



**PHILIPS**

*PageWriter*

TC30 Cardiograph

**In touch  
with you**

# Intuitive and efficient

As a world leader in cardiology, we make it our goal to simplify cardiac care, so that you can deliver the best patient care. That is why we created the PageWriter TC30. Advanced, yet easy to use, the PageWriter TC30 offers speed of operation in an attractive and affordable solution that can grow with you as your workflow evolves. Expect fast, efficient clinical workflow, combined with reliable operation for you and your patients.



## **Advanced, yet easy to use**

The PageWriter TC30 cardiograph is designed for use in the demanding hospital environment as well as physician practice settings. The easy 1-2-3 operation, touchscreen display, and additional tools facilitate quality ECG reports.

- Easy-to-use 1-2-3 touchscreen operation is fast and intuitive
- Clinical Decision Support with the world-class Philips DXL ECG algorithm
- Scalable workflow to meet your needs now and in the future

The PageWriter TC30 is integrated into a rugged, compact trolley for easy mobility and storage.



### Quick and easy placement

Trident 3-in-1 chest leads reduce tangling and lead reversals, for easier placement and quicker ECGs. The anatomical Patient Interface Module mirrors the body, so clinicians can quickly connect the correct leads.



### Just touch it

Take ECGs from the large touchscreen, the keyboard, or the Patient Interface Module with a single touch of the green button.



## It is as easy as 1-2-3

User-friendly illuminated buttons speed workflow



### Connect Leads

The system will perform quality controls, in the form of lead reversal detection and lead checks (impedance).

### Enter ID

The ID button enables electronic data entry, reducing the risk of errors caused by entering information manually. Confirm ID with the barcode scanner, or the IECG or EMR interfaces.

### Take ECG

Acquire, analyze, print and transmit data with a single button. This standardizes your workflow, so that each ECG is captured and screened, and delivers critical, time-sensitive results to clinicians.



**Designed around you**

The compact system provides advanced features to support a variety of workflows for you.

# Advanced tools at your fingertips

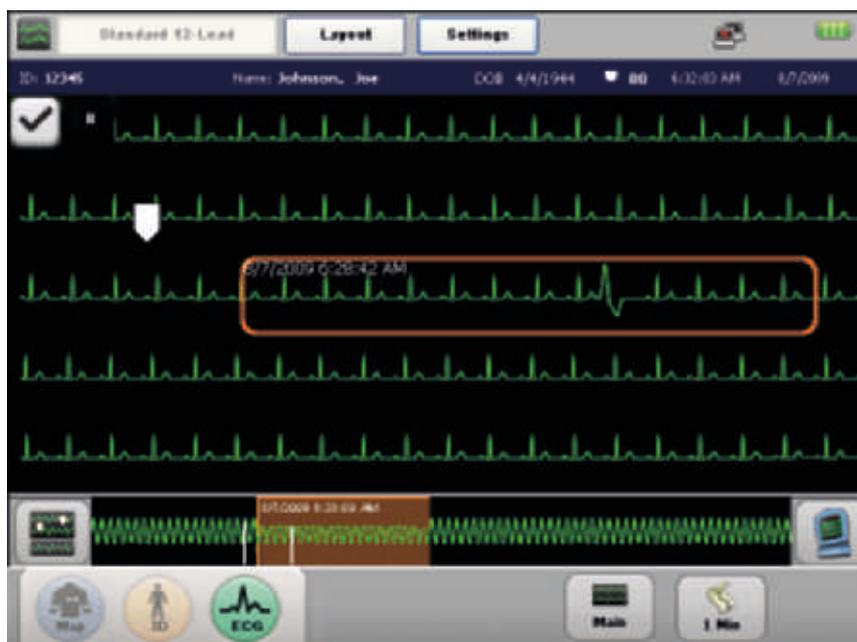
The PageWriter TC30 provides advanced tools to enhance workflow and support clinical decisions. All PageWriter TC cardiographs include the clinical excellence of the DXL ECG algorithm which is built upon over 45 years of research and experience, and provides continuity and consistency in ECG reading and diagnosis through all PageWriter products and the IntelliSpace ECG management system.

### Never miss a beat

With Disclosure, review up to five minutes of 12-lead ECG data. Mark events, select pre- and post-event ECGs for analysis, or choose the best traces for use in the ECG report. All at a touch.

### Save it

After up to 20 minutes, cardiac event data is automatically saved in a time capsule, so you do not lose sight of an important clinical episode.



IntelliSpace  
ECG Management System



### Synchronize time

Auto set the PageWriter time with your hospital time master to obtain accurate documentation of your patient's clinical history.



PageWriter TC30  
Cardiograph



### Download orders

Import ECG orders with comprehensive patient information from IntelliSpace ECG (DICOM order manager, EMR).



### CCX compliance

Support for open communication protocols like Cisco's CCX and 802.11 (a,b,g,n).

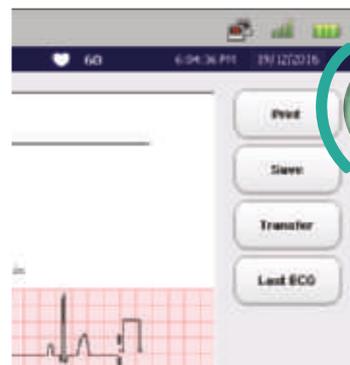
### Access ECGs anytime

Ever need a physician to read an ECG 10 minutes after they have left the hospital, or when they are 50 miles away? With TC cardiograph communications capability and IECG, your physicians can access ECGs virtually anywhere for confirmation, over-reads and consultation right around the clock.



### Instant access

Easily acquire or enter patient demographic information by barcode scanning, keyboard entry, worklist download or patient search.

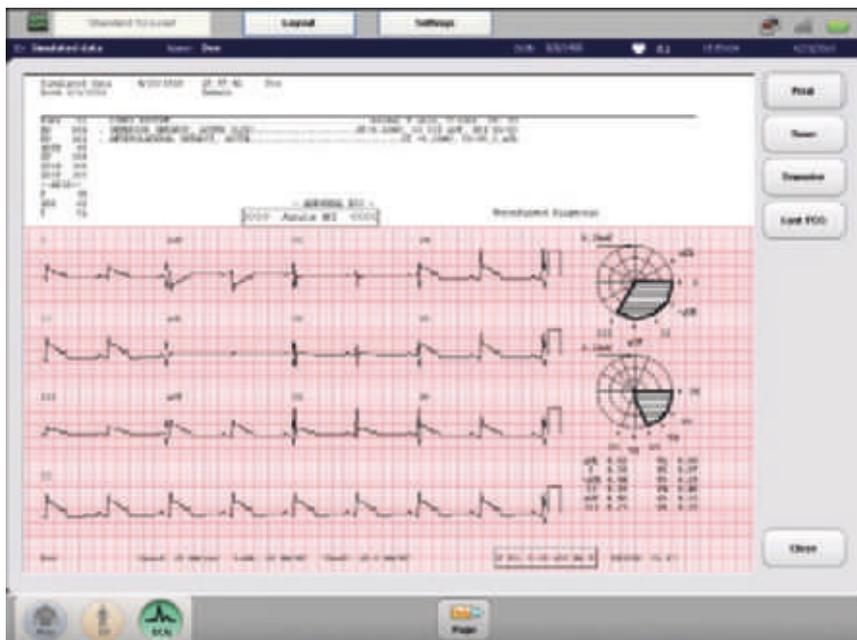


### One-touch workflow

The PageWriter TC30 can be configured to automatically print, save and transfer ECG reports – or even retrieve a previous ECG from advanced systems – with a touch of a button..

# Clarity when it matters most

Clinical decision support means the right information at the right time presented with clarity to help guide the most productive course of action. The Philips DXL 12-Lead ECG Algorithm provides industry-leading ECG interpretations, particularly with respect to pediatric analysis, pacemaker pulse detection, QT measurements, and a suite of advanced STEMI decision support tools to help guide the treatment of patients with chest pain.

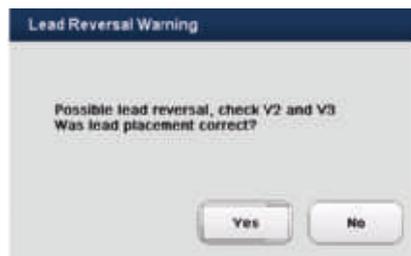


## Check and confirm quality

Preview ECG waveforms and interpretation on the 15-inch touchscreen to check for signal quality before printing.

## Be sure

Unique LeadCheck software tests for 19 different lead reversals to help you be sure of capturing a diagnostic-quality ECG.



## Reveal more

The world-class Philips DXL ECG Algorithm goes beyond traditional 12-lead interpretations to provide STEMI decision support tools and other incremental diagnostic capabilities.

## ST map

At a glance, get a clear indication of ST elevation for quick triage.

## Critical Values

Quickly identify patients that need urgent care in support of Joint Commission patient safety goals.

## STEMI-CA

Culprit artery criteria provide an indication of which artery may be occluded to help you manage your cath lab interventions.

## Clinically significant

The previous ECG can be automatically retrieved at the bedside, because a cardiac event is dynamic, with clinical decisions changing frequently during an encounter.

## Gender-accurate analysis

Differentiated criteria to help interpret cardiac symptoms in women, including identification of ischemia.

## Up-to-date statements

Enhance consistency of care with terminology that conforms to ACC/AHA recommendations.

## Higher standards achieved

The solution meets FDA requirements for pharmaceutical studies.

### Stay connected

The PageWriter TC30 fits seamlessly into your existing IT infrastructure, and supports WiFi 802.11 a/b/g/n. So you are always connected – without being locked in.

### Maintain security

The PageWriter TC30 delivers secure, wireless connectivity via standard LAN protocols like 802.11(i) and WPA2/CCMP to protect the privacy of patient, staff, and financial information.



## PageWriter TC30 benefits

### Cardiology Department Manager

- 1-2-3 buttons light in sequence to guide the user
- User aids support high-quality ECG reports
- High-performance that is cost-effective

### Emergency Department Manager

- Quickly and easily see ST elevation
- ECGs needing immediate attention highlighted
- Robust and reliable member of the proven PageWriter TC series

### Cardiologist

- Industry-leading Philips DXL ECG Algorithm
- Provides a trusted second opinion
- Advanced STEMI and NSTEMI diagnostic aids

### Nurse

- Touchscreen operation is fast and intuitive
- Trident lead wires reduce tangling and lead reversals
- Five minutes of patient ECG history are available for review and creation of ECG reports

### IT Administrator

- ECG report export in PDF or XML format
- Advanced wireless capabilities – WPA2, CCX

# Technical specifications

## ECG functions

|                               |                                                                                                                                                                           |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simultaneous lead acquisition | <ul style="list-style-type: none"><li>Up to 12 leads</li></ul>                                                                                                            |
| ECG reports: 12-lead          | <ul style="list-style-type: none"><li>3x4, 3x4 1R, 3x4 3R, 3x4 ST, 3x4 1R ST, 6x2, 12x1, 6x2 1R</li><li>Standard and Cabrera formats, plus Pan 12 Cabrera</li></ul>       |
| Rhythm strips                 | <ul style="list-style-type: none"><li>Up to 12 configurable leads</li></ul>                                                                                               |
| Event marking                 | <ul style="list-style-type: none"><li>Six independent events can be marked for later review and analysis</li></ul>                                                        |
| Full disclosure               | <ul style="list-style-type: none"><li>Five minute history of all 12 leads</li><li>Complete interpretive ECG report of any 10 seconds</li></ul>                            |
| Timed ECG                     | <ul style="list-style-type: none"><li>Support for pharma stress protocols</li></ul>                                                                                       |
| Report storage/transfer       | <ul style="list-style-type: none"><li>Full fidelity at 500 Hz of all 10 sec for all 12 leads</li><li>PDF, XML, DICOM 12-lead ECG, and DICOM General ECG formats</li></ul> |

## Philips DXL 16-lead ECG algorithm

|                                  |                                                                                                                                                                                                                 |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interpretive statements          | <ul style="list-style-type: none"><li>&gt;600 interpretive statements</li><li>Integrated pediatric analysis</li></ul>                                                                                           |
| Leads used in diagnosis          | <ul style="list-style-type: none"><li>Standard 12 leads plus V3R, V4R, V5R, V7, V8, and V9</li></ul>                                                                                                            |
| Borderline statement suppression | <ul style="list-style-type: none"><li>Three configurable settings</li></ul>                                                                                                                                     |
| Standard measurements            | <ul style="list-style-type: none"><li>Ten interval, duration, and axis measurements</li><li>Configurable QT correction method</li></ul>                                                                         |
| Extended measurements            | <ul style="list-style-type: none"><li>46 measurements of Morphology analysis in each lead; 21 parameters of Rhythm analysis</li></ul>                                                                           |
| Reasons                          | <ul style="list-style-type: none"><li>Selectable explanations of all interpretive statements</li></ul>                                                                                                          |
| Nomenclature                     | <ul style="list-style-type: none"><li>Conforms to 2009 AHA/ACCF/HRS Recommendations for the Standardization and Interpretation of the Electrocardiogram and 2013 ACCF/AHA STEMI Management Guidelines</li></ul> |

## STEMI diagnostic aids

|                     |                                                                                                                   |
|---------------------|-------------------------------------------------------------------------------------------------------------------|
| Graphical ST vector | <ul style="list-style-type: none"><li>Two ECG reports with polar ST Maps; frontal and transverse planes</li></ul> |
| STEMI-CA            | <ul style="list-style-type: none"><li>Criteria that suggest the probable site of the occlusion</li></ul>          |
| Critical values     | <ul style="list-style-type: none"><li>Highlights 4 conditions requiring immediate clinical attention</li></ul>    |

## Networked features

|                                             |                                                                                                                                                                              |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Central time management                     | <ul style="list-style-type: none"><li>Time can be manually or automatically synchronized to a network time server via IntelliSpace ECG or IntelliBridge Enterprise</li></ul> |
| Last ECG orders (requires IntelliSpace ECG) | <ul style="list-style-type: none"><li>Automated retrieval of previous ECG</li><li>Configurable rules to retrieve cardiograph-specific Worklists</li></ul>                    |

## Signal quality indicators

|                    |                                                                                                                                                   |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Leads-off advisory | <ul style="list-style-type: none"><li>Anatomical lead map displays the location and label of any loose or disconnected leads/electrodes</li></ul> |
| Lead color         | <ul style="list-style-type: none"><li>Four colors to indicate levels of waveform quality</li></ul>                                                |
| LeadCheck          | <ul style="list-style-type: none"><li>Lead placement software detects lead reversals</li></ul>                                                    |
| Heart rate         | <ul style="list-style-type: none"><li>Continuous display of patient heart rate</li></ul>                                                          |
| Print preview      | <ul style="list-style-type: none"><li>Full screen preview of ECG waveforms to print</li></ul>                                                     |

## Training

|                  |                                                                                                                                      |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Application help | <ul style="list-style-type: none"><li>Integrated graphical help screens for primary functions</li></ul>                              |
| Self paced       | <ul style="list-style-type: none"><li>PC-based, interactive, dynamic animation covering all major clinical functionalities</li></ul> |

## User interface

|             |                                                                                                                                             |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Touchscreen | <ul style="list-style-type: none"><li>1-2-3 operation</li><li>Context-sensitive application</li><li>5-wire, resistive touchscreen</li></ul> |
| Keyboard    | <ul style="list-style-type: none"><li>65-button, standard full alphanumeric keyboard</li><li>Special characters supported</li></ul>         |

## Display

|            |                                                                            |
|------------|----------------------------------------------------------------------------|
| Size       | <ul style="list-style-type: none"><li>6.5 inch TFT active matrix</li></ul> |
| Resolution | <ul style="list-style-type: none"><li>640 x 480 VGA</li></ul>              |
| Colors     | <ul style="list-style-type: none"><li>64K colors</li></ul>                 |

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### Signal processing

|                          |                                                                            |
|--------------------------|----------------------------------------------------------------------------|
| Sampling rate            | • 8,000 samples per second per lead wire                                   |
| Patient Interface Module | • Remote, microprocessor-controlled digital module provides 5µV resolution |

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### Printer

|              |                                                                                                                                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------|
| Resolution   | • High-resolution, digital-array printer using thermal-sensitive paper; 200 dpi (voltage axis) by 500 dpi (time axis) at 25 mm/s |
| Paper sizes: | • Z-fold letter and A4                                                                                                           |

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### Connectivity

|                                                 |                                                                  |
|-------------------------------------------------|------------------------------------------------------------------|
| Modem (option H11)                              | • V.90, K56flex, enhanced V.34, V.32bis, V.32, V.22bis and below |
| Fax (included in H11)                           | • Group 3, Class 1 or 2 fax modem protocol                       |
| LAN connectivity                                | • 10/100 Base-TX IEEE 802.3 Ethernet via on-board RJ45           |
| Wireless connectivity and security (option D24) | • 802.11 (a/b/g/n) 802.11(i), WPA, WEP, WPA2                     |
| Internal storage                                | • 200 ECGs                                                       |
| External storage                                | • 200 ECGs with optional USB device                              |

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### Automated data input

|                                     |                                                                |
|-------------------------------------|----------------------------------------------------------------|
| Barcode reader (option H17)         | • Reads Code 39 Symbology<br>• Flexible field data entry       |
| Smart "IC" card reader (option H14) | • ISO 7816 and EMV 3.1.1; supports SLE 4418/28 and SLE 4443/42 |

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### Pre-processing filters

|                   |                                          |
|-------------------|------------------------------------------|
| AC noise          | • 50 or 60 Hz                            |
| Signal processing | • Artifact rejection and baseline wander |

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### Presentation filters – 10 sec reports

|           |                          |
|-----------|--------------------------|
| High pass | • 0.05, 0.15, and 0.5 Hz |
| Low pass  | • 40, 100, and 150 Hz    |

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### Presentation filters – rhythm

|           |                       |
|-----------|-----------------------|
| High pass | • 0.05 and 0.15 Hz    |
| Low pass  | • 40, 100, and 150 Hz |

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### Electrical

|                   |                                                                                                                                 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Battery           | • Lithium ion                                                                                                                   |
| Battery capacity  | • Typically 30 ECGs on a single charge or 30 minutes of continuous rhythm recording;<br>• No fail operation during ECG printing |
| Battery recharge  | • 4 hours to full capacity                                                                                                      |
| AC power          | • 100–240 Vac, 50/60 Hz                                                                                                         |
| Power consumption | • 60 W max                                                                                                                      |

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### Mechanical

|            |                                                                                                                    |
|------------|--------------------------------------------------------------------------------------------------------------------|
| Dimensions | • 31 x 40 x 21 cm (12 x 16 x 8 in)                                                                                 |
| Weight     | • 8.6 kg (19 lb)<br>• Includes battery, patient module, lead wires, alligator clips, electrode pack and paper pack |

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### Environmental

|                      |                                                                                                                                |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Operating conditions | • 10° to 40°C (50°F to 104°F);<br>• 10% to 90% relative humidity (non-condensing);<br>• Up to 4,200 m (14,000 ft) altitude     |
| Storage conditions   | • (-20°C to 50°C) (-4°F to 122°F);<br>• 10% to 90% relative humidity (non-condensing);<br>• Up to 4,274 m (14,000 ft) altitude |

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### Safety and performance

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| International standards and regulations | • General requirement for safety IEC 60601-1: 1988 +A1:1991 +A2:1995<br>• Particular requirement for safety of electrocardiographs IEC 60601-2-25: 1993 + A1:1999<br>• Particular requirements for safety IEC 60601-2-51: 2003<br>• US general requirements for safety UL 2601-1: 2003 1997<br>• Diagnostic electrocardiographic devices AAMI EC11 1991 (R: 2001)<br>• CAN/CSA-C22.2 No. 601.1-M90 S1:1994 B:1996<br>• Electromagnetic compatibility IEC 60601-1-2 second edition 2001 |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

