The confident touch

Philips PageWriter TC20 cardiograph

The PageWriter TC20 is advanced, easy to use, and affordable while still supporting your evolving workflow needs. The 1-2-3 touch operation leads you through acquisition, analysis, storage, printing, and accessing previous ECGs with ease. Further enhancing efficiency, worklists and patient demographics can be downloaded using wired or wireless LAN via standard XML, HL7, and DICOM communications. PageWriter's native DICOM interoperability provides direct access to ECG orders from your current DICOM MWL provider and storage of resulting DICOM format ECGs to your existing PACS. The TC20 also provides the world class DXL Algorithm with industry leading clinical decision support.

DXL

Key advantages

• Easy 1-2-3 touch operation

• Automated workflow with one-button push via XML, H17, and native industry-standard DICOM

• Clinical decision support with exceptional DXL ECG Algorithm

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Features

PageWriter TC20 Cardiograph (860332)

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	• Ten interval, duration, and axis measurements • Configurable QT correction method
Rhythm strips	Up to 12 configurable leads
Disclosure (D05)	• Five-minute history of all 12 leads • Complete ECG report of any selected 10 seconds
Event marking (D05)	• Six independent events can be marked for later review and analysis • Event markers appear on ECG reports
Timed ECG	Support for pharma stress protocols
Report storage and transfer	Full fidelity at 500Hz of 10 seconds for all 12 leads
Data format	PDF, XML, DICOM 12-lead ECG, and DICOM General ECG formats

DXL ECG Algorithm (D03)

Interpretive statements	• >600 interpretive statements • Integrated pediatric analysis
Borderline statement suppression	Three configurable settings
Extended measurements	• 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[1]

STEMI diagnostic aids

Graphical ST presentation	• Two ECG reports with polar ST Maps • Frontal and transverse planes
Age and gender criteria (D03)	Based upon 2009 AHA/ACCF/HRS Recommendations, Part VI: Acute Ischemia/Infarction[2]
STEMI-CA (Culprit Artery) (D03)	• Criteria that suggest any of four probable sites of the occluded coronary artery • Based upon 2009 AHA/ACCF/HRS Recommendations, Part VI[2]
Critical values (D03)	Highlights four conditions requiring immediate clinical attention

Advanced bi-directional network communications[3]

Central time management (D01)	Time can be manually or automatically synchronized to a Network Time Server via IntelliSpace ECG or IntelliBridge Enterprise
Orders worklist (D01)	• Download of orders worklist from networked server • User-configurable drop down lists (e.g., by location, user, or shift) • 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 IntelliSpace ECG and select departmental systems • Supported by standard HL7 and DICOM interfaces via IntelliBridge Enterprise for departmental and hospital systems
ADT (D02)	• 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
Last ECG (D06)	• Automatic retrieval of previous ECG or list of available ECGs for current patient • Supported by IntelliSpace ECG
Interactive query (D06)	• Retrieval of selected ECGs based upon user-entered search criteria • Supported by IntelliSpace ECG
Manual orders (D07)	Create patient worklists with complete demographic information for later retrieval
DICOM ECG Output (D08)	• Create DICOM 12-lead ECG • Generate DICOM General ECG

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

User training and self help

Application help	Integrated graphical help for primary functions
Self-paced training	PC-based, interactive, dynamic animation covering all major clinical functions
Training mode	Integrated waveform simulation

1 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.
2 AHA/ACCF/HRS Recommendations for the Standardization and Interpretation of the Electrocardiogram, Part VI: Acute Ischemia/Infarction. Circulation, 2009; 119:e262-e270.

3 When networked with select hospital and departmental solutions; refer to supplier specifications

Technical specifications

User interface	
Touchscreen	• 1-2-3 operation • Context-sensitive application • Five-wire, resistive touchscreen
Keyboard	• 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

Display	
Size	6.5in TFT active matrix
Resolution	640 x 480 VGA
Colors	64K colors

Patient connections	
Patient cable	Acquire data at 8,000 samples/second on each patient connection
Long patient cable (H23)	Extended-length lead wires enable greater distances between the patient cable and the patient connections

End connectors (adaptors)	
Alligator clips (E01)	Alligator clips for tab electrodes
Wide tab (E02)	Flat adaptor for tab electrodes reduces twisting (AAMI only)
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

Connectivity	
LAN (D20)	10/100 Base-TX IEEE 802.3 ethernet via on-board RJ45
Wireless LAN (D23)	802.11(b/g)
Internal storage (D06)	200 ECGs
External storage (D06)	200 ECGs with optional USB device

Automated data input	
Bar code reader (H12)	• Reads Code 39 Symbology • Flexible field data entry
Smart "IC" card reader (H14)	• ISO 7816 and EMV 3.1.1 • Supports SLE 4418/28 and SLE 4443/42

Pre-processing filters	
AC noise	50 or 60Hz
Signal processing	Artifact Rejection and Baseline Wander

Presentation filters – 10 sec reports	
High pass	0.05, 0.15, and 0.5Hz
Low pass	40, 100, and 150Hz

Presentation filters – rhythm	
High pass	0.05 and 0.15Hz
Low pass	40, 100, and 150Hz

Electrical	
Battery	Lithium ion
Battery capacity	• Typically 30 ECGs or 30 minutes of continuous rhythm recording on a full charge • No fail operation during ECG printing
Battery recharge	Four hours to full capacity
Main power	100-240 VAC, 50/60 Hz
Power consumption	60 W max

Mechanical	
Dimensions	31 x 40 x 21cm (12 x 16 x 8in)
Weight	8.6kg (19lb) includes battery, patient cable

Environmental	
Operating conditions	• 10° to 40°C (50°F to 104°F) • 10% to 90% relative humidity (non-condensing) • Up to 4,200m (14,000ft) altitude
Storage conditions	• -20°C to 50°C (-4°F to 122°F) • 10% to 90% relative humidity (non-condensing) • Up to 4,550m (15,000ft) altitude

Safety and performance	
International standards and regulations	• General Requirement for Safety IEC 60601-1: 1988 +A1:1991 +A2:1995 • Particular Requirement for Safety of Electrocardiographs IEC 60601-2-25: 1993 + A1:1999 • Particular Requirements for Safety IEC 60601-2-51: 2003 • US General Requirements for Safety UL 2601-1: 2003 1997 • Diagnostic Electrocardiographic Devices AAMI EC11 1991 (R: 2001) • CAN/CSA-C22.2 No. 601.1-M90 S1:1994 B:1996 • Electromagnetic compatibility IEC 60601-1-2 second edition 2001

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