004R power supply

25-85991-01R

For one 4-slot cradle + one 4-slot battery charger



25-85992-01R

For four 1-slot cradles or four 4-slot battery chargers



Recognition of superior design & ergonomics



Business & Industrial Products

WT4000 Wearable Computer

Design Credit:

Motorola - Enterprise Mobility Business

Client:

Motorola

This arm-mounted mobile computer allows warehouse workers to more efficiently fulfill orders. It consists of three devices: a computer terminal, a barcode scan ring and a hygienic arm-mount holder. The oversized trigger on the barcode scanner reduces fatigue, and because of its unobtrusive profile, it won't interfere when lifting and transporting boxes. The use of spacer fabric for the arm-mount holder allows the arm to breathe, and a stainless steel and plastic frame provides the necessary rigidity when attaching and removing the computer terminal. The large graphic display on the terminal ensures fewer mistakes, while an embedded radio automatically communicates tracking data to the warehouse, enabling rapid, just-in-time movements of inventory. Customers have reported a 30 percent increase in productivity after deploying the WT4000.



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2008 Human Factors & Ergonomics Society (HFES)/Product Design Technical Group



PRODUCT *design* TECHNICAL GROUP



News:

7th Annual User-Centered Product Design Award

Congratulations to the 2007 Winner:

The WT4000 Wearable Computer by Motorola is an arm-mounted mobile computer/scanner used by warehouse workers to pick and handle orders. Team Leader Chandra Nair, with team members Jaeho Choi and Eric Johnson accepted the award on behalf of Motorola's Innovation and Design Group.

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Picture: Jaeho Choi, Chandra Nair, and Eric Johnson of Motorola accepted the 2008 PDTG User Centered Design Award

