AVEA® & VELA® Connection Partners

This document identifies the various connection partners that have developed the capability to communicate AVEA and VELA ventilator parameters to hospital clinical systems.

Ventilator Data Communication

The AVEA® and VELA® have the capability to transmit monitored values, settings, alarms, and/or waveforms to various hospital systems. Typically this data output is desired to support one (or more) of three primary functions: remote alarm surveillance; EMR documentation; and/or the CareFusion Respiratory Knowledge Portal (RKP)*.

Protocols

Data communication is unidirectional through the ventilator medical information bus RJ45 port using RS-232 serial protocols. AVEA supports three serial protocols: Ventilator Open XML Protocol (VOXP); Generic Serial Protocol (GSP)—a clone of the MISCA standard; and Philips VueLink™ (IVOI — IntelliBridge™ and VueLink Open Interface). VELA supports two data protocols — VOXP and GSP. Of the available serial data protocols, VOXP is the most robust as it provides virtually every ventilator measured parameter and setting.

Partner Types

Partners who have developed the capability to connect the ventilators to clinical systems are outlined below. They primarily come in two flavors — connections to monitoring systems and connections to a Medical Device Integration System (MDIS).

Ventilators and monitor connectivity

It is common for ventilator connections to monitors to have been implemented to support ventilator alarms surveillance. Communication is typically achieved by a direct connection from the ventilator to the monitor located at the patient's bedside, which may also be relayed to the system's central monitoring station. Monitoring systems may also provide outbound HL7 ventilator data interfaces to other hospital clinical systems, e.g. for EMR documentation.

Ventilators and MDIS connectivity

An MDIS is designed to capture the ventilator serial data and convert it into a network protocol for transport across the hospital network to an MDIS server. This MDIS server subsequently reformats the data to an HL7 ventilator data interface for communication to subscribing hospital clinical systems, e.g. the EMR. Ventilator connections to an MDIS may be hardwired or wireless. All will have a device that directly connects to the ventilator serially before converting that data for transport across the hospital LAN/WLAN. Most MDIS systems communicate to the ventilator using the VOXP serial protocol.

*RKP is only available in the U.S. at this time

CareFusion

Bernoulli™/ Cardiopulmonary Corp.™ (MDIS)

Purpose	• Alarms Management & Clinical Surveillance • EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• Various hospital clinical systems (e.g. Allscripts™) • Respiratory Knowledge Portal*

CliniComp, Intl.™ (MDIS)

Purpose	• EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• CliniComp, Intl. Essentris™

Bridge-Tech Medical™ (MDIS)

Purpose	• EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• Various hospital clinical systems • Respiratory Knowledge Portal*

GE™ (Monitors)

Purpose	• Alarms Surveillance • EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• GE Monitors • Various hospital clinical systems

Capsule Technologies™ (MDIS)

Purpose	• EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• Various hospital clinical systems (e.g. Epic™, Meditech™) • Respiratory Knowledge Portal*

McKesson™ (MDIS)

Purpose	• EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• McKesson Horizon™ EMR

Cerner™ (MDIS)

Purpose	• Alarms Surveillance • EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• Cerner Millennium™ • Cerner CareAware AlertLink™

Mindray™ (Monitors)

Purpose	• Alarms Surveillance • EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• Mindray Monitors (Beneview T5 and T8) • Various hospital clinical systems

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NantHealth™ / iSirona™ (MDIS)

Purpose	• EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• Various hospital clinical systems (e.g. Epic)

Picis™ (MDIS)

Purpose	• EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• Picis

Nihon Kohden™ (Monitors)

Purpose	• Alarms Surveillance • EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• Nihon Kohden Monitors (Models MU-631, MU-651<MU-671, and 3000 series) • Various hospital clinical systems

SpaceLabs™ (Monitors)

Purpose	• Alarms Surveillance • EMR Documentation
Ventilators	• AVEA • VELA
Clinical Systems	• Various hospital clinical systems (e.g. Meditech)

Philips™ (Monitors)

Purpose	• Alarms Surveillance • EMR Documentation
Ventilators	• AVEA • VELA

Clinical Systems	• Philips Monitors
	  - IntelliVue MP40-MP90 Rev H.15 (and higher)
	  - MX400-MX800 (all versions)
	• Various hospital clinical systems

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