

# PHILIPS

Wireless PIM (WPIM) – Technical datasheet

## In touch with you

Philips Wireless Patient Interface Module (WPIM) is a technical breakthrough designed to free clinical teams by lifting the physical limitations placed upon them today in their efforts to deliver care – to truly untether diagnostic cardiography.

This advanced wireless solution expands what your clinical team is capable of by “cutting the cord” between the workstation/cardiograph and the patient. This newfound freedom of movement will make possible new ways of working in busy clinical environments like the ER.

Discover how Philips Wireless PIM can help you transform care – today and as the future unfolds.

### Key advantages

- Simultaneously pair up to 8 WPIMs, 1 wired PIM to same workstation/ cardiograph
- 15 meter (49 foot) unobstructed range
- Detailed 10 LED lead map on WPIM shows connection status of each lead
- 5 MHz-wide channel spacing for expanded bandwidth, enabling higher data rate and lower latency
- Signal resolution as fine as 1 $\mu$ V
- Best signal found via automated channel switching
- Cardiac Workstation, TC35, and ST80i stress system interchangeability
- Can be added as upgrade after workstation/cardiograph purchase



Simultaneously pair up to 8 WPIMs, 1 wired PIM to same workstation/cardiograph.

Signal resolution as fine as  $1\mu\text{V}$ .

Frequency response range of 0.02 to 300 Hz.

Best signal via automated channel switching.

Detect pace pulses as small as 0.025 mVms.

Wireless signal strength indicators on both workstation/cardiograph and WPIM.

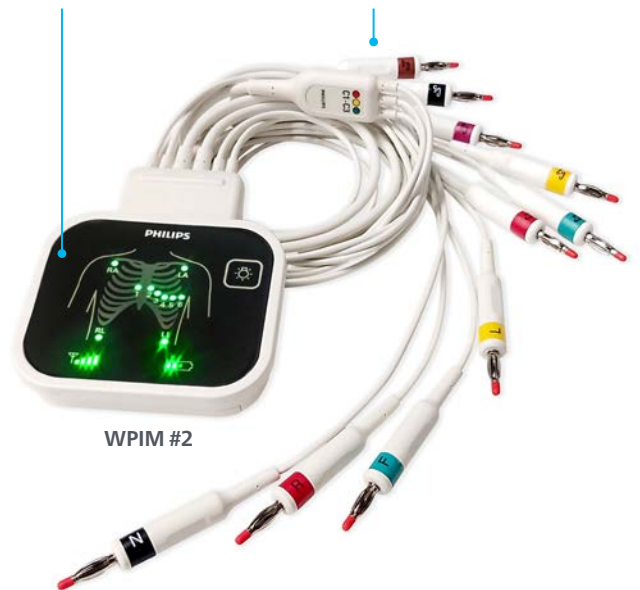
15 meter (49 foot) unobstructed range.

Detailed 10 LED lead map shows connection status of each lead.

Large 5 MHz channel spacing for expanded bandwidth.



WPIM #1



WPIM #2

- Can be added as upgrade after workstation/cardiograph purchase.
- Upgradable software for access to latest features.
- Cardiac Workstation, TC35, and ST80i Stress System interchangeability.

# Wireless PIM (WPIM) Option H25

## Features

### Hardware

|                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wireless PIMs per TC35 and Cardiac Workstation | <ul style="list-style-type: none"><li>• Simultaneously pair multiple WPIMs, 1 wired PIM to same workstation/cardiograph:<ul style="list-style-type: none"><li>– TC35: 2 WPIMs</li><li>– Cardiac Workstation 5000: 4 WPIMs</li><li>– Cardiac Workstation 7000 Option A01: 6 WPIMs</li><li>– Cardiac Workstation 7000 Option A02: 8 WPIMs</li></ul></li><li>• 1 PIM (wired or wireless) transmits to workstation/cardiograph at a given point in time</li></ul> |
| Upgradeability                                 | <ul style="list-style-type: none"><li>• Wireless PIM and Application Interface Module (AIM) firmware both upgradeable, so all deployed Wireless PIMs can access latest features</li></ul>                                                                                                                                                                                                                                                                     |
| WPIM-to-AIM distance                           | <ul style="list-style-type: none"><li>• 15 meters (49 feet) when unobstructed</li></ul>                                                                                                                                                                                                                                                                                                                                                                       |
| Pairing                                        | <ul style="list-style-type: none"><li>• No re-pairing required when switching between Wireless PIMs, Wired PIM</li></ul>                                                                                                                                                                                                                                                                                                                                      |
| Adding Wireless PIM post-sale                  | <ul style="list-style-type: none"><li>• Can be added post-sale via upgrade options H26/H27 and 860452/3 Option C06</li></ul>                                                                                                                                                                                                                                                                                                                                  |
| Interchangeability                             | <ul style="list-style-type: none"><li>• Can be used on multiple products:<ul style="list-style-type: none"><li>– ST80i Stress System</li><li>– PageWriter TC35 Cardiograph</li><li>– Cardiac Workstation 5000/7000</li></ul></li></ul>                                                                                                                                                                                                                        |
| Dedicated connection                           | <ul style="list-style-type: none"><li>• Wireless PIM only transmits to a single workstation/cardiograph or ST80i stress system at any single moment</li></ul>                                                                                                                                                                                                                                                                                                 |

### User Interface

|                                     |                                                                                                                                                                                        |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power control                       | <ul style="list-style-type: none"><li>• On/Off button</li></ul>                                                                                                                        |
| Lead map                            | <ul style="list-style-type: none"><li>• Detailed 10 LED lead map on WPIM shows connection status of each lead</li></ul>                                                                |
| Wireless signal strength indicators | <ul style="list-style-type: none"><li>• 2 wireless signal strength indicators:<ul style="list-style-type: none"><li>– On WPIM</li><li>– On workstation/cardiograph</li></ul></li></ul> |

### Clinical

|                      |                                                                                                                                                                                                                              |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reports supported    | <ul style="list-style-type: none"><li>• 12-lead, 10-sec ECG</li><li>• Rhythm print</li><li>• Disclose data capture w/ 10-sec marked events</li><li>• 1-min Disclose report</li><li>• 30/60-sec rhythm strip report</li></ul> |
| Pace pulse detection | <ul style="list-style-type: none"><li>• 0.025 mVms</li><li>• Exceeds proposed standard by 4X<sup>1</sup></li></ul>                                                                                                           |

## Technical Specifications

### ECG Capture

|                         |                                                                                                                                                                                        |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resolution              | <ul style="list-style-type: none"><li>• 1µV / least-significant bit (LSB)</li></ul>                                                                                                    |
| Instrument type         | <ul style="list-style-type: none"><li>• 12-lead wireless acquisition module for resting ECG</li></ul>                                                                                  |
| Input channels          | <ul style="list-style-type: none"><li>• 12-lead signal acquisition and transmission</li></ul>                                                                                          |
| ECG leads transmitted   | <ul style="list-style-type: none"><li>• I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5 and V6</li></ul>                                                                                 |
| Leads                   | <ul style="list-style-type: none"><li>• AAMI: RA, LA, RL, LL, V1, V2, V3, V4, V5 and V6</li><li>• IEC: R, L, N, F, C1, C2, C3, C4, C5 and C6</li><li>• Detachable lead wires</li></ul> |
| Sampling rate           | <ul style="list-style-type: none"><li>• 1,000 sample/sec/channel for recording and analysis</li></ul>                                                                                  |
| Adaptors and electrodes | <ul style="list-style-type: none"><li>• Adaptor: 3 mm (AAMI), 4 mm (IEC)</li><li>• Electrode: Tab, snap, and vacuum</li></ul>                                                          |

### Wireless Transmission

|                          |                                                                                                                                            |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| RF Type                  | <ul style="list-style-type: none"><li>• IEEE 802.15.4 standard</li></ul>                                                                   |
| Transmission protocol    | <ul style="list-style-type: none"><li>• Non-frequency-hopping wideband transmission</li></ul>                                              |
| Frequency range          | <ul style="list-style-type: none"><li>• 2400 MHz</li><li>• 6 dBm max transmission power</li></ul>                                          |
| Channel spacing          | <ul style="list-style-type: none"><li>• 5 MHz</li></ul>                                                                                    |
| Channel switching        | <ul style="list-style-type: none"><li>• Automatically determines clearest channel with higher signal strength and switches to it</li></ul> |
| RF output power          | <ul style="list-style-type: none"><li>• Typical: 3 dBm</li><li>• Maximum: 6 dBm</li></ul>                                                  |
| Antenna type             | <ul style="list-style-type: none"><li>• Chip antenna on WPIM</li><li>• External dipole antenna on AIM</li></ul>                            |
| Antenna gain             | <ul style="list-style-type: none"><li>• WPIM: 3 dBi</li><li>• AIM: 2 dBi</li></ul>                                                         |
| Defibrillator protection | <ul style="list-style-type: none"><li>• Complies to IEC 60601-2-25</li></ul>                                                               |
| Device classification    | <ul style="list-style-type: none"><li>• Type CF, battery operated</li></ul>                                                                |

### Mechanical

|            |                                                                                                                               |
|------------|-------------------------------------------------------------------------------------------------------------------------------|
| Weight     | <ul style="list-style-type: none"><li>• WPIM without lead set: 120 g (0.25 lbs)</li><li>• Lead set: 180 g (0.4 lbs)</li></ul> |
| Dimensions | <ul style="list-style-type: none"><li>• 9.0 cm x 8.6 cm x 2.2 cm (170 sq. cm)</li></ul>                                       |

### Presentation Filters

|                    |                                                                  |
|--------------------|------------------------------------------------------------------|
| Frequency response | <ul style="list-style-type: none"><li>• 0.02 to 300 Hz</li></ul> |
|--------------------|------------------------------------------------------------------|

### Electrical

|                    |                                                                                                                                                                                                                                                                                                 |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Battery capacity   | <ul style="list-style-type: none"><li>• 900 min on single AA battery</li></ul>                                                                                                                                                                                                                  |
| Alerts             | <ul style="list-style-type: none"><li>• LED indicators:<ul style="list-style-type: none"><li>– Power status</li><li>– Remaining battery charge</li></ul></li></ul>                                                                                                                              |
| Power conservation | <ul style="list-style-type: none"><li>• Power-save mode:<ul style="list-style-type: none"><li>– After 3-15 min inactivity (configurable)</li><li>– When wireless link to workstation/cardiograph is disconnected</li><li>– When the workstation/cardiograph is powered down</li></ul></li></ul> |



## Cleaning and Disinfecting<sup>2</sup>

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Branded Cleaning Solutions | <ul style="list-style-type: none"><li>• Steris Coverage Plus NPD (Quaternary Ammonium compounds mixed as one-half fluid ounce per gallon water, or one part Coverage Plus NPD to 256 parts water).</li><li>• PDI Super Sani-Cloth®</li><li>• PDI Sani-Cloth® AF3</li><li>• PDI Easy Screen Cleaning®</li><li>• Clinell Peracetic Acid Wipes</li><li>• Gama Healthcare Clinell Universal Range</li><li>• Metrex Caviwipes</li><li>• Dr. Schumacher Cleanisept Wipes</li></ul> |
| Generic Cleaning Solutions | <ul style="list-style-type: none"><li>• Mild soap and water</li><li>• Isopropyl alcohol wipes (consisting of 70% solution)</li><li>• Ethanol (ethyl alcohol) 70% (v/v)</li><li>• Chlorine bleach (5.25% sodium hypochlorite content) mixed as 3% solution in water</li><li>• Diethylene glycol butyl ether (5-10% by weight)</li><li>• Phenol 2% (volume/volume percentage)</li><li>• Ethylene glycol monobutyl ether (1-5%) with isopropanol (17%)</li></ul>                |

1. New standards for ECG equipment. Journal of Electrocardiology 57 (2019) S1–S4.

2. All trademarks, logos, and brand names referenced in this documentation are the property of their respective owners

