Central Nursing Station
CNS-9101 and CNS-6201

Comprehensive monitoring and patient management

Central stations must display comprehensive patient information from bedside monitors in a simple and effective manner for in-depth analysis and in order to increase workflow productivity.

Nihon Kohden Central Nursing Stations (CNS-9101 and CNS-6201) are a powerful solution designed to ensure simplicity and ease of use. The Central Nursing Station offers multiple review windows, plus an optional dual-display screen that operates separately and displays different sets of information. In addition, the ec1 arrhythmia analysis software helps reduce of false alarms without compromising patient safety.

NIHON KOHDEN

Central Nursing Station

Options to suit diverse needs

Nihon Kohden's Central Nursing Stations (CNS) are available in two versions. The CNS-6201 optionally comes with dual wide displays that operate independently, enabling up to 32 patients to be monitored simultaneously. The CNS-9101, meanwhile, has two 24" displays for monitoring up to 48 patients.
- A large, clearly arranged display with flexible use of a touch-screen or mouse with keyboard allows for simple, easy, and intuitive operation.
- Solid state drive for faster access time and less frequent need for replacement.
- 3 types of networking composition – wired, mixed, wireless.

Adaptive review

The Central Nursing Station offers a time-synchronized review function for the quick, accurate analysis of live and recent patient data. Consequently, it is possible to review full disclosure waveforms, tabular and graphical trends simultaneously in different review windows.

Vital signs and numerical data:
- Trend graphs of 4 parameters and 2 events of the last 72 hours.
- CNS-9101 allows for selection of 1, 8, 24, 72 or 120 hours for the trend graph display width, with zoom-in and zoom-out feature.
- Tabular trends of numerical data for the last 72 hours.
- Flexible screen layouts for any number of patients.
- Up to 256 hemodynamic measurements in 8 rows per screen.
- Vital signs window in CNS-9101 allows for up to 56 data units; up to 112 data units can be reviewed in total.
- The numerical data window displays up to 15 parameters (maximum). If an alarm occurs for a parameter that is not displayed, the displayed parameter changes to the alarmed parameter and is highlighted.

Arrhythmia recall and ST recall:
- Up to 768 eight-second arrhythmia episodes for each patient can be stored and reviewed.
- Up to 4320 ST recall files that have been created at specified intervals can be saved. 7 files can be displayed simultaneously.
- 72 hours full disclosure for 6 waveforms can be stored and reviewed for each patient with an optional program kit.
- CNS-9101 enables one-click sorting of the arrhythmia list by event or time, and items can be marked to be deleted or printed as required.
- CNS-9101 creates ST recall files at regular intervals; the lead position and sensitivity can also be changed.

ECG and alarm history:
- 12-lead ECG analysis waveform, average waveform, comparison waveforms and analysis reports from the bedside monitor can be displayed (optional).
- CNS-9101 has additional features such as click-to-switch for ECG analysis waveforms and average waveforms, and an ability to display ECG results at beside monitors or the Central Nursing Station. It can also save up to 64 files.
- Alarm history window displays the file list with report; the latest 1,000 alarm files can be saved for each bed.
- Alarm events window can display 72-hour alarm lists for 8 patients at the same time.
- 3 types of alarm displays include vital sign, arrhythmia, and technical alarms.
- CNS-9101 helps to select the level and type of alarm and sort the alarm list by time, level, parameter, or description.

Intuitive operation

The Central Nursing Station is fast and simple to use.

- Any setting can be changed by simply touching the parameter on the intuitive touch-screen.
- Up to 7 function keys at the bottom of the screen can be assigned to frequently-used screens for instant access.

Reliable alarms

The Central Nursing Station offers ec1 arrhythmia analysis that can efficiently reduce false arrhythmia alarms. Alarm levels for up to 8 patients are shown on the multi-patient limits screen, so you can check and change alarm settings for a particular patient.

- 3 types of alarms – advisory, warning and crisis for different types of vital signs, arrhythmia, or technical issues.
- Status of technical alarms within the last hour readily available allowing all staff to easily provide effective care – green for less than 10, yellow for 10-29 and red for more than 30 alarms in the last hour.
- Alarm escalation feature – allows escalation of technical and vital sign alarms to higher priority, and increases patient safety.

- Optional alarm indicator on the top of the display that can be easily seen from a distance. Blinking or steady light and color indicate patient's condition (red for crisis, orange for warning).
- Minimum and maximum volume can be adjusted in accordance with the care environment.
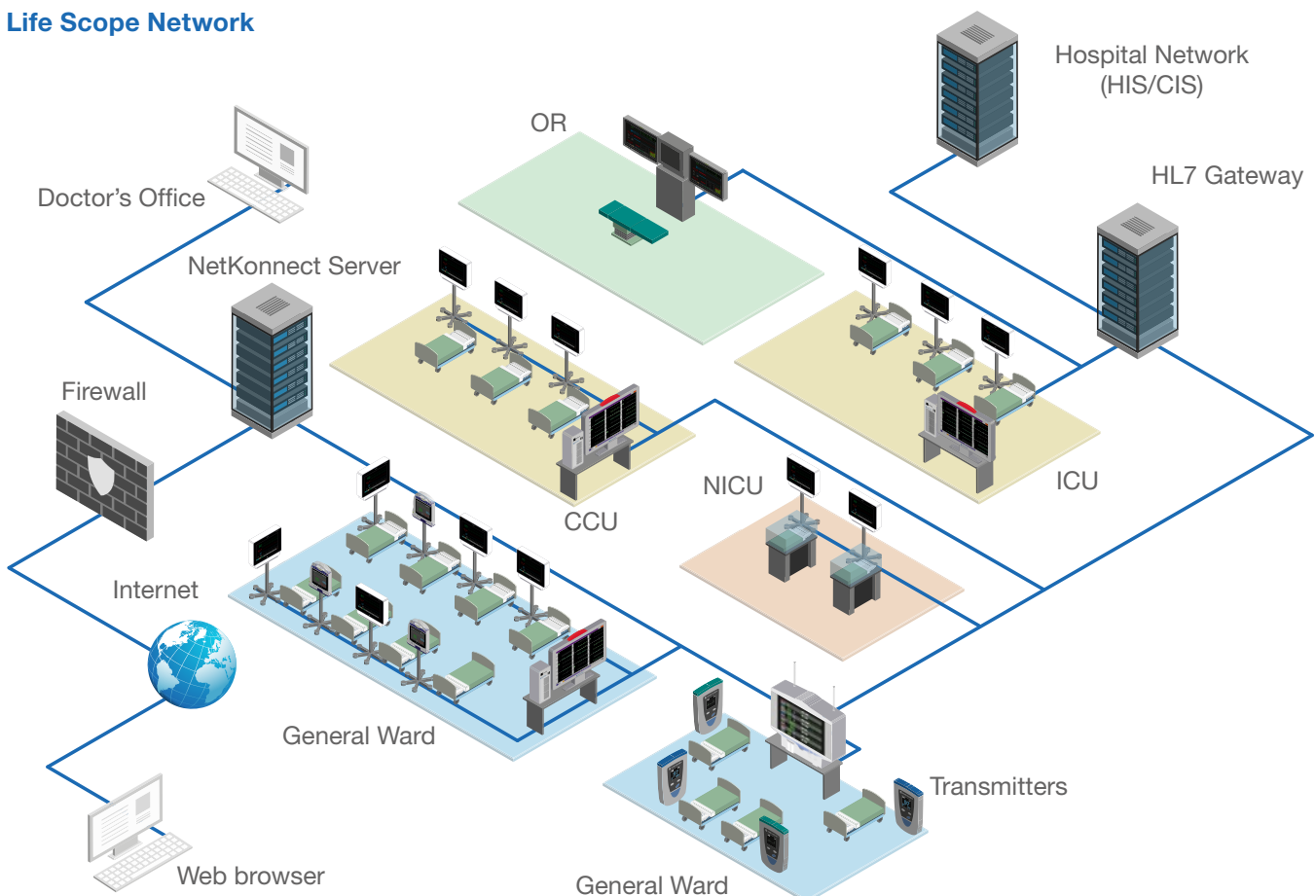
Optional features and accessories

The Central Nursing Station provides some advantageous optional features for progressive monitoring.

- Optional multiple patient receiver unit that receives wireless signals from transmitters and sends these signals to the Central Nursing Station.
- HL7 Gateway connects the Life Scope network to the hospital or clinical information system (HIS, CIS).
- NetKonnect permits review of real-time patient data and history anytime, anywhere from your PC via a web browser.
- ViTrac is a viewer software that allows access to real-time monitoring information on multiple patients anytime, anyplace on your iPad or iPhone.

ViTrac is a registered trademark of NKUS Lab, a subsidiary of Nihon Kohden Corporation. Apple, iPhone and iPad are trademarks of Apple Inc.

Life Scope Network

Doctor's Office
NetKonnect Server
Firewall
Internet
Web browser
General Ward
OR
CCU
NICU
General Ward
Transmitters
Hospital Network (HIS/CIS)
HL7 Gateway
ICU

Specifications

CNS-9101

Display

Number of patients on the display	16 patients (max.)
Display type	24" color LCD (option of second screen available)
Waveform display method	Non-fade, fixed method
Number of waveform traces	24 traces max. (on the all-beds screen, displaying 12 patients)
Sweep speed	25 mm/s, 50 mm/s, 6.25 mm/s (respiration measurement)
Waveform display	ECG, IBP, RESP, CO_2, SpO_2, others depending on the connected bedside monitor or transmitter
Number of numeric data	Heart rate, VPC rate, respiration rate, pulse rate, IBP (systolic, diastolic, mean), NIBP (systolic, diastolic, mean), SpO_2, temperature, others depending on the connected bedside monitor or transmitter

Full disclosure

Saves 120 hours of disclosure waveform data for up to 6 waveforms and displays them on the full disclosure window.

Trend window

Parameters	Depends on the connected bedside monitor or transmitter
Display times	1, 8, 24, 72 hours
Display formats	Trend graph and tabular trend

Power requirements

MUC-911RK main unit	Line voltage: AC 100 to 240 V ±10% Line frequency: 50 or 60 Hz Power consumption: AC 230 VA or less
VLC-911RK main unit	Line voltage: AC 100 to 240 V ±10% Line frequency: 50 or 60 Hz Power consumption: AC 150 VA or less

Dimensions and weight

Main unit	93 (W) × 290 (H) × 312 (D) mm, approx. 5.7 kg
LCD unit	411.9 (W) × 370.1 (H) × 183.3 (D) mm, approx. 5.23 kg

Alarm function

Alarm decision is made at each bedside monitor and multiple-patient receiver. The central monitor only displays the alarm and generates sound by receiving the alarm information from bedside monitors and multiple-patient receivers.

Alarm type	Crisis, warning, advisory
Alarm items	*Vital sign:* Heart rate, VPC rate, respiration rate, pulse rate, ST level, BP (sys, dia, mean), NIBP (sys, dia, mean), temperature or ΔT or blood temperature, $etCO_2$, $tcPO_2$, $tcPCO_2$, SpO_2, FiO_2, CCO, others depending on the connected bedside monitor or transmitter *Arrhythmia:* ASYSTOLE, V FIB, V TACHY, EXT TACHY, EXT BRADY, VPC RUN, COUPLET, MULTIFORM, EARLY VPC, BIGEMINY, TACHY, BRADY, PROLONGED RR, FREQ. VPC *Apnea alarms*
Alarm display	Highlighted numerical display, highlighted message for arrhythmia
Alarm occurrence	Alarm occurs when any one of the bedside monitors that the CNS is monitoring generates an alarm.
Alarm suspend	Available (for beds connected by the QI-910R interface)
Alarm silence	Available (except for beds connected by the QI-910R interface)
Alarm history	Saves up to 1,000 alarm history events for each bed
ST recall	7,200 files

Environment

Temperature	10 to 35°C (50 to 95°F)
Humidity	20 to 80% (non-condensing)
Atmospheric pressure	80 to 104 kPa
Storage temperature	-20 to + 55°C (-4 to + 131°F)
Storage humidity	20 to 90% (non-condensing)
Storage atmospheric pressure	70 to 106 kPa

Specifications

CNS-6201

Display

Number of patients on the display	Up to 32 patients
Number of waveform traces	More than 1 trace/patient (Up to 32 patients)
Display unit	*Waveform display method:* Non-fade, fixed trace
Sweep speed	6.25, 25, 50 mm/s (when 24" LCD display is used)
Waveform display	More than 3 parameters/patient (less than 3 parameters are also available) Heart rate, VPC rate, respiration rate, pulse rate, IBP (systolic, diastolic, mean), NIBP (systolic, diastolic, MAP), temperature, ΔT, blood temperature, $etCO_2$, $tcPO_2$, $tcPCO_2$, SpO_2, ST level, O_2, CO, CCO, PiCCO, ventilator, anesthetic gas, BIS, others depend on the connected bedside monitor or transmitter
Alphanumeric display items (depends on the connected monitor)	Heart rate, pulse rate, VPC rate, respiration rate, ST level, IBP (systolic, diastolic, mean), temperature, SVO_2, Flow/Paw, N_2O, O_2, Agent, BIS, $TcPO_2$, TV, MV, PEEP, other
Arrhythmia detection items	Asystole, VF, Extended Tachycardia, Extended Bradycardia, VT, Tachycardia, Bradycardia, VPC Run, Couplet, Early VPC, Multiform, Bigeminy, Frequent VPC, Prolonged RR

Full disclosure

Saves 120 hours/bed of disclosure waveform data for up to 16 waveforms and displays them on the full disclosure window.

ECG 12-lead analysis	Saves up to 200 files of ECG analysis results for each bed

Trend window

Parameters	Depends on the connected bedside monitor
Display times	Up to 120 hours/bed
Display formats	Trend graph, tabular trend

Power requirements

Line voltage	AC 100 to 240 V
Line frequency	50, 60 Hz
Power consumption	180 VA
Rated current	4.8 to 1.9 A

Dimensions and weight (approximate, without protrusion)

PU-621R Central Monitor processing unit	115 (W) × 350 (H) × 380 (D) mm, 11 kg

Alarm function

Alarm decision is made at each bedside monitor and multiple-patient receiver. The central monitor only displays the alarm and generates sound by receiving the alarm information from bedside monitors and multiple-patient receivers.

Alarm indication	Displays for each bed. Frame of alarmed bed lights or blinks*, highlighted message for arrhythmia (when arrhythmia is detected)*, highlighted numerical data (when vital sign alarms are generated)*, alarm sound* (volume can be adjusted.* Minimum volume is more than 45 dB. Minimum volume can be set by the administrator.), alarm indicator lights * Essential performance in EMC standard
Alarm silence	Displays alarm silence mark or silence mark with remaining minutes. Alarm can be silenced for each patient.
Alarm history	Saves up to 10,000 alarm history events for each bed
Alarm event	Saves 120-hour alarm events for each bed
Recording	Alarm recording, manual recording, all-beds recording, alarm recording starts when an alarm is generated even which screen is displayed.
Recorder unit	Paper speed: 25 mm/s
Number of channels	2
Printed items	Patient information, date and time, waveform and measurement data, record type, paper speed
Laser printer	Paper size A4/letter
Record type	Multi wave, multi wave freeze, ECG 12-lead, trend graph, tabular trend, arrhythmia recall, hemodynamic list, ST recall, full disclosure waveform, ECG 12-lead analysis result

Environment

Temperature	110 to 40°C (50 to 104°F)
Humidity	30 to 85% 30 to 80% (PU-621R) (10 to 40°C, non-condensing)
Atmospheric pressure	700 to 1060 hPa
Storage temperature	−20 to +65°C (−4 to +149°F) −20 to +60°C (PU-621R) (−4 to +140°F) −15 to +55°C (recording paper) (5 to 131°F)
Storage humidity	10 to 95% 10 to 90% (non-condensing) (PU-621R)
Storage atmospheric pressure	700 to 1060 hPa

Improving Healthcare with Advanced Technology

Shanghai Kohden Medical Electronic Instrument Corp. is a company of the Nihon Kohden Group.