NIHON KOHDEN

Central Monitor
CNS-9101

General

The CNS-9101 Central Monitor is designed for use in various hospital environments, including the ICU, CCU, recovery room, and mainly general ward. The central monitor allows hospital staff to monitor patient's vital signs and waveforms, along with other patient information.

Safety Information

⚠ DANGER:	A danger alerts the user to a hazardous situation which causes death or serious injury.
⚠ WARNING:	A warning alerts the user to possible injury or death associated with the use or misuse of the instrument.
⚠ CAUTION:	A caution alerts the user to possible injury or problems with the instrument associated with its use or misuse such as instrument malfunction, instrument failure, damage to the instrument, or damage to other property.

Pay attention to all safety information in the Operator's Manual or Installation Guide.

WARNING

Never use the central monitor in the presence of any flammable anesthetic gas or high concentration oxygen atmosphere. Failure to follow this warning may cause explosion or fire.

WARNING

Do not install or run any software not specified by Shanghai Kohden in the central monitor. Shanghai Kohden does not warrant normal operation of the CNS-9101 system program if unspecified software is installed or used.

WARNING

While the central monitor is on, do not insert any CD-ROM into it. Shanghai Kohden does not warrant the normal operation of the central monitor if an application or software installation starts automatically.

WARNING

Never use the central monitor in a hyperbaric oxygen chamber. Failure to follow this warning may cause explosion or fire.

WARNING

Do not install the CNS-9101 system software in a personal computer which is not specified by Shanghai Kohden and use it for monitoring.
- If the personal computer does not satisfy the performance specifications which are required by Shanghai Kohden, the system software might not function normally.
- If the personal computer does not satisfy the safety standards which are required by Shanghai Kohden, the patient and operator may receive electrical shock through another instrument in the network.

WARNING

Install the central monitor and external instruments outside the patient environment. If they are installed inside the patient environment, the patient or operator may receive electrical shock or injury. For installation, contact your Nihon Kohden representative.

WARNING

Install the UPS outside the patient environment. If it is installed inside the patient environment, the safety standards which are required by Shanghai Kohden are not satisfied and it may cause electrical shock to the patient or operator.

WARNING

Periodically check the lifetime of the UPS battery. Replace the battery when the lifetime expires.
If the battery is used beyond its lifetime, liquid leakage, smoke, fire or explosion may occur.

WARNING

Use a UPS which satisfied the safety standards specified by IEC and UL. Otherwise, lack of safety may cause electrical shock to the patient or operator.

WARNING

Connect the central monitor to the network as specified in the Service Manual. Otherwise the patient and operator may receive electrical shock or injury. To connect the network, contact your Nihon Kohden representative.

WARNING

Install all network devices, including printer and hubs, outside the patient environment. If they are installed inside the patient environment, the patient or operator may receive electrical shock or injury. For installation, contact your Nihon Kohden representative.

WARNING

Check the software version number of the central monitor before connecting it to the network. Different software versions have different communication methods. More than one communication method in a network may cause communication failure. For details, refer to the Service Manual.

WARNING

After admitting a patient at a bedside monitor, confirm that the patient is also admitted at the central monitor and that the central monitor starts monitoring the patient.

WARNING

Do not use the same channel for different patients. Otherwise, two patients' data will be lost due to mutual modulation interference, or another patient's data may appear on the receiving monitor screen.

WARNING

Check that the channel number of the transmitter corresponds to the receiving channel (the channel displayed on the monitor screen). Otherwise, the central monitor monitors a different patient.

WARNING

When you resume monitoring of the paused bed at the bedside monitor or transmitter, check that monitoring is also resumed at the central monitor. Monitoring of the paused bed automatically resumes at the central monitor when the AUTO RESUME AFTER PAUSE setting on the SYSTEM SETUP screen are met. When AUTO RESUME AFTER PAUSE is set to OFF, resume monitoring at the central monitor by clicking the "RESUME" key.

WARNING

For arrhythmia monitoring, set Arrhythmia Analysis on the ECG window to ON. Otherwise, there is no sound or indication for arrhythmia alarms except for ASYSTOLE.

WARNING

When alarm is suspended by pressing the SUSPEND ALARM key on the transmitter, all alarms are turned off for that transmitter. Be careful when you suspend the alarm.

WARNING

Do not set the electrode lead off alarm to OFF for a bed that is monitoring ECG. If the electrode lead off alarm is OFF during ECG monitoring, there will be no electrode lead off alarm and you may overlook the electrode or electrode lead detachment.

WARNING

When the communication loss alarm is set to OFF, there will be no communication loss alarm. When it is set to OFF, always pay careful attention to the communication status.

WARNING

When admitting a new patient, confirm alarm settings. Also check the alarm setting during monitoring and change the settings according to the patient condition. For a bed monitored by an ORG-9100 series multiple patient receiver, the alarm settings become the Alarm Master 1 settings in the following cases:
- When the bed is discharged.
- When you click the "Delete Data" key on the
- Delete Data window of the Admit/Discharge window.
- When you delete all data of the bed when the
- Receiving channel is changed.

WARNING

Turn the pacing pulse detection to ON when monitoring a pacemaker patient. Otherwise the pacemaker pulse is not rejected. However, even when the pacing pulse detection is set to ON, the pacemaker pulse might not be rejected. When the pacemaker pulse is not rejected, the pacemaker pulse is detected as QRS and false heart rate may be indicated or critical arrhythmia such as asystole may be overlooked. Keep pacemaker patients under close observation.

WARNING

Even when the pacing pulse detection is set to ON, the pacemaker pulse can be overlooked or detected as QRS. You cannot confirm the pacemaker operation only from the detected pacemaker pulse.

WARNING

When performing long term measurement at intervals less than 2.5 minutes, perform measurements while observing the state of the patient, blood vessels and limb to ensure adequate circulation. Congestion may occur at the measurement site. When performing periodic measurement for a long time, periodically check the circulation condition.

WARNING

Use a UPS which satisfies the safety standards specified by IEC and UL. Otherwise, lack of safety may cause electrical shock to the patient or operator.

WARNING
Do not use a damaged network cable. The patient or operator may receive electrical shock when the damaged part is touched.

WARNING
When a temporarily discharged patient returns, resume monitoring for the patient. During temporary discharge, there is no display of measurement values, no alarm function and no data saving.

WARNING
Whenever you change the transmitter, you must change the channel number on the central monitor.

WARNING
A physician must be within the range where he/she can hear the alarm sound of the central monitor while monitoring a patient on the central monitor. If the physician cannot hear the alarm sound, critical changes on the patient may be overlooked.

WARNING
If more than one medical equipment is used together in the same facility, make sure all equipments have the same alarm default settings (alarm master). If the medical equipments have different alarm default settings and when initialized, the alarm settings differ with the other equipments and alarm cannot be managed appropriately in the facility. If using different alarm default settings according to areas or wings in the facility, manage the alarms appropriately.

WARNING
When an alarm occurs:
• Check the patient first and take necessary measure to ensure patient's safety.
• Remove the cause of the alarm.
• Check the alarm settings on the central monitor and change the alarm settings if necessary.

WARNING
Do not diagnose a patient based on only the alarm information of the central monitor. An alarm may not be indicated due to alarm level or alarm on/off setting and critical changes on the patient may be overlooked.

WARNING
When different ALARM PRESETS are used for the same or similar equipment in any single area, a HAZARD can exist, e.g. an intensive care unit or cardiac operating theatre.

WARNING
The OPERATOR should check to ensure current ALARM PRESETS is appropriate prior to use on each PATIENT.

WARNING
Do not decrease the alarm sound volume less than the ambient level. There will be no sound or you might not hear the sound clearly.

CAUTION
While the central monitor is on, do not touch unused sockets. Failure to follow this instruction may damage the central monitor by static electricity and cause malfunction.

CAUTION
If fluids are accidentally spilled into the central monitor, take the central monitor out of service and contact your Nihon Kohden representative. The central monitor must be disassembled, cleaned, dried and tested for safety and function.

CAUTION
Only use the provided power cord. Using other power cords may result in electrical shock or injury to the operator.

CAUTION
Connect only the specified instrument to the central monitor and external instruments and follow the specified procedure. Failure to follow this instruction may result in electrical shock or injury to the operator, and cause fire or instrument malfunction.

CAUTION
Before connecting or disconnecting instruments, make sure that each instrument is turned off and the power cord is disconnected from the AC socket. Otherwise, the patient or operator may receive electrical shock or injury.

CAUTION
Keep the cable out of the way by running it along the floor or wall. Otherwise people may trip over it, causing the instrument to fall and injure the patient and operator.

CAUTION
Make sure that the UPS is properly grounded. Otherwise the operator may receive electrical shock.

CAUTION
To assure an uninterrupted power supply, we recommend using UPS. A sudden loss of power supply can damage the central monitor and delete stored data.

CAUTION

Network settings and Windows system settings must only be set by qualified service personnel. Contact your Nihon Kohden representative.

CAUTION

The network must be managed by the network administrator. Make sure that each instrument in the network has a different IP address. Otherwise, data communication cannot be performed properly. When adding an instrument to an already operating network, set the IP address on the instrument before connecting the instrument to the network.

CAUTION

Follow the specified procedure to turn off the central monitor. Otherwise, patient data will be deleted and the hard disk and data in the hard disk may be damaged.

CAUTION

Confirm that there is a test sound from the speaker in main unit when the CNS-9101 system program starts.

CAUTION

When admitting a new patient, first discharge the previous patient and delete all data of the previous patient. Otherwise, the data of the previous patient and new patient will be mixed together.

CAUTION

When you change the receiving channel to monitor a new patient, first delete all data of the previous patient. Otherwise, the data of the previous patient and new patient will be mixed together and it will cause misunderstanding of the patient history.

CAUTION

Keep the current bedside monitor and the new bedside monitor power on and connected to the network until the monitor is changed. Otherwise the patient data is lost. After changing the monitor, confirm that the data and settings before changing the monitor are displayed in the new monitor.

CAUTION

Keep the source bedside monitor and the destination bedside monitor power on and connected to the network until the patient transfer is complete. Otherwise the patient transfer fails and the data is lost. After transferring the patient, confirm that the data before the patient transfer can be displayed at the destination bed.

CAUTION

When transferring a patient, confirm the destination bed you want to transfer by the message on the screen. If you select the wrong destination bed, the patient data of the source bed overwrites the patient data of the destination bed and the overwritten data cannot be recovered.

CAUTION

On the CNS-9101 central monitor, when the patient is transferred more than once between different central monitors in the network, the data on the source (first) central monitor is deleted.

CAUTION

After patient transfer, settings other than patient information and alarm settings are returned to the default settings. Change the settings if necessary.

CAUTION

When the alarm limit is set to OFF, there will be no alarm for that limit. Be careful when you set the alarm limit to OFF.

CAUTION

When the communication loss alarm in the confirmation mode is silenced, an alarm for the same alarm condition does not occur again while communication is still lost. In confirmation mode, always pay careful attention to the communication status.

CAUTION

While the "SIGNAL LOSS" message is displayed, parameters are not monitored and the alarms do not function. Check the transmitter and communication status and remove the cause.

CAUTION

When the alarm is turned OFF for an arrhythmia, there will be no alarm for that arrhythmia type. There is no message or mark to indicate that a certain arrhythmia alarm is turned off. Therefore, be careful when you turn off an arrhythmia alarm.

CAUTION

When receiving bedside monitor data through the ZB-800P/ZB-900P/ZS-900P transmitter, check the alarm settings on the bedside monitor and central monitor. The alarm setting information of the bedside monitor is not transmitted.

CAUTION

If there is any doubt about the arrhythmia analysis, make the central monitor relearn the patient's ECG and check that the dominant QRS is appropriate. Otherwise, an important arrhythmia may be overlooked.

CAUTION

- Although the ST algorithm has been tested for accuracy of the ST analysis result, the significance of the ST level changes need to be determined only by physician.
- The ECG from the transmitter other than ZM series is not processed by a 3.2 second time constant filter. Therefore, the ST level measurement is not designed to be accurate enough for diagnosis. Do not rely on this ST level measurement.

CAUTION

When the full disclosure waveform is expanded in actual size, the steep slant such as QRS may be distorted because it has been compressed then expanded. When reading the expanded ECG waveforms, be aware of this distortion.

CAUTION

The central monitor does not perform ECG analysis. Therefore, the QRS sound at the central monitor might not synchronize with the patient's actual QRS during pacing or when complicated arrhythmias occur.

CAUTION

The QRS sound at the central monitor has a time delay of several seconds because of network connection.

CAUTION

When the ECG measurement on the ECG window is OFF, ECG alarms do not occur even if each ECG alarm item is set to ON.

CAUTION

When the "NOISE" or "CANNOT ANALYZE" message is displayed, ECG is not monitored and ECG alarm does not function. Remove the cause by checking the electrodes, electrode leads, patient's body movement, EMG and peripheral instruments grounding. Also check that no electric blanket is used.

CAUTION

When the respiration measurement is OFF, respiration alarms do not occur even if each respiration alarm item is set to ON.

CAUTION

When the probe is attached on an appropriate site with sufficient circulation and an error message about probe attachment repeatedly appears, the probe may be deteriorated. Replace it with a new one.

CAUTION

The sensitivity of the pulse waveform measured by a ZM-930P transmitter is automatically changed inside the transmitter. When the sensitivity is changed, the waveform becomes flat for about one second.

CAUTION

Before you remotely start and stop NIBP measurement from the central monitor, confirm the state of the patient at the bedside monitor. Carefully start and stop NIBP measurement from the central monitor.

CAUTION

Never disassemble or repair the central monitor. If there is any problem with the central monitor, contact you Nihon Kohden representative.

CAUTION

During maintenance and servicing, patients monitored by the central monitor must be monitored by alternate instruments such as bedside monitors.

CAUTION

Do the regular inspection twice a year. Otherwise, a decrease and loss in function will not be noticed and it results in incorrect monitoring.

CAUTION

Replace the hard disk once every two years. If the hard disk is damaged, monitoring is incorrect and all data saved in the central monitor is lost.

CAUTION

Before maintenance, cleaning or disinfection, turn the central monitor power off and disconnect the power cord from the AC socket. Failure to follow this instruction may result in electrical shock and central monitor malfunction.

CAUTION

Software upgrade must only be done by qualified service personnel or a person with technical knowledge. If upgrade is not done correctly, the central monitor may freeze.

CAUTION

Restart the central monitor once every three months. Otherwise operation becomes unstable and monitoring may stop. While restarting, patients monitored by the central monitor must be monitored by alternate instruments such as bedside monitors.

CAUTION

For the VLC-912R LCD unit
• Follow your hospital regulations to handle blood or body fluids on the display.
• Be careful not to let any liquid get inside the display.

CAUTION

The central monitor has been set up for system settings and has installed software at the factory.
When there is any problem in the central monitor or software upgrade, take the proper countermeasure according to the Installation and Configuration section. Windows system settings, installation, uninstallation, registration and upgrade must only be set by qualified service personnel with technical knowledge. When there is any problem in the central monitor, contact your Nihon Kohden representative.

CAUTION

• Avoid placing the central monitor near a heater or humidifier.
• Avoid a location where the central monitor is sprinkled with liquids. Avoid direct sprinkling, spray or moist air from a nebulizer or a humidifier.
• Avoid locations where the central monitor may receive strong electromagnetic interference such as radio or TV stations, cellular phones or mobile two-way radios.
• Avoid exposing the central monitor to direct sunlight.
• Do not place the central monitor in a dusty area.

CAUTION

Do not place blankets or cloth over the central monitor. It may affect monitoring.

CAUTION

When there is any problem in the central monitor, turn off the power immediately and disconnect the power cord from the AC outlet. Take the central monitor out of service and check for damage.

CAUTION

Make sure that there is more than 5 cm of space between the central monitor and the wall for adequate ventilation. When the instrument is surrounded, make sure that there is about 10 cm of space above the central monitor for ventilation so that the operating temperature does not exceed 35 °C (95 °F).

CAUTION

Connect the power cord to an AC outlet which can supply enough AC current to the central monitor. The central monitor cannot function properly with low current.

CAUTION

Use the central monitor in a securely managed environment.

CAUTION

Personal information stored on the central monitor, is vulnerable to unauthorized access. Follow the provisions of the user agreement for the central monitor related to information security.

CAUTION

To ensure the cybersecurity of the central monitor, implement the following security measures in the network environment to which the product is connected.
1. All communication (incoming and outgoing) between the central monitor and the local area network (LS-NET, HIS, etc.) is subject to packet filtering by a firewall or router.
2. When the central monitor is connected to the local area network (LS-NET, HIS, etc.), all communication with the internet or other external networks is restricted to essential transmissions under the supervision of the appropriate personnel with responsibility for information security of medical equipment.

CAUTION

Some data and operations on the central monitor can be set, changed or managed only by a user with administrator privileges. Set a password for the administrator that is difficult to guess. Change the password at regular intervals and store it securely to prevent security breaches.

CAUTION

Confirm that there is a test sound from the speaker in the display when the CNS-9101 system program starts.

CAUTION

The Alarm volume limit settings must be set with the correct password by authorized personnel.

CAUTION

There is an alarm sound even when the volume is set to the lowest step level. Do not decrease the alarm sound volume less than the ambient level.

CAUTION

When the alarm limit is set to OFF or extreme values, there will be no alarm for that limit. Be careful when you set the alarm limit to OFF or extreme values.

CAUTION

When the "CHECK LEADS" message is displayed, ECG is not monitored properly and the ECG alarm does not function. Check the electrode, electrode leads and connection cord, and if necessary, replace with new ones.

CAUTION

If any blood or body fluids get on the instrument or yourself, follow your hospital/organization procedure to remove it.

CAUTION

This instrument is not waterproof. Be careful not to let any liquid get inside the instrument.

CAUTION

Do not use volatile liquid such as thinner or benzine as these agents will melt or crack the materials.

CAUTION

If the instrument accidentally gets wet, immediately stop using it and disconnect the power cord from the AC outlet. Contact your Nihon Kohden representative for inspection.

CAUTION

Do not use volatile liquids such as thinner or benzine as these agents will melt or crack the materials.

CAUTION

If you put spray on the instrument, wipe off the instrument with a dry cloth after spraying.

CAUTION

Do not sterilize. It deteriorates and damages the instrument surface and causes malfunction.

This Safety and Performance Information is an extract from the general and safety information sections of the most recent edition of Operator's Manual or Installation Guide. Therefore, the contents of your Operator's Manual or Installation Guide may differ from those of this Safety and Performance Information. For detailed operating procedures, follow the instructions of your Operator's Manual or Installation Guide.