

Nicolet Monitor

ICU Monitor System

Specifications



General Specifications

Isolated Power Supply Internal power supply, medical grade
Max output: 300W, Input 100-240V 60-50Hz

17" Panel PC

Dimensions 43.7x37.7x13.1 cm (17.20" W x 14.84" H x 5.15" D)
Weight 10.5 kg (23.3lb)

19" Panel PC

Dimensions 47.2x41.6x12.4 cm (18.56" W x 16.38" H x 4.87" D)
Weight 10.5 kg

Operating Environment (in use)

Temperature 0-40°C;

Relative Humidity 10-95% @40°C non-condensing

Water/dust Resistance IPX1 water resistant enclosure with additional IP 65 dust-tight front panel

Panel PCs designed for cart-mount/wall-mount/ceiling mount

Bipolar Inputs

Number of Inputs All odd channels: 32/64 inputs can be configured as Bipolar AC in pairs of two through software

Maximum Input Range ± 5 mV AC

Bandwidth 0.16 – 500 Hz AC

ADC Resolution 0.153 μ V AC

Auxiliary Inputs

4 Hi-level, non-isolated inputs (AI-1, AI-2, AI-3, AI-4) for connection of external devices (e.g. SpO₂, CO₂ monitors, etc.)

Analog/Digital Converter 16 bits

Maximum Input Range ± 2.5 V

ADC Resolution 76.3 μ V

Bandwidth DC – 500 Hz

EEG Display

Sec/Page 2, 4, 5, 6, 10, 15, 20, 30, 60, 120, 240, 300, 600, 1200

mm/Sec 6, 8, 10, 15, 30, 60, 120, 240

CareFusion

Middleton WI

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Panel Computer

17" Panel PC

CPU Intel® Core™ 2 Duo 2.16 GHz Processor (Windows 7 capable)

Memory 2 GB RAM

Operating System Microsoft® Windows® XP Professional

User Interface Keyboard and mouse, or keyboard and touchpad or touchscreen

Hard Drive 250 GB

DVD RW Optical

I/O Ports (4) RS-232, (4) USB 2.0, (1) 1394b (firewire), (1) PS/2 mouse/keyboard, (1) DVI-IVGA

Network (LAN) 2-1GB Ethernet interfaces

Display 17" Touchscreen color LCD

Resolution 1280 x 1024

Speakers 2x1 W speakers; 1xMic-in and speaker-out

Audio Control Buttons

Identification 1x Smart Card Reader

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Amplifiers (Acquisition Only)

C32/C64 Amplifier/C64 OR Amplifier

Analog/Digital Converter 22 bit (16 stored)

ADC Resolution Voltage = 0.153 μ V

Channels (Inputs) 32/64 channels

DC Offset Tolerance ± 220 mV; ± 600 mV C64OR, C64ORSSU

Maximum Input Range ± 5 mV

Bandwidth 0.16-500 Hz; 1.6-500 Hz C64OR, C64ORSSU

Noise $\leq 2\mu$ V pk-pk @ 0.16 - 70Hz

Input Impedance >100 M Ω

CMRR at Patient Inputs > 110 dB @ 0.16 – 70 Hz with active patient ground connected

NOTE: The following are under software control:

Anti-aliasing Filter Cut-off Frequencies 33, 67, 134 and 268 Hz

Amplifier Sample Rate

128, 256, 512 and 1024 (Software sub-sampling for individual channels)

Sensitivity

10, 20, 30, 50, 70, 100, 150, 200, 300, 500, 700, 1000, 2000, 5000 μ V/cm

1, 2, 3, 5, 7, 10, 15, 20, 30, 50, 70, 100, 200, 500 μ V/mm

High Filters Off, 10, 15, 25, 30, 35, 40, 50, 60, 70, 100, 150, 200, 300, 500, 1000, 1500 Hz

Low Filters Off, 0.16, 0.3, 0.5, 1, 1.6, 2, 3, 5 Hz

0.2, 0.33, 0.5, 0.625, 1, 2, 3.3, 6.2 seconds

Notch Filter Off, 50/60 Hz



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v32 Amplifier

Analog/Digital Converter 16 bits
ADC Resolution Voltage = 0.153 μ V
DC Offset Tolerance \pm 340 mV
Channels (Inputs) 32 EEG configurable as bipolar AC (24-32), 1 configurable as DC (32)
Maximum Input Range \pm 5 mV
Bandwidth 0.053 - 500 Hz
Noise < 1.5 μ V pk-pk @ 0.1 - 100 Hz
Input Impedance > 100 M Ω (common mode)
CMRR at Patient Inputs > 115 dB @ 50 - 60 Hz, with active patient ground connected
Channel Crosstalk < -40 dB
Amplifier Sample Rate (under software control) 125, 250, 500, 1000, 2000
Calibration Square wave, 1, 5, 10, 20 sec period, 10, 50, 100, 1000 μ V amplitude
Input Bias Current < 5 nA
Anti-Aliasing Filter Cut Off Frequency 500 Hz
Differential Input Impedance 40 M Ω
Interface to Amplifier Ethernet
Built-in Impedance and Display
Headbox Optional; no impedance display
Additional Ports

- Isolated SpO₂ with X-Pod
- Photic output
- Isolated patient event button

Channel Hardware Gain 410
Deblock Yes

Auxiliary Inputs

1 Hi-level, non-isolated input for connection of external devices (e.g. CO₂ monitors, etc.)
Analog/Digital Converter 16 bits
Maximum Input Range \pm 2.5V
ADC Resolution 76.3 μ V
Bandwidth DC - 500 Hz

v44 Amplifier

System Configurations

Sleep, EEG, ICU monitoring and LTM
OR and non-OR applications
Cart mount and wall mount options
Analog/Digital Converter 16 bits
ADC Resolution Voltage = 0.153 μ V
DC Offset Tolerance \pm 900 mV
Channels (Inputs) 32 EEG (9 configurable as bipolar AC)
12 non-isolated DC inputs (\pm 5V, BW = 100Hz)
Maximum Input Range \pm 5 mV
Bandwidth 0.053 - 500 Hz
Noise < 1.5 μ V pk-pk @ 0.1 - 100 Hz except channels 31, 32 and OR channels 95% samples < 2 μ V p-p (0.1 - 100 Hz)
Input Impedance > 100 M Ω (common mode)
CMRR at Patient Inputs > 115 dB @ 50 - 60 Hz, with active patient ground connected except channels 31, 32 and OR channels > 100 dB @ 50-60 Hz with RLD
Channel Crosstalk < -40 dB

Specifications, design options and terms quoted are subject to change without notice.
Advanced Technology Patent Pending.

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Amplifier Sample Rate (under software control)

125, 250, 500, 1000, 2000
Calibration Square wave, 1, 5, 10, 20 sec period, 10, 50, 100, 1000 μ V amplitude
Input Bias Current < 5 nA
Anti-Aliasing Filter Cut-off frequency 500 Hz
Differential input impedance 40 M Ω
Interface to Amplifier Ethernet
Channel Hardware Gain 410
Deblock Yes
Integrated SpO₂

Channels (DC Inputs) 12 non-isolated

- Analog/Digital Converter 16 bits
- Maximum Input Range \pm 5V
- ADC Resolution 153 μ V
- Bandwidth DC - 120 Hz

Additional Ports

- (2) RS232 Serial Ports
- Auxiliary I/O
- Panasonic Camera Control port on amplifier
- Isolated SpO₂
- Isolated patient event button

Headboxes

v44 requires one of the following:

- Clinical headbox with built in impedance and display
- Clinical headbox with head cap adapter and built in impedance and display
- OR headbox

Polygraphic Inputs

Number of Inputs 4 (sub-set of available 36)
Maximum Input Range User-selectable: \pm 128 mV or \pm 1V
Bandwidth DC - 1500 Hz
ADC Resolution At \pm 128mV = 4 μ V, At \pm 1V = 32 μ V

Auxiliary Input Module (Optional)

8 Hi-level non-isolated inputs for connection of external devices (e.g. SpO₂, CO₂ monitors, etc.)

Analog/Digital Converter 12 bit

Maximum Input Range \pm 5V
ADC Resolution Voltage = 2.44 mV
Bandwidth DC - 32 Hz

Network

10/100/1000 Mb Ethernet (standard)

Quality System

Manufactured, designed, developed and marketed by CareFusion under ISO 13485

Compliance/Regulatory Standards

Designed, tested, manufactured and certified to meet the following domestic (USA), Canadian, European and International Standards:

UL 60601-1 Medical Electrical Safety Standard (USA)
CAN/CSA-C22.2 no. 601.1-M90 Medical Electrical Safety Standard (Canada)
EN/IEC 60601-1 Medical Electrical Safety of Medical Equipment (International and Europe)
IEC 60601-2-26 Particular safety of electroencephalographs equipment
EN 60601-1-2 Collateral safety standard for EMC
European Community (CE Mark)
Medical Device Directive (MDD) product
Patient Isolation BF



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