

PHILIPS

PageWriter

TC35 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 treatment for your patients. That is why we created the PageWriter TC35.

Advanced, yet easy to use, the PageWriter TC35 offers speed of operation in an attractive and affordable solution that can grow with you as your needs evolve.

Expect fast, efficient clinical workflow, combined with reliable operation for you and your patients.



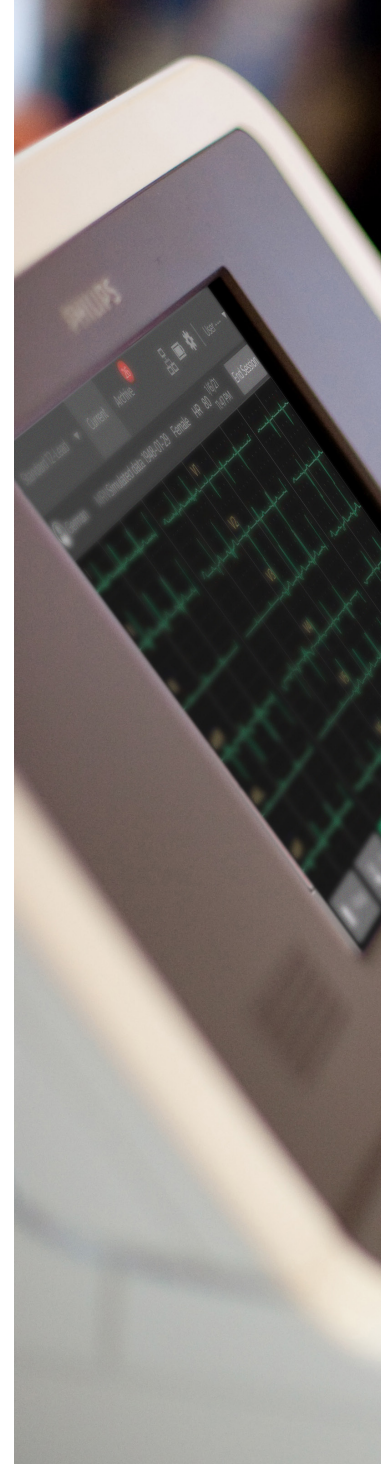
Advanced, yet easy to use

The PageWriter TC35 cardiograph is designed for use in the demanding hospital environment as well as clinic 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
- Scalability to meet your needs now and in the future
- Integrated into a rugged, compact trolley for easy mobility and storage

- WLAN WiFi 5 speed (802.11 b/a/g/n/ac)
- WLAN security: WPA3 (Personal)/WPA2 (Enterprise)
- Detect pace pulse as small as 0.02 mVms
- Runs on battery for 13.9 hours
- 300 Hz low-pass filter for pediatrics
- Native DICOM support for worklist downloads
- Retrieve previous ECG automatically at bedside
- Export DICOM ECGs to existing PACs, EMR and VNA systems

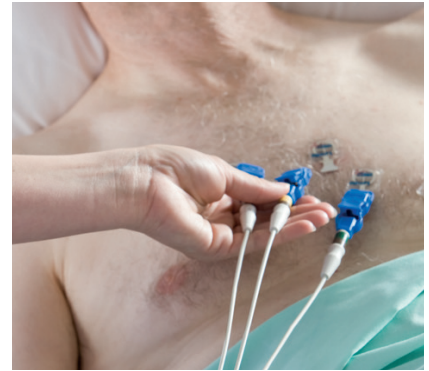
The result — a fast, efficient and advanced clinical workflow with reliable operation for you and your patients.





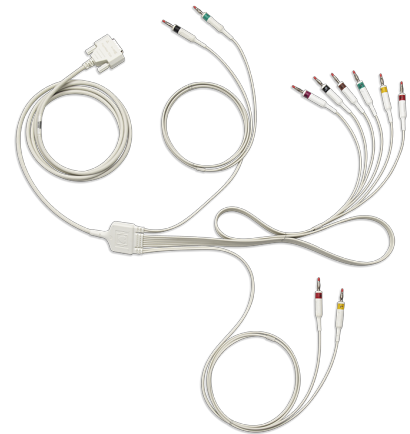
Simple Placement

The compact leadset's simple, streamlined design enables ECG quality to be maintained even in the face of staff turnover.



Rugged and Economic

Seamless design of the compact leadset means fewer equipment connections for staff to check and manage. Streamlined design enables economic replacement in high-volume environments.



It is as easy as 1-2-3

User-friendly illuminated buttons speed workflow



Connect Leads

Waveforms are color-coded to indicate signal quality.

Enter ID

The ID button enables entry of demographic information. Reduce the risk of errors by automating entry with the barcode scanner, or with Intellispace ECG, EMR, or PACS interfaces.

Take ECG

Acquire, analyze, print and export 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 TC35 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 55 years of research and experience, and provides continuity and consistency in ECG reading and diagnosis through all PageWriter cardiographs, the IntelliSpace ECG management system, and other Philips solutions throughout the healthcare enterprise.



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.

Extended View

Previous events, captured more than 5 minutes in the past, are saved and can be reviewed and printed as 12-lead ECGs.



IntelliSpace ECG Management System



Synchronize time

Auto set the PageWriter time with your institution's time master to help ensure accurate documentation of your patient's clinical history.



PageWriter TC35 Cardiograph

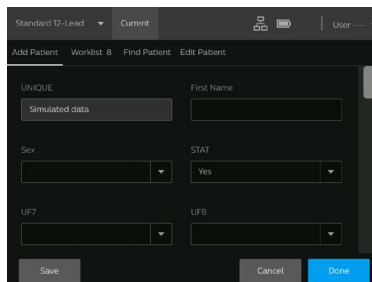
Download orders

Import ECG orders with comprehensive patient information from IntelliSpace ECG, PACS, or EMR, via HL7 or DICOM.



WiFi 5 speed and WPA3 security

Support for open communication protocols 802.11 (b/a/g/n/ac).

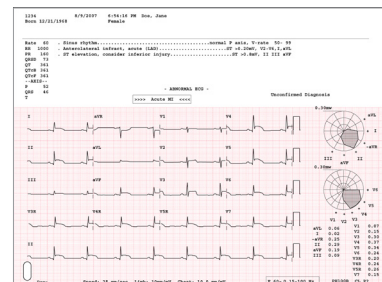


Access ECGs anytime

Ever need a physician to read an ECG 10 minutes after they have left the hospital, or when they are 50 miles away? With the PageWriter TC35 and IntelliSpace ECG, your clinicians can access ECGs from virtually anywhere via the web-based ECG Anywhere app. Viewing, confirming, consulting - on your schedule.

Instant access

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

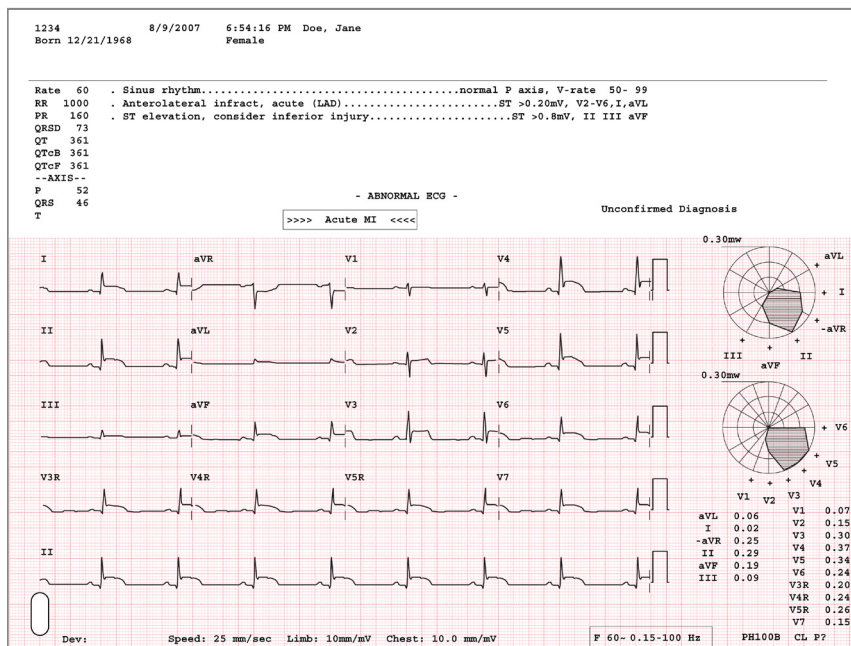


One-touch workflow

The PageWriter TC35 can be configured to automatically save, export, or print ECG reports - 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 ECG Algorithm provides industry-leading ECG interpretations, particularly with respect to advanced STEMI decision support tools, pediatric analysis, QT measurements, and pacemaker pulse detection to help guide the treatment of patients with chest pain.



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.

Gender and age criteria

Criteria differentiated based upon gender and age, helping interpret symptoms for specific patients.

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 clinical treatment.

ST Map

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

Up-to-date statements

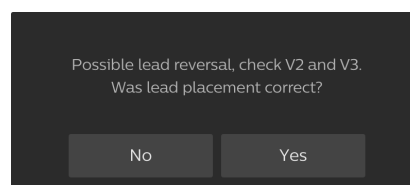
Enhance consistency of care with terminology that conforms to ACC/AHA recommendations.

Check and confirm quality

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

Be sure

Patented LeadCheck software tests for 20 different lead reversals to help you be sure of capturing a diagnostic-quality ECG.



Stay connected

The PageWriter TC35 fits seamlessly into your existing IT infrastructure, and supports WiFi 5 802.11 b/a/g/n/ac. So you are always connected – without being locked in.

Lock it down

Built into the PageWriter TC35 is a comprehensive set of security tools, including secure and encrypted wireless WPA3 (Personal) communication, data encryption at rest, and support for user identification via Active Directory.



PageWriter TC35 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 member of the proven PageWriter TC series
- 13.9 hours of normal operational cycles on a single charge

Cardiologist

- Industry-leading Philips DXL ECG Algorithm
- Provides a trusted second opinion
- Advanced STEMI and NSTEMI diagnostic aids
- Pace pulse detection as small as 0.02 mVms
- 300 Hz low-pass filter for pediatrics is standard

Technician and Nurse

- Touchscreen operation is fast and intuitive
- Five minutes of patient ECG history are available for review and creation of ECG reports

IT Administrator

- ECG report export in XML, PDF, or DICOM format
- Advanced WiFi 5 wireless capabilities – 802.11 (b/a/g/n/ac), WPA3 (Personal), WPA2 (Enterprise)
- Advanced security provisions
- Extensive interoperability options

PageWriter TC35 Cardiograph (860437)

Features

ECG functions

Simultaneous lead acquisition	12 leads
ECG reports	3x4, 3x4 1R, 3x4 3R, 3x4 1R plus ST maps, 6x2, 12x1 Standard and Cabrera formats, plus Pan 12 Cabrera
Standard measurements	<ul style="list-style-type: none">• Ten interval, duration, and axis measurements• Configurable QT correction method
Rhythm strips	Up to 12 configurable leads
Disclosure (D05)	<ul style="list-style-type: none">• Five-minute history of all 12 leads• Complete ECG report of any selected 10 seconds
Event marking (D05)	<ul style="list-style-type: none">• Six independent events can be marked for later review and analysis• Event markers appear on ECG reports• Note can be added for each event
Timed ECG	Support for pharma stress protocols
Report storage and transfer	Full fidelity at 1000Hz of 10 seconds for all 12 leads
Data format	PDF, Philips XML, DICOM General ECG/DICOM 12-Lead ECG/DICOM Encapsulated PDF formats
Pace Pulse Detection	0.02 mVms (e.g., 0.2 mV*0.1ms pulse or 0.1mV*0.2ms pulse)

DXL ECG Algorithm (D03)

Interpretive statements	<ul style="list-style-type: none">• >600 interpretive statements• Integrated pediatric analysis
Borderline statement suppression	Three configurable settings
Extended measurements	<ul style="list-style-type: none">• 46 measurements of morphology analysis in each of the 12 leads• 21 parameters of rhythm analysis
Reasons	Selectable explanations of all interpretive statements
Nomenclature	Aligned with 2007 AHA/ACCF/HRS Recommendations, Part II ²

STEMI diagnostic aids

Graphical ST presentation	<ul style="list-style-type: none">• Two ECG reports with polar ST Maps• Frontal and transverse planes
Age and gender criteria (D03)	Based upon Fourth Universal Definition of Myocardial Infarction, 2018 ¹
STEMI-CA (Culprit Artery) (D03)	<ul style="list-style-type: none">• Criteria that suggest any of four probable sites of the occluded coronary artery• Based upon 2009 AHA/ACCF/HRS Recommendations, Part VI⁵
Critical Values (D03)	Highlights four conditions requiring immediate clinical attention

QRS Correction

QTc Measurements	Bazett Fridericia Hodges Framingham
Correction of QT interval & QRS duration	Rautaharju

Advanced bi-directional network communications³

Central time management	Time can be manually or automatically synchronized to a Network Time Server
Orders worklist (D01)	<ul style="list-style-type: none">• Download of orders worklist from networked server• User-configurable drop down lists (e.g., by location)• Ad-hoc query for specific orders based upon multiple user-entered or scanned search criteria (e.g., patient ID, last/ first name)• Supported by Open Worklist with IntelliBridge Enterprise and select departmental systems• Supported by HL7 interface via IntelliBridge Enterprise• Supported by DICOM Modality Worklist
ADT (D02)	<ul style="list-style-type: none">• Query and retrieval of patient demographic information• Based upon user-entered or scanned search criteria (e.g., patient ID, last/ first name)• Supported by standard HL7 interface via IntelliBridge Enterprise for hospital systems
DICOM ECG result output (D08)	<ul style="list-style-type: none">• Create DICOM 12-lead ECG• Create DICOM General ECG• DICOM Encapsulated PDF

Privacy and Security

User authentication	via AD/LDAP
Data encryption at rest	SHA-256 and AES-128
Network access initiated only by PageWriter	
Network communications	TLS 1.2 or greater
Security configuration capabilities behind customer-defined password	<ul style="list-style-type: none">• USB port access (on/off)• HTTP, HTTPS• Encryption at rest (on/off)• Delete archived ECG after transfer (on/off)• User Authentication (on/off)• Consistent security approach across PageWriter TC series – TC70, TC50, TC35, TC30, TC20, TC10• Device Management Dashboard available to manage configurations and software revisions centrally

Signal quality indicators

Leads-off advisory	Anatomical lead map displays the location and label of loose or disconnected leads/electrodes
Lead color	Four colors to indicate quality of individual leads
LeadCheck	Lead-placement software detects 20 different lead reversals
Heart rate	Continuous display of patient heart rate
Print preview	Full-screen preview of ECG waveforms prior to printing and export

User training and self help

Training mode	Integrated waveform simulation
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User interface

Touchscreen	<ul style="list-style-type: none">• 1-2-3 operation• Five-wire, resistive touchscreen
Keyboard	<ul style="list-style-type: none">• Backlit 1-2-3 buttons• 65-button, standard full alphanumeric keyboard• Special characters supported
Membrane keyboard cover	Silicone-based flexible cover protects keyboard from particulate and liquid ingress

Technical Specifications

Display

Size	6.5in TFT active matrix
Resolution	640 × 480 VGA
Colors	64K colors
Screen adjustability	18 degrees tilt

Patient connections

Integrated lead set	<ul style="list-style-type: none">• Defib-protected ECG acquisition provides 1μV resolution• Acquire data at 8,000 samples per second, per lead wire
Long lead set (H23)	Extended-length lead wires enable greater distances between the cardiograph and the patient connections

End connectors (adaptors)

Welsh bulbs (E04)	Six Welsh bulbs and four limb clamps
Snap/Tab adaptor (E06)	Fits both snap and tab electrodes with metal on both sides

Printer

Resolution	High-resolution, digital-array printer using thermal-sensitive paper; 200dpi (voltage axis) by 500dpi (time axis) at 25mm/sec
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Connectivity

LAN	10/100 Base-TX IEEE 802.3 ethernet via on-board RJ45
Wireless (D24)	802.11 b/a/g/n/ac (WiFi 5)
Wireless credential (D24)	WPA3 (Personal) WPA2 (Enterprise)
FIPS	Communication supported by FIPS 140-2 certified encryption algorithm
Archive / Internal storage (D06)	200 ECGs
External storage (D06)	200 ECGs with optional USB device

Automated data input

1D Bar code reader (H12)	<ul style="list-style-type: none">• Reads Code 39 Symbology• Reads up to 80 characters
2D Barcode reader (H17)	<ul style="list-style-type: none">• High scan speed• Motion tolerance• Curved surfaces

Configurable filters

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

Presentation filters – 10 sec reports

High pass	0.02, 0.05, and 0.15Hz
Low pass	40, 100, 150 and 300Hz

Presentation filters – rhythm

High pass	0.02, 0.05 and 0.15Hz
Low pass	40, 100, 150 and 300Hz

Electrical

Battery	Lithium ion
Battery capacity ⁴	<ul style="list-style-type: none">• 10 hours of continuous operation without printing, or• 13.9 hours of normal operational cycles (7 minutes run, 1-page print, 8 minutes standby), or• 55 ECGs produced during normal operational cycles, or• 3 hours of continuous rhythm printing
Battery recharge	Four hours to full capacity
Main power	100-240VAC, 50/60Hz
Power consumption	60W max

Technical Specifications

Battery Management Statistics

Statistics	<ul style="list-style-type: none">• Current status• Voltage• Expected max error (%) of charge calculation• Predicted capacity when fully charged• Remaining capacity in mAh• Current charge and state of health %	<ul style="list-style-type: none">• Charge current: value while charging• Discharge current: value while discharging• Cycle count: number of full charge and discharge cycles• Temperature• Battery unique ID, supplier information, device name, DOM, and SN
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Mechanical

Dimensions	31 × 40 × 21cm (12 × 16 × 8in)
Weight	8.6kg (19lb) includes battery, lead wires, clips, electrode pack, and paper pack

Cleaning and disinfecting

Approved solutions	<ul style="list-style-type: none">• Mild soap and water• Isopropyl alcohol (consisting of 70% solution)• Chlorine bleach (5.25% sodium hypochlorite content) mixed as 3% solution in water• Quaternary ammonium compounds such as Steris Coverage Plus NPD, 0.5 fluid oz/1 gallon water	<ul style="list-style-type: none">• Diethylene glycol butyl ether (5-10% by weight)• Ethanol (ethyl alcohol) 70% (v/v)• Metrex CaviWipes® Disinfectant• Phenol 2% (v/v)• Gama Healthcare Clinell® Universal Range Disinfectant
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Environmental

Operating conditions	<ul style="list-style-type: none">• 10° to 40°C (50°F to 104°F)• 10% to 90% relative humidity (non-condensing)• Up to 3,048 m (10,000 ft) altitude
Storage conditions	-20°C to 50°C (-4°F to 122°F) 10% to 90% relative humidity (non-condensing) Up to 4,572 m (15,000 ft) altitude


Safety and performance

International standards and regulations	<ul style="list-style-type: none">• General Requirement for Safety IEC 60601-1: 2005+A1:2012• Particular Requirement for Safety of Electrocardiographs IEC 60601-2-25 2011 Edition 2.0• Electromagnetic Compatibility IEC60601-1-2 2014
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1. Fourth Universal Definition of Myocardial Infarction. Circulation 2018; 138 (2): pg e618-e651.
2. AHA/ACCF/HRS Recommendations for the Standardization and Interpretation of the Electrocardiogram, Part II: Electrocardiography Diagnostic Statement List. J Am Coll Cardiology, 2007; 49:1128-135.
3. When networked with select hospital and departmental solutions; refer to supplier specifications
4. Performance can vary in different environmental conditions
5. AHA/ACCF/HRS Recommendations for the Standardization and Interpretation of the Electrocardiogram, Part V1: Acute Ischemia/Infarction. Circulation. 2009; 119:e262-e270





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