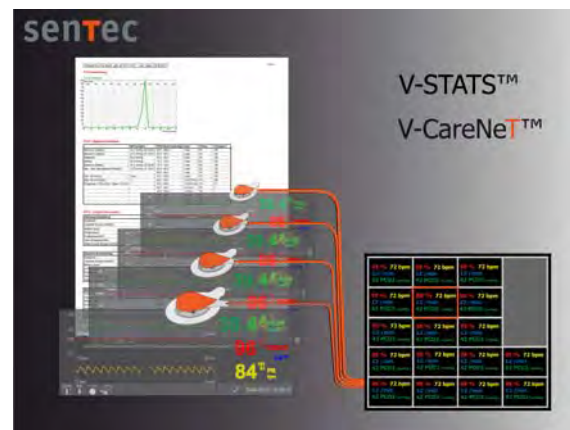


# SenTec V-CareNeT™



## V-CareNeT™ System

V-CareNeT™ is a remote monitoring and alarm surveillance system for up to 20 SenTec Digital Monitors (SDM). TcPCO<sub>2</sub>, SpO<sub>2</sub>, PR and alarms are displayed on-line on the V-CareNeT™ central station. For analysis and printing, trend data stored in internal memory of SDM can be downloaded. Setup of V-CareNeT™ is easy and only requires a conventional Ethernet network, at least one SDM, a PC serving as a central station with V-STATS™ installed and V-CareNeT™ Package activated.

Remote monitoring of patient's ventilation (tcPCO<sub>2</sub>) and oxygenation (SpO<sub>2</sub>) provides a new level of safety to patients. On the general floor, where nurse-to-patient ratios often preclude the level of direct surveillance, combined tcPCO<sub>2</sub>/SpO<sub>2</sub> patient monitoring is of particular importance. For example, patients receiving supplemental oxygen and patient controlled analgesia (PCA) are at increased risk to undergo medication-induced respiratory depression. In such settings, tcPCO<sub>2</sub> monitoring unambiguously helps to detect hypoventilations that may be critically delayed or missed by SpO<sub>2</sub> monitoring alone. Therefore, remote monitoring of tcPCO<sub>2</sub> in addition to SpO<sub>2</sub> is important for patient safety. V-CareNeT™ system delivers important patient data and alarms immediately to qualified caregivers who can intervene promptly.

## V-CareNeT™ Features

### V-CareNeT™ General Description

V-CareNeT™ is a remote monitoring and alarm surveillance system for SenTec Digital Monitors. V-CareNeT™ comprises local-area network, up to 20 connected SDMs, a PC (central station) with V-STATS™ 3.00 installed and V-CareNeT™ Package activated.

### V-CareNeT™ Remote Monitoring Screen Components

The remote monitoring screen comprises the 'V-CareNeT™ Control Window' and several 'Remote Monitoring Windows' (according to the number of SDMs with admitted patients).

V-CareNeT™ evaluates the size/resolution of the computer's screen and calculates the number of patients that can be simultaneously admitted to V-CareNeT™ to ensure that the 'V-CareNeT™ Control Window' and all active 'Remote Monitoring' windows are fully visible and can be arranged without overlapping each other.

### V-CareNeT™ Control Window

The 'V-CareNeT™ Control Window' is always visible (in the front). It provides the following elements:

- Software Activity Indicator
- An Button to arrange all open 'Remote Monitoring Windows'
- An Button opening a dialog to edit the list of 'SDM Device/Host Names'
- A list of 'SDM Device/Host Names' identifying the SDM's currently in the system
- A 'Connect check box' column permitting to activate/deactivate the connection to the respective SDM
- A 'Connection status indicator' column. Each indicator indicates the connection status for the respective SDM in the system.
- An 'Admit patient check box' column permitting to admit/discharge a patient
- A Speaker Test Button
- An AUDIO Paused / OFF Button and AUDIO Message
- An Alarm indicator: If an alarm occurs for an SDM to which a patient has been admitted the respective 'SDM Device/Host Name' highlights red (high priority), yellow (medium priority) or cyan (low priority).

### Remote Monitoring Windows

Individual 'Remote Monitoring Window' displays: 1.) 'Device/Host Name', location (optional), 2.) 'Customized Information Field' (patient name, comment, or patient ID), 3.) 'Suspend Monitoring Check Box' in title bar, 4.) monitored data (tcPCO<sub>2</sub>, SpO<sub>2</sub>, PR) in a black data field, and 5.) 'Status Information': 'Remaining Monitoring Time', 'Sensor Temperature', 'Status Message', and 'Alarm Status' in the status bar. Mouse click on 'Customized Information Field' opens the patient data dialog where patient data can be edited and displayed.

### Detail View Window

Clicking into the black data field in the 'Remote Monitoring Window' opens up an additional dialog, which displays the following information:

- 'Pulsation Index'
- 'Heating Power'
- Status bar with patient mode / battery status / barometric pressure / remaining gas level
- SDM's Alarm configuration: current high / low alarm limits for each parameter, 'Alarm volume', 'Auditory Alarms', 'AUDIO OFF Reminder'
- SDM's Temperature/Site Time configuration: 'Sensor SET temperature', 'maximum operator-selectable sensor SET temperature', 'Preset site time', 'maximum operator-selectable preset site time', Status of 'Site Protection' and 'Initial Heating'
- Various sensor and monitor status information and firmware / hardware versions

### Connecting SDMs

The V-CareNeT™ Control Window provides an overview of the connected SDMs and their connection status. The 'Connection Status Indicator' indicates the connection status color-coded. Device discovery search functions support the easy setup of V-CareNeT™. With an established connection between the V-STATS™ and an SDM it is possible to download trend data from the SDM or to activate remote monitoring (i.e. admitting a patient).

### Patient Administration

Patient administration supports the following functions: a) admit patients to the V-CareNeT™ system, b) edit patient data, c) transfer patients to another location or station/SDM, d) discharge patients.

If a patient is transferred with SDM, as soon as the SDM is reconnected to the same LAN subnet, the remote monitoring is automatically reestablished. In this situation only the location needs to be updated in the Patient Data dialog.

If a patient is transferred without SDM, the patient needs to be assigned to the new SDM in the Patient Data dialog, which provides a list of currently available SDMs.

#### Interrupted Remote Monitoring

When the V-CareNeT™ system stops receiving data from an SDM, an audible low priority alarm occurs at the central station, the message 'Remote Monitoring Interrupted' replaces the black data field and the status bar of the respective remote monitoring window. Furthermore, the respective 'SDM Device/Host Name' in the 'V-CareNeT™ Control Window' highlights cyan. When communication between the SDM and V-CareNeT™ is restored, monitoring automatically resumes at the central station.

#### Suspended Remote Monitoring

Selecting the 'Suspend check box' suspends remote monitoring (without interrupting the connection between V-CareNeT™ and the respective SDM). The message 'Remote Monitoring Suspended' replaces the black data field and the Status Bar. Furthermore, all alarms (including auditory alarm signals) are inhibited for the respective SDM.

#### Alarm System

V-CareNeT™'s alarm system is designed to meet the requirements of IEC 60601-1-8:2006 as well as of the applicable particular standards (ISO 9919; IEC 60601-2-23). Alarm conditions are evaluated by the SDM, and if any, transmitted to and visualized by V-CareNeT™. If the speaker test has been confirmed by the operator, an audible alarm sounds at the central station when an alarm occurs.

#### Visual Alarm

A blinking parameter indicates an alarm limit violation for tcPCO<sub>2</sub>, SpO<sub>2</sub>, or PR. Technical alarms of the SDM are displayed in the status

bar with an 'Alarm message', if the alarm is sensor temperature or site time related the respective icons will show an alarm situation. The priority of the highest priority alarm condition is indicated by an 'Alarm Status Icon' (color coded). If two or more alarm conditions occur at the same time the 'Alarm Status Icon' indicates the highest currently active alarm priority.

#### Audio Alarm System

Acoustical alarm signals are only supported if the 'Speaker Test' is confirmed. V-CareNeT™ evaluates the highest currently present alarm priority for all admitted patients/stations and activates the acoustical alarm signal corresponding to the highest currently active alarm condition. Acoustical alarm signals are designed to be compliant with IEC 60601-1-8 (priority encoded, alarm melodies).

Acoustical alarms can be paused for 120 seconds or switched off permanently. The operating status of the auditory alarm system is visually indicated by the 'AUDIO Paused / OFF Button', the 'AUDIO Message', and acoustically indicated by the 'AUDIO OFF Reminder'.

Alarm Melodies and the 'AURIO OFF Reminder' can be enabled/disabled in a password protected area.

#### Speaker Test

After start up of V-CareNeT™ the auditory alarm signals are not active. In order to enable auditory alarm signals it is required to perform a speaker test and to confirm proper function of the PC's speaker and audio system. The Speaker Test activates automatically when admitting the first patient or automatically when the interval for the automatic speaker test has elapsed (default 4 hours).

#### Data Recording

Data can be downloaded from the internal memory of the SDMs.

## V-CareNeT™ Specifications

#### System Components

The V-CareNeT™ system comprises the components shown in the figure below: PC (central station) with V-STATS™ 3.00 with activated V-CareNeT™ package, Local-area network (LAN), and up to 40 connected SDMs.

#### Monitoring Performance

V-CareNeT™ supports simultaneous remote monitoring for up to 20 of maximum 40 connected devices (provided the screen of the PC/laptop on which V-STATS™ runs is big enough and resolution settings are selected accordingly).

The tcPCO<sub>2</sub>, SpO<sub>2</sub>, PR, and alarms are displayed on-line in a clinical context.

#### Central Station

CPU: multi core at 2 GHz and higher  
Memory: 1 GB minimum

HD: min. 100 MB (free space on hard disk)

LAN: 100/1000 Base-T

Screen: 1680x1050 for 20 beds (SDM's)

Audio: integrated speaker system

OS: Windows® XP or Vista

#### Network

Standard Ethernet (100/1000 Base-T, preferably with DHCP router/server in subnet)

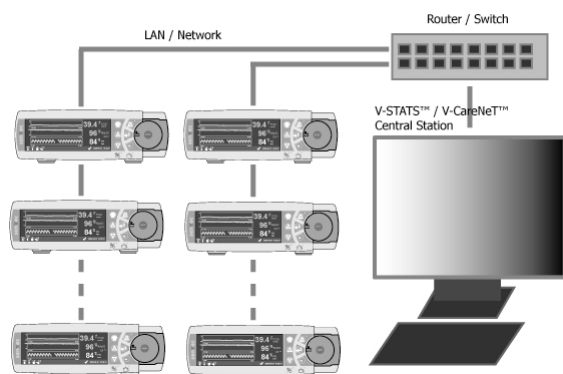
Standard network cables (RJ-45, Cat-5)

#### SenTec Digital Monitor (SDM)

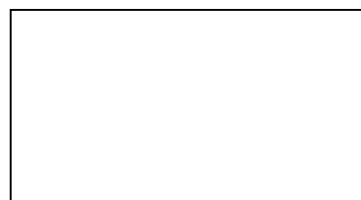
V-CareNeT™ requires are SenTec Digital Monitors with firmware version SMB SW-V07.00 or newer with supported LAN interface.

Contact your local distributor to update your SDM.

## V-CareNeT™-System



Your local distributor



# senTec

SenTec AG  
Ringstrasse 39  
CH-4106 Therwil  
Switzerland

Phone +41 61 726 97 60  
Fax +41 61 726 97 61  
[info@sentec.ch](mailto:info@sentec.ch)  
[www.sentec.ch](http://www.sentec.ch)



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