DeltaV Network Smart Switches

DeltaV Switches provide plug-and-play industrial switches with enhanced security features.

- Plug-and-play installation
- Auto security lockdown
- A full line of Industrial Rated Fanless Switches
- Fully supported by Emerson

Introduction

The DeltaV Network "Smart" switches are the next generation in the use of commercial off-the-shelf (COTS) components in control systems. Called "purpose-built" commercial components these switches combine the lower cost of off-the-shelf components with DeltaV specific software and features to make them more integrated and plug-and-play in the control network.

DeltaV Smart Switches require no configuration to function in the DeltaV network. Accessing the advanced features takes only minor configuration that is easy to perform using the DeltaV Wizard and

secured so you can't incorrectly configure any switching functions that impact the performance of the DeltaV system.

The purpose-built switch also allows the DeltaV system to provide an auto port lockdown advanced security feature that is easy for a control system user to implement: an increasingly important product feature in today's hostile environment.

Benefits

Plug and Play installation. Smart Switches are configured with DeltaV-compatible settings so that they can be installed into a DeltaV network right out of the box. They require no user configuration to fully support DeltaV network communications. In addition,

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there is no user access to make changes to this default configuration, so you never have to worry about the switch you install being incorrectly configured.

Auto lockdown prevents unauthorized network connections- Disabling unused network connections is a security "best practice" and helps you comply with plant security policies. With the one-click lockdown capability built into the switch, you can automatically lock all unused network ports in the system with a single button click in a DeltaV application.

Full range of switch hardware configurations. DeltaV network switches are available in a variety of hardware solutions. From a 24-port rack-mounted unit to both fixed-port and modular field-mounted switches, the DeltaV network switch will meet a wide variety of network requirements.

These switches are all you need to implement a DeltaV network. The DeltaV network switches can be used in place of the currently supported Cisco and Hirschmann switches to implement DeltaV control networks.

The VE6046, VE6047 and VE6048 DeltaV Smart switches can be used in applications where the Cisco switches were previously used.

The VE6041, VE6042 and VE6043 Smart Switches can be used anyplace a DIN rail field mounted switch is required.

In most cases the DeltaV network switches can be used as a drop-in replacement for our existing supported managed switches.

Fully supported by Emerson. As Emerson products, these DeltaV Network Switches are completely supported by Emerson. You receive full technical support from our Global Service Center, warranty support, product support, and education—all from Emerson. In the unlikely event you have a switch failure the Smart Switches are included in the Express Module Replacement program so you can obtain quick replacements.

Product Description and Specification

The DeltaV network "smart" switch is a Fast-Ethernet Layer 2 network switching device. The switch is available in three models:

The VE6046, VE6047 and VE6048 DeltaV Smart Switch: 19" rack-mountable 8, 16 or 24-port modular switch with wired and fiber connections and 2 Gigabit wired or fiber uplinks.

The VE6041 DeltaV Smart Switch: a DIN rail 8-port 10/100 MB switch with fiber and wire uplinks. Available in standard and extended temperature/conformal coated versions.

The VE6042 and VE6043 DeltaV Smart Switch: a DIN rail-mounted modular switch supporting 8, 16 or 24 ports using wired and fiber communications modules. The VE6043 provides 2 Gigabit wired or fiber uplinks in addition to the 24 local ports. Available in standard and extended temperature/conformal coated versions.

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DeltaV Plug-and-Play Installation

The DeltaV switches are easy to install in your DeltaV network. Since they come preconfigured from the factory, installation is as simple as mounting the unit, connecting the communications cables, and powering up the unit. The switch is configured to begin communications on power up—no additional setup is required for the switching function to work properly.

Auto Security Lockdown

The DeltaV Smart Switch has our patent-pending auto lockdown security technology to prevent unauthorized access to the network.

The DeltaV one-click lockdown application will automatically locate all of the Smart Switches in the network and display their locked or unlocked status.

While any user can view the switch security status only users with Can Download, Can configure and Can Calibrate privileges are able to lock and unlock the switches.

The DeltaV one-click lockdown security application will send a lock or unlock command to all the switches in the network with a single click.

The "lock" command tells the switch to find all of the unused network ports and disable them. It will also memorize what devices are connected on each local port to prevent an existing device from being replaced by an unauthorized rogue device.

Another single click will command all the switches to "unlock" to add a new device or to troubleshoot any network problems. The optional 60 minute relock timer will automatically relock all of the switches to prevent the devices from accidentally being left in the insecure, unlocked state.

This application can be run from just the ProfessionalPlus or can also be installed on operator or maintenance stations for easy user access.

All locking and unlocking events are logged in the DeltaV Event Journal so you can easily monitor unlocking events for unusual activity and to be sure proper security procedures are being followed.
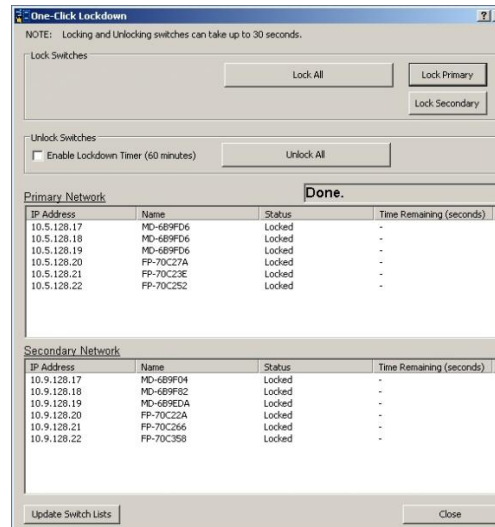
The DeltaV lockdown application automatically locates all of the DeltaV switches and shows the locked status in the application.
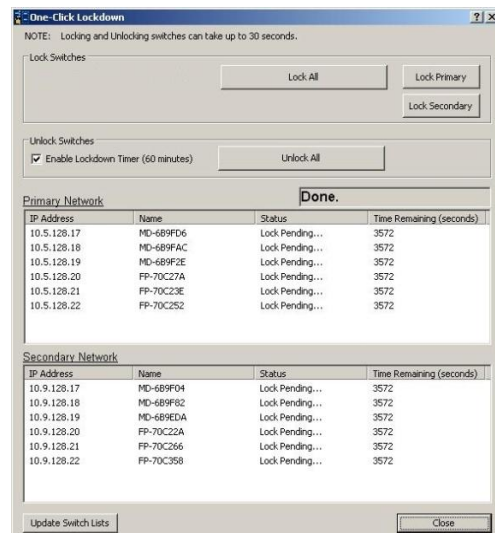

A single click will unlock (and relock) the switches for maintenance and to add new devices. In addition the optional lockdown timer will automatically relock switches in 60 minutes to prevent accidentally leaving the switches in an insecure state.

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Network Monitoring

The Smart Switch provides view-only access to the switch network monitoring capabilities. Using a third-party SNMP application (such as "What's Up Gold") and standard SNMPv3 communications, you can collect network data and monitor the health of the switch. Since this is view-only access, there is no chance the monitor access will allow any configuration changes to the switch providing secure monitor access.

In addition, you can use the built-in web interface on the switch to use the browser on your switch management workstation* for a view-only user interface to access switch information.
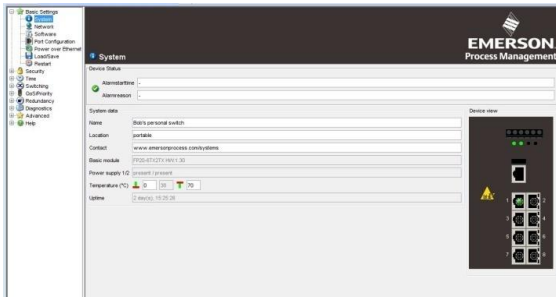
The view only Web interface provides a secure and easy-to-navigate view into the internal switch status information.

Switch Setup—DeltaV Wizard

The DeltaV smart switch is easy to set up using the DeltaV Wizard build into the switch. By simply connecting the serial cable and running a terminal access application such as Hyperterminal (included on the XP-based DeltaV workstations), you can easily enable the advanced features using a simple question and answer format. Only the switch settings allowed by the wizard are user accessible in the switch. See the Wizard parameter table at the end of this document for details

The DeltaV Wizard allows any user to easily setup the switch without having to worry about accidentally changing the proper configuration needed for DeltaV.

The Ease-of-Use Wizard prevents users from entering a non-DeltaV network address by limiting the address choices to only those available within the DeltaV LAN. The subnet address is preconfigured for DeltaV to make this setup even easier.

Switch Access Security

All user access to the switch is protected by passwords. The DeltaV Wizard provides a question-and-answer format to change the default passwords, if desired. The switch is set up by default to allow remote access for view-only user functions and to access the Setup Wizard to make setup changes over the network. If desired, either or both of these remote access capabilities can be disabled using the wizard. If Telnet is disabled, the only configuration access to the switch will be via the serial connection directly at the switch. Disabling remote access has no impact on the one-click lockdown function. SNMP v3 access is always enabled in a view-only mode.

Compatible with all Versions of the DeltaV System

Switches are compatible with all versions of DeltaV for switching and monitor functions and can be used to expand or retrofit existing DeltaV systems and for replacement spares for some existing Cisco and Hirschmann switches—the auto switch lockdown is compatible only with DeltaV v10.3.

Compatible with non-DeltaV Switches

The DeltaV Smart Switch can also be installed in a mixed system with the currently supported Cisco or Hirschmann switches, as desired.

Reliable Hardware

The DeltaV Smart Switch is based on hardware produced by a recognized supplier of industrial-grade networking equipment. All switches are fan-less and have redundant power connections with external alarm contacts. They are also available in high temperature, conformal coated versions for use in harsh environments.

`*Note- Web interface must be accessed from a Switch Management Station computer where DeltaV is not installed on the computer.*

Network Examples

Typical network implementation would use the VE6048 as a central switch located in a rack room where AC power is available with the VE6041 (or VE6042 or VE6043) as a field-mounted switch for controllers in field-mounted locations. If required as part of the network architecture, multiple VE6048 switches can be interconnected using the gigabit ports to provide a network backbone to connect devices or other DeltaV switches.
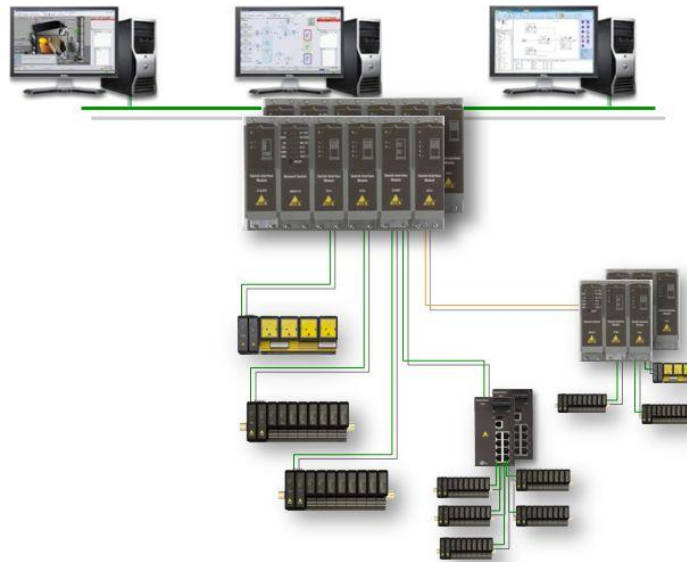
The VE6042 or VE6043 can also be used as a central switch if a more modular switch solution is required or to meet extended environment specifications due to the location of the central switch.

Please consult v 10.3 DeltaV Books on Line for detailed network layout examples and detailed instructions on network design using DeltaV Smart Switches.

Ordering Information

The specifications and DeltaV ordering numbers below provide the information necessary to help design the DeltaV network and order the necessary equipment to implement the network.

Note the ordering information in dark, multiline borders are extended specification devices, single line borders are standard specifications. Extended specifications are higher temperature, conformal coated switches with additional certifications as listed in the certification table at the end of the document.

The KJ1611x1 Terminal Access Cable is required to setup switch and must be ordered separately. One cable can access any switch – does not require a cable for each switch. Order 2 or 3 cables so extra cables are available if required. Specifications for creating your own cable are in DeltaV Books on line

General Specifications for the VE6041 DeltaV Network Switches FP20		
Fast ETHERNET- Layer 2 Smart Switch with store-and-forward-switching, Industrial switch for DIN rail mounting fan-less design.		
Ambient conditions:	**Standard Model VE# ending in C1**	**Extended Specs VE# ending in C2**
Operating temperature	0° to +60°C	-40° to +70°C
Storage/transport temperature	-40° to +70°C	-40° to +70°C
Relative humidity (non-condensing)	10% to 95%	10% to 95%
Conformal-coated	No	Yes
Harsh area rating	G2	G2 (conformal coating allows switch to be used in G3 environments but switch is not tested and certified to G3)
Certifications	See table on last page.	See table on last page.
User access	Serial interface, view-only web interface. View-only SNMPv3	
Diagnostics	LEDs, log-file, syslog, signal contact	
Setup	None required for switching functions. DeltaV Setup Wizard using serial interface to enable auto-port lockdown and user access.	
Security	DeltaV Auto port lockdown, view-only SNMP V3 for monitoring. All user access is authenticated using passwords.	
Redundancy	Standard DeltaV network redundancy.	
Real-time	Real-time clock—supports NTS as a client.	

Power requirements:
Operating voltage: 24 V DC (18-30) V

Mechanical construction:
Dimensions MM (W x H x D) 74 x 131 x 111 (2.9 x 5.16 x 4.37 in)
Mounting DIN Rail
Weight 410 g (14.48 oz) (All models)
Protection class IP20

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General Specifications for the VE6041 DeltaV Network Switches FP20

Mechanical stability:
IEC 60068-2-27 shock 15 g, 11 ms duration, 18 shocks
IEC 60068-2-6 vibration 1 mm, 2 Hz - 13.2 Hz, 90 min.; 0.7g, 13,2 Hz - 100 Hz, 90 min.; 3.5 mm, 3 Hz - 9
Hz, 10 cycles, 1 octave/min.; 1g, 9 Hz - 150 Hz, 10 cycles, 1 octave/min.

EMC interference immunity:
EN 61000-4-2 electrostatic discharge (ESD) 6 kV contact discharge, 8kV air discharge

EN 61000-4-3 electromagnetic field 10 V/m (80 - 1000 MHz)
EN 61000-4-4 fast transients (burst) 2 kV power line, 1 kV data line
EN 61000-4-5 surge voltage power line: 2kV (line/earth), 1kV (line/line), 1kV data line
EN 61000-4-6 conducted immunity 3 V (10 kHz - 150 kHz), 10 V (150 kHz - 80 MHz)

EMC emitted immunity
FCC CFR47 Part 15 FCC CFR47 Part 15
EN 55022 EN 55022 Class A

Approvals: See table on last page.

Provided in VE# - qty 1 FP20 switch with terminal block.

Order separately: **a KJ1611x1-MA1 serial terminal cable to access the DeltaV Switch Setup Wizard** to enable auto-port lockdown**.** A serial cable is not required for each switch – only 2 or 3 cables are required per network.

PRODUCT NOTE: These switches are described as supporting local ports and uplink ports. Local ports are connected to a single device such as a controller or workstation. An uplink port is connected to another switch. There is no difference in the way the ports function, and a port designated as an "uplink port" can be used as a local port.

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Switch VE Number	Description VE6041 Switch **All FP20 Switches have 8 total ports.** The modules with VE# ending in C2 are extended spec versions of the VE6041 switches and must be used where high temperature or conformal coating is required- these modules are G2 rated. KJ1611x1 Terminal Access Cable is required to setup switch – order separately
Fiber Specifications for VE6041 switches	**Multimode fiber (MM) 50/125 µm**: 0 - 5000 m, 8 dB link budget at 1300 nm, A = 1 d/km, 3 dB reserve, B = 800 MHz x km
	Multimode fiber (MM) 62.5/125 µm: 0 - 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500MHz x km
	Single mode fiber (SM) 9/125 µm: 0 - 32,5 km, 16 dB link budget at 1300 nm, A = 0,4 dB/km, 3 dB reserve, D = 3,5ps/(nm x km)
	Single mode fiber (LH) 9/125 µm (long haul transceiver): 24 - 86,6 km, 7 - 29 dB link budget at 1550 nm, A = 0,3 dB/km, 3 dB reserve, D = 19 ps/(nm x km)
VE6041F01C1 **VE6041F01C2**	Smart 6-port (RJ45) 10/100BASE-TX Switch with two RJ45 10/100BASE-TX Uplink Ports (FP20-6TX2TX) Current consumption at 24 V DC 221mA Power output in Btu (IT) h 18.1
VE6041F02C1 **VE6041F02C2**	Smart 6-port (RJ45) 10/100BASE-TX Switch with two Uplink Ports -- one RJ45 10/100BASE-TX and one SC 100BASE-FX Multimode (FP20-6TX1MM1TX) Current consumption at 24 V DC 271mA Power output in Btu (IT) h 22.2
VE6041F03C1 **VE6041F03C2**	Smart 6-port (RJ45) 10/100BASE-TX Switch with two Uplink Ports -- one RJ45 10/100BASE-TX and one SC 100BASE-FX Single Mode (FP20-6TX1SM1TX) Current consumption at 24 V DC 271mA Power output in Btu (IT) h 22.2
VE6041F04C1 **VE6041F04C2**	Smart 6-port (RJ45) 10/100BASE-TX Switch with two Uplink Ports -- one RJ45 10/100BASE-TX and one SC 100BASE-FX Single Mode, Long Haul (FP20-6TX1SMLH1TX) Current consumption at 24 V DC 271mA Power output in Btu (IT) h 22.2
VE6041F05C1 **VE6041F05C2**	Smart 6-port (RJ45) 10/100BASE-TX Switch with two SC 100BASE-FX Multimode Uplink Ports (FP20-6TX2MM) Current consumption at 24 V DC 321mA Power output in Btu (IT) h 26.3

Switch VE Number	Description VE6041 Switch **All FP20 Switches have 8 total ports.** The modules with VE# ending in C2 are extended spec versions of the VE6041 switches and must be used where high temperature or conformal coating is required- these modules are G2 rated. KJ1611x1 Terminal Access Cable is required to setup switch – order separately
VE6041F06C1 **VE6041F06C2**	Smart 6-port (RJ45) 10/100BASE-TX Switch with two SC 100BASE-FX Single Mode Uplink Ports (FP20-6TX2SM) Current consumption at 24 V DC 321mA Power output in Btu (IT) h 26.3
VE6041F07C1 **VE6041F07C2**	Smart 6-port (RJ45) 10/100BASE-TX Switch with two SC 100BASE-FX Single Mode, Long Haul Uplink Ports (FP20-6TX2SMLH) Current consumption at 24 V DC 321mA Power output in Btu (IT) h 26.3

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<tr><td colspan="3" style="text-align:center">

General Specifications for the VE6042 and VE6043 DeltaV Smart Switches

All VE6042 and VE6043 DeltaV Smart Switches are G2 rated only.

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Fast ETHERNET- Layer 2 Smart Switch with store-and-forward-switching, Industrial switch for DIN rail mounting fan-less design.

Product description

Port type and quantity -- Fast Ethernet ports in total:

VE6042S2Cx 8 -10/100 ports	VE6043S2Cx 8 - 10/100 ports, 2 1Gb ports
VE6042S4Cx 16 -10/100 ports	VE6043S4Cx 16 - 10/100 ports, 2 1Gb ports
VE6042S6Cx 24 -10/100 ports	VE6043S6Cx 24 - 10/100 ports, 2 1Gb ports
Switch Stacking Support	MD20 and MD30 switches do not support "stacking". To create a switch(s) of greater than 24 ports the MD30 switch (VE6043) should be used and interconnected using the available gigabit ports

Ambient conditions:	Standard Model VE# ending in C1	Extended Specs VE# ending in C2
Operating temperature	0° to +60°C	-40° to +70°C
Storage/transport temperature	-40° to +70°C	-40° to +70°C
Relative humidity (non-condensing)	10% to 95%	10% to 95%
Conformal-coated	No	Yes
Harsh area rating	G2	G2 (conformal coating allows switch to be used in G3 environments but switch is not tested and certified to G3)
Certifications	See table on last page.	See table on last page.

User Access	Serial Interface, web interface. View-only SNMPv3
Diagnostics	LEDs, log-file, syslog, signal contact
Setup	None required for switching functions DeltaV Setup Wizard using serial interface to enable auto port lockdown and user access
Security	DeltaV Auto port lockdown, view-only SNMP V3 for monitoring. All user access is authenticated using passwords.
Redundancy	Standard DeltaV network redundancy
Real-time	Real-time clock—supports NTS as a client

More Interfaces
  Power supply/signaling contact plug-in terminal block
  V.24 interface 1 RJ11 socket for serial cable connection to enable auto port lockdown
  USB interface for flash upgrades

Power requirements
  Operating voltage 24 V DC (18-32) V
  Current consumption at 24 V DC –see table below
  Power output in Btu (IT) h –see table below

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Mechanical construction
  Dimensions: see table below
  Mounting: DIN Rail
  Weight: see table below
  Protection class IP20

Note: The VE6042 and VE6043 use an active backplane—the switching functions of the switch are contained in the backplane. The switch module contains the power supply and power and serial interface connections. The switch is composed of these two units and is available only as the complete switch unit.

Mechanical stability
  IEC 60068-2-27 shock 15 g, 11 ms duration, 18 shocks
  IEC 60068-2-6 vibration 1 mm, 2 Hz - 13.2 Hz, 90 min.; 0.7g, 13,2 Hz - 100 Hz, 90 min.; 3.5 mm, 3 Hz - 9 Hz, 10 cycles,1 octave/min.; 1g, 9 Hz - 150 Hz, 10 cycles, 1 octave/min.

EMC interference immunity:
EN 61000-4-2 electrostatic discharge (ESD) 6 kV contact discharge, 8kV air discharge
EN 61000-4-3 electromagnetic field 10 V/m (80 - 1000 MHz)
EN 61000-4-4 fast transients (burst) 2 kV power line, 1 kV data line
EN 61000-4-5 surge voltage power line: 2kV (line/earth), 1kV (line/line), 1kV data line
EN 61000-4-6 conducted immunity 3 V (10 kHz - 150 kHz), 10 V (150 kHz - 80 MHz)

EMC emitted immunity
FCC CFR47 Part 15 FCC CFR47 Part 15
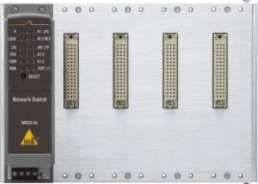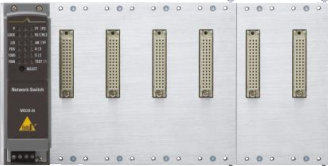EN 55022 EN 55022 Class A

Approvals
  See table on last page for certification information.

Provided in VE# - qty 1 VE6042 or VE6043 switch with terminal block

Order separately: **a KJ1611x1-MA1 serial terminal cable to access the DeltaV Switch Setup Wizard** to enable auto port lockdown**.** A serial cable is not required for each switch—only 2 or 3 cables are required per network.

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Switch VE Number	Description VE6042 and VE6043 Switches
	These switches support mounting of VE6045 modules only.
	KJ1611x1 Terminal Access Cable is required to setup switch – order separately
	The backplane and base module are available only as a set. They cannot be purchased individually.
	The VE6043 Gigabit uplink module (the left-most module on backplane) is available separately—see the Spare Assembly section for details.
VE6042S2C1 **VE6042S2C2**	Smart Ethernet Switch Module and Backplane for two VE6045-series Media Modules (MD20-8) (Note that the VE6042S2C1 cannot be upgraded to provide more than 8 ports. You must use the VE6042S4C1 or VE6042S6C1 if expansion to more than 8 ports is required) Dimensions (W x H x D) 125 x 133 x 100 (4.92 x 5.24 x 3.94 in) Weight: 610g (21.54 oz) Current consumption at 24 V DC 208 mA Power output in Btu (IT) h 17.1
VE6042S4C1 **VE6042S4C2**	Smart Ethernet Switch Module and Backplane for four VE6045-series Media Modules (MD20-16) Dimensions (W x H x D) 202 x 133 x 100 (7.96 x 5.24 x 3.94 in) Weight 880g (31.1 oz) Current consumption at 24 V DC 500 mA Power output in Btu (IT) h 41
VE6042S6C1 **VE6042S6C2**	Smart Ethernet Switch Module and Backplane for six VE6045-series Media Modules (MD20-24) Dimensions (W x H x D) 278 x 133 x 100 (11 x 5.24 x 3.94 in) Weight 1030g (36.36 oz) Current consumption at 24 V DC 500 mA Power output in Btu (IT) h 41

Switch VE Number The VE6043 Uplink Module Contains 2 Gigabit only ports - TX or SFP Uses VE6050 SFP Module	**Description VE6042 and VE6043Switches** These switches support mounting of VE6045 modules only. KJ1611x1 Terminal Access Cable is required to setup switch – order separately The backplane and base module are available only as a set. They cannot be purchased individually. The VE6043 Gigabit uplink module (the left-most module on backplane) is available separately—see the Spare Assembly section for details.
VE6043S2C1 **VE6043S2C2**	Smart Switch Module, Gigabit Uplink Module, and Backplane for two VE6045-series Media Modules (Note that the VE6043S2Cx cannot be upgraded to provide more than 8 ports. You must use the VE6043S4 or S6 if expansion beyond 8 ports is required) Dimensions (W x H x D) 163 x 133 x 100 (6.42 x 5.24 x 3.94 in) Weight 900g (31.77oz) Power consumption 2W + Current consumption at 24 V DC 233 mA Power output in Btu (IT) h 19.1
VE6043S4C1 **VE6043S4C2**	Smart Switch Module, Gigabit Uplink Module, and Backplane for four VE6045-series Media Modules Dimensions (W x H x D) 240 x 133 x 100 (9.45 x 5.24 x 3.94 in) Weight 1170g (41.30oz) Current consumption at 24 V DC 525 mA Power output in Btu (IT) h 43
VE6043S6C1 **VE6043S6C2**	Smart Switch Module, Gigabit Uplink Module, and Backplane for six VE6045-series Media Modules (MD30-24 + MD4-2TX/SFP) Dimensions (W x H x D) 316 x 133 x 100 (12.44 x 5.24 x 3.94 in) Weight 1160g (46.6oz) Current consumption at 24 V DC 525 mA Power output in Btu (IT) h 43
VE6044	Backplane Extension for VE6042S4 and S6 and VE6043S4 and S6 series switches. Extension allows up to 2 additional Media Modules. Extension is compatible with Extended Spec devices and can be used with the C1 or C2 version switches. The VE6044 cannot be used to extend the VE6042S2C1 or the VE6043S2C1 8 port switches Dimensions (W x H x D) 79 x 134 x 22 (3.11 x 5.26 x .87 in) Weight 150g (5.3oz) Power consumption 0 W Operating temperature -40°C to +70°C Conformal coated (only option available)

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<table>
<tr><td colspan="2">**VE6045 Media Modules for VE6042 and VE6043 Switches**

Media Modules below can be used on any of the VE6042 and VE6043 series switches above.

The module VE# ending C1 should not be used on the VE6042S_C2 and VE6043S_C2 Extended Spec switches

The modules with VE# ending in C2 are extended spec versions of the modules and must be used where high temperature or conformal coating is required- these modules are G2 rated. [The C2 modules may also be used on the standard spec version VE6042SxC1 and VE6043SxC1 switches].

NOTE: Modules dimensions differ in height [either 77 or 118mm] depending on port count and types</td></tr>
<tr><td>Fiber Optic Specifications for VE6045 modules</td><td>**Multimode 50/125 micron**   0-5000 m, 8 dB link budget at 1300 nm wavelength and 1 dB/Km attenuation/with 3 dB reserve.

Multimode 62.5/125 micron   0-4000 m, 11 dB link budget at 1300 nm wavelength and 1 dB/Km attenuation/with 3 dB reserve.

Single mode 9/125 micron   0-32.5 Km 16 db link loss at 1300 nm wavelength and 0.4 dB/Km attenuation/with 3 dB reserve.

Single mode fiber (LH) 9/125 µm (long haul transceiver): 24 - 86,6 km, 7 - 29 dB link budget at 1550 nm, A = 0,3 dB/km, 3 dB reserve, D = 19 ps/(nm x km)</td></tr>
</table>

Ordering Number	**Module Description** NOTE: Modules dimensions differ in height [either 77 or 118mm] depending on port count and types. Cabinet depth requirements will change based on module used. When combined with switch the maximum depth required = 141mm
	Wired Modules
VE6045M03C1 VE6045M03C2	Smart 4-port Media Module; **Four 10/100BASE-TX Copper** RJ45 Ports (MD2-4TX1). Power consumption 0.8 W, Dimensions(mm) 38 x 134 x 77 Weight 170g
VE6045M11C1 VE6045M11C2	Smart 4-port **Power-over-Ethernet (**PoE) Media Module; all ports are **10/100BASE-TX Copper** RJ45. (MD2-4TX1-PoE) Power consumption 0.8 W, Dimensions(mm) 38 x 134 x 77 PoE voltage max 60W external 48VDC Power Supply Weight 252g
	Multi Mode Fiber Modules
VE6045M06C1 VE6045M06C2	Smart 4-port Media Module; Four 100BASE-FX Fiber-Optic **Multi-Mode SC Ports** (MD3-4FX/M2). Power consumption 7 W, Dimensions(mm) 38 x 134 x 118 Weight 180g
VE6045M07C1 VE6045M07C2	Smart 4-port Media Module; Four 100BASE-FX Fiber-Optic **Multi-Mode ST Ports** (MD3-4FX/M4). Power consumption 7 W, Dimensions(mm) 38 x 134 x 118 Weight 180g

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Ordering Number	Module Description NOTE: Modules dimensions differ in height [either 77 or 118mm] depending on port count and types. Cabinet depth requirements will change based on module used. When combined with switch the maximum depth required = 141mm
VE6045M01C1 VE6045M01C2	Smart 2-port Media Module; Two 100BASE-FX Fiber-Optic **Multi-Mode SC Ports** (MD2-2FXM2). Power consumption 3.4 W, Dimensions(mm) 38 x 134 x 77 Weight 170g
VE6045M04C1 VE6045M04C2	Smart 4-port Media Module; **Two 10/100BASE-TX** Copper RJ45 Ports, and **two** 100BASE-FX Fiber-Optic **Multi-Mode SC Ports** (MD3-2FXM2/2TX1). Power consumption 3.4 W, Dimensions(mm) 38 x 134 x 118 Weight 180g
VE6045M09C1 VE6045M09C2	Smart 4-port Media Module; **Two 10/100BASE-TX** Copper RJ45 Ports, and **two** 100BASE-FX Fiber-Optic **Multi-Mode ST Ports** (MD3-2FXM4/2TX1). Power consumption 3.4 W, Dimensions(mm) 38 x 134 x 118 Weight 180g
	Single Mode Fiber Modules
VE6045M02C1 VE6045M02C2	Smart 2-port Media Module; Two 100BASE-FX Fiber-Optic **Single Mode SC Ports** (MD2-2FXS2). Power consumption 3.4 W, Dimensions(mm) 38 x 134 x 77 Weight 170g
VE6045M05C1 VE6045M05C2	Smart Switch; 4-port Media Module; **Two 10/100BASE-TX** Copper RJ45 Ports, and **two** 100BASE-FX Fiber-Optic **Single Mode SC Ports** (MD3-2FXS2/2TX1). Power consumption 3.4 W, Dimensions(mm) 38 x 134 x 118 Weight 180g
VE6045M08C1 VE6045M08C2	Smart 4-port Media Module; **Four** 100BASE-FX Fiber-Optic **Single-Mode SC** Ports (MD3-4FXS2). Power consumption 7 W, Dimensions(mm) 38 x 134 x 118 Weight 180g
VE6045M10C1 VE6045M10C2	Smart 4-port Media Module; **Three 10/100BASE-TX** Copper RJ45 Ports, and **one** 100BASE-FX Fiber-Optic **Single Mode SC Ports** (MD3-1FXS2/3TX1). Power consumption 3.4 W Dimensions(mm) 38 x 134 x 118 Weight 180g

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The following products are spare assemblies for the VE6043 switches.	
KJ1611X1-DA1 **KJ1611X1-DA2** 	Switch Module and Backplane for VE6043S2C1 Smart Switch (MD30-8) Module and backplane are not available separately and must be replaced as an assembly. -DA1 = spare for VE6043S2C1 -DA2 = spare for VE6043S2C2
KJ1611X1-DB1 **KJ1611X1-DB2** 	Switch Module and Backplane for VE6043S4C1 and VE6043S6C1 Smart Switches (MD30-16) Module and backplane are not available separately and must be replaced as an assembly. -DB1 = spare for VE6043S4C1 -DB2 = spare for VE6043S4C2
	The VE6042S6Cx and VE6043S6Cx 24 port switch is not available as a spare. These switches are made by connecting a VE6044 Expansion module to a VE6042S4Cx or aVE6043S4Cx switch. For spares order a KJ1611X1DB1 or DB2 and a VE6044 (or move the expansion module from the existing switch to the new spare switch during installation).
KJ1611X1-EA1 **KJ1611X1-EA2**	-EA1 = Gigabit Uplink Module for VE6043S2C1, VE6043S4C1 and VE6043S6C1 Smart Switches (MD4-2TX/SFP) -EA2 = Gigabit Uplink Module for VE6043S2C2, VE6043S4C2 and VE6043S6C2 Smart Switches (MD4-2TX/SFP-ES)

General Specifications for the VE6046, VE6047 and VE6048 DeltaV Network Switches	
DeltaV Smart switch - Software Layer 2 Professional, Store-and-Forward-Switching, fan-less design Up to 26 port Fast Ethernet/Gigabit Ethernet Industrial Workgroup Switch. Ports available: 　　Base module has 10 ports -- 2 uplink ports (10/100/1000 wired or using VE6050 SFP modules) and 8 TX ports (10/100 Base-TX) in a fixed configuration. 　　Up to 16 additional 100Mb ports using the VE6049 - 8 port Media Modules in any combination – TX, MM fiber, SM fiber or 100Mb SFP transceivers. The VE6046 and VE6047 are not modular switches and are fixed at 24 wired x 2 uplink ports and 8 wired ports x 2 uplink ports respectively	
Power supply/signaling contact	1 x plug-in terminal block, 2-pin, output manual or automatic switchable (max. 1 A, 24 V DC respectively 24 V AC)
V.24 interface	1 x RJ11 socket, serial interface for DeltaV Setup Wizard access
USB interface	For flash upgrade of switch software
Network size - length of cable – base module	
Twisted pair (TP)- 8 TX port base module and wired 10/100/1000 ports	0 - 100m
SFP module ports	Supports any combination of VE6050 1Gb or 100FX Transceivers
Switch Stacking Support	RM100 switches do not support "stacking". To create a central switch(s) of greater than 24 ports RM100 switches should be interconnected using the front panel gigabit ports
Power requirements	
Operating voltage	100 - 240 VAC, 47 - 63 Hz
Power output in Btu (IT) h	41 (without media modules)
Rated current	0.4 - 0.2 A
Power consumption	12 W (without media modules)
User Access	Serial interface using DeltaV Setup Wizard, view only web interface. View only SNMPv3
Diagnostics	LEDs, log-file, syslog, signal contact,
Setup	None required for switching functions DeltaV Setup Wizard using serial interface to enable auto port lockdown and SNMP monitor access
Security	DeltaV Auto port lockdown, view only SNMP V3 for monitoring. All user access is authenticated using passwords.
Redundancy	Standard DeltaV network redundancy.
Real-time	Real-time clock – supports NTS as a client.
Ambient conditions	
Operating temperature	0° - +50°C
Storage/transport temperature	-20° - +85°C
Relative humidity (non-condensing)	10% to 95%

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Mechanical construction	
Dimensions MM (W x H x D)	448 x 310 x 44 (without mounting bracket)
Mounting	19" control cabinet
Weight	3.60 kg
Protection class	IP20
EMC interference immunity	
EN 61000-4-2 electrostatic discharge (ESD)	4 kV contact discharge, 8 kV air discharge
EN 61000-4-3 electromagnetic field	10 V/m (80 - 2700 MHz)
EN 61000-4-4 fast transients (burst)	2 kV power line, 4 kV data line
EN 61000-4-5 surge voltage	power line: 2 kV (line/earth), 1 kV (line/line), 4 kV data line
EN 61000-4-6 conducted immunity	10 V (150 kHz - 80 MHz)
EMC emitted immunity	
FCC CFR47 Part 15	FCC 47 CFR Part 15 Class A
EN 55022	EN 55022 Class A
Approvals: See table on last page.	
Provided	VE60 device, terminal block for signal contact, 2 brackets with fastening screws (pre-assembled), housing feet - stick-on, power cable(s).
Accessories to order separately	Expansion modules Fast Ethernet SFP modules, Gigabit Ethernet SFP modules, **a KJ1611x1-MA1 serial terminal cable to access DeltaV Setup Wizard** to enable the auto port lockdown**.** A serial cable is not required for each switch – only 2 or 3 cables are required per network.

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Switch VE Number	Description of the VE6046 and VE6047 Switch
	The VE6046 and VE6047 are fixed 8- or 24-port copper industrial switches which should be used when a modular switch is not required KJ1611x1 Terminal Access Cable is required to setup switch – order separately

VE6046P1
 	
(This switch is not modular.)
	Smart 24-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; North American Power Cord
	   Power requirements
	   Power output in Btu (IT) h 55
	   Power consumption 16 W
	   Weight 4.02Kg

VE6046P2	Smart 24-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; United Kingdom Power Cord (RM100-24TX)
VE6046P3	Smart 24-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; European Power Cord (RM100-24TX)
VE6046P4	Smart 24-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Australian Power Cord (RM100-24TX)

VE6047P1
 	
(This switch is not modular.)
	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; North American Power Cord (RM100-8TX)
	   Power requirements
	   Power output in Btu (IT) h 41
	   Power consumption 12 W
	   Weight 3.6Kg

VE6047P2	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; United Kingdom Power Cord (RM100-8TX)
VE6047P3	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; European Power Cord (RM100-8TX)
VE6047P4	Smart 8-port Switch; Each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Australian Power Cord (RM100-8TX)

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Switch VE Number	Description of VE6048 Switch
Switch VE Number Note: Switch photos shown with module covers removed. Covers are provided with unit when shipped similar to VE6047 unit	**Description of VE6048 Switch** The VE6048 switch is a base chassis with 8 fixed copper ports and 2 gigabit uplink ports. The VE6049 modules are installed to create the specific switch configuration required. KJ1611x1 Terminal Access Cable is required to setup switch – order separately
VE6048R1P1	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Includes two expansion bays to add ports; Simplex Power Supply; North American Power Cord (RM100-Base Module) **Power requirements** Power output in Btu (IT) h 41 (without media modules) Power consumption 12 W (without media modules) Weight 3.60Kg (without media modules)
VE6048R1P2	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Includes two expansion bays to add ports; Simplex Power Supply; United Kingdom Power Cord (RM100-Base Module)
VE6048R1P3	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Includes two expansion bays to add ports; Simplex Power Supply; European Power Cord (RM100-Base Module)
VE6048R1P4	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Includes two expansion bays to add ports; Simplex Power Supply; Australian Power Cord (RM100-Base Module)
VE6048R2P1 Redundant Power Supplies	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Includes two expansion bays to add ports; Redundant Power Supply; North American Power Cord (RM100-RP Base Module) **Power requirements and Weight same as VE6048R1P1**
VE6048R2P2	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Includes two expansion bays to add ports; Redundant Power Supply; United Kingdom Power Cord (RM100-RP Base Module)
VE6048R2P3	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Includes two expansion bays to add ports; Redundant Power Supply; European Power Cord (RM100-RP Base Module)

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VE6048R2P4	Smart 8-port Switch; each port is 10/100BASE-TX Copper RJ45; Includes two RJ45 Uplink ports and two slots for VE6050-series Transceiver Modules; Includes two expansion bays to add ports; Redundant Power Supply; Australian Power Cord (RM100-RP Base Module)
Expansion Module VE number	**Description of Expansion Module for VE6048 Switch** Expansion Modules cannot be installed in the VE6046 or VE6047 switches
VE6049M01	8-port Expansion Module for VE6048-series Smart Switches; each Port is 10/100BASE-TX Copper RJ45 (RM100-EM8TX). See specifications table below. Module is hot swappable
VE6049M02	8-port Expansion Module for VE6048-series Smart Switches; each Port is 100BASE-FX Fiber-Optic Multi-Mode SC (RM100-EM8MMFX) See specifications table below. Module is hot swappable
VE6049M03	8-port Expansion Module for VE6048-series Smart Switches; each Port is 100BASE-FX Fiber-Optic Single-Mode SC (RM100-EM8SMFX) See specifications table below. Module is hot swappable
VE6049M04	8-slot Expansion Module for VE6048-series Smart Switches. The slots can have any combination of VE6050-series 100Mb Transceivers installed. (RM100-EM8SFP) See specifications table below. Module is hot swappable and SPF transceivers can be installed and removed under power.

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Specifications for VE6049M01	
Length of cable TP	100M
Power requirements: Current consumption Power output in Btu (IT) h	2 W 7
Ambient conditions: Operating temperature Storage/transport temperature Relative humidity (non-condensing)	0 °C to +50 °C -20 °C to +85 °C 10% up to 95%
Mechanical constructions: Dimensions MM (W x H x D) Mounting Weight Protection class	138 x 90 x 42 Media module in RM100 Chassis .21 K g IP 20

Specifications for VE6049M02	
Length of cable	Multimode fiber (MM) 50/125 µm: 0 - 5000 m, 8 dB Link Budget at 1300 nm, A = 1 dB/km, 3 dB Reserve, B = 800 MHz x km Multimode fiber (MM) 62.5/125 µm: 0 - 4000 m, 11 dB Link Budget at 1300 nm, A = 1 dB/km, 3 dB Reserve, B = 500 MHz x km Actual fiber optic distances achieved greatly depend on the fiber type used and other components installed on the network such as splices and patch panels that can reduce fiber optic signal strength.
Power requirements: Current consumption Power output in Btu (IT) h	10 W 7
Ambient conditions: Operating temperature Storage/transport temperature Relative humidity (non-condensing)	0 °C to +50 °C -20 °C to +85 °C 10% up to 95%
Mechanical constructions: Dimensions MM (W x H x D) Mounting Weight Protection class	138 x 90 x 42 Media module in RM100 Chassis .18 Kg IP 20

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Specifications for VE6049M03	
Length of cable	Single Mode fiber -- 0 – 32.5 km, 16 dB Link Budget at 1300 nm, A = 0,4 dB/km, 3 dB Reserve, D = 3,5 ps/(nm x km) Actual fiber-optic distances achieved greatly depend on the fiber type used and other components installed on the network such as splices and patch panels that can reduce fiber optic signal strength.
Power requirements: Current consumption Power output in Btu (IT) h	10 W 7
Ambient conditions: Operating temperature Storage/transport temperature Relative humidity (non-condensing)	0 °C to +50 °C -20 °C to +85 °C 10% up to 95%
Mechanical constructions: Dimensions (W x H x D mm) Mounting Weight Protection class	138 x 90 x 42 Media module in RM100 Chassis .18 Kg IP 20

Specifications for VE6049M04	
Length of cable	Supports any of the VE6050 100Mb SFP modules below
Power requirements: Current consumption Power output in Btu (IT) h	11 W including SFP modules 7
Ambient conditions: Operating temperature Storage/transport temperature Relative humidity (non-condensing)	0 °C to +50 °C -20 °C to +85 °C 10% up to 95%
Mechanical constructions: Dimensions (W x H x D) Mounting Weight Protection class	138 x 90 x 42 Media module in RM100 Chassis .13 Kg IP 20

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Specifications for 100Mb SFP Transceivers				
These modules can be used as follows: • VE6046, VE6047 and VE6048 rack mount switch uplink SFP slots on the base module of the switch • VE6049M04 expansion module. All Transceivers are compatible with both standard and Extended Specification switch Modules.				
LC= Connector Type MM= multi-mode SM= single mode LH=long haul	VE6050T08 M-FAST SFP-MM/LC 100Mb	VE6050T06 M-FAST SFP-SM/LC 100Mb	VE6050T05 M-FAST SFP-SM+/LC 100Mb	VE6050T04 M-FAST SFP-LH/LC 100Mb
Coupled Power max.	-14 dBm GI 62.5/125	-8 dBm	0 dBm	0 dBm
Coupled Power min.	-20 dBm GI 62.5/125	-15 dBm	-5 dBm	-5 dBm
Center Wavelength	1310 nm	1310 nm	1310 nm	1550 nm
Spectral Width (-20dB)	175nm FWHM	7.7 nm RMS	3 nm RMS	1 nm
Low Light Threshold	-31 dBm	-28 dBm	-34 dBm	-34 dBm
Maximum Input	-14 dBm	-8 dBm	-10 dBm	-10 dBm
Loss Budget	0-11 dB GI 62.5/125 0-8 dB GI 50/125	0-13 dB	10-29 dB	10-29 dB
Maximum Link Span	**0-4 km** GI 62.5/125 1,0 dB/km, 500 MHz*km **0-5 km** GI 50/125 1,0 dB/km, 800 MHz*km	**0-25 km** SI 9/125 0,4 dB/km	**25-65 km** SI 9/125	**47-104 km** SI 9/125 0.25 dB/km **55-140 km** SI 9/125 0.18 dB/km*
link spans with 3 dB reserve *** with Corning® Ultra-Low Loss Optical Fiber SMF-28®** Actual fiber optic distances achieved greatly depend on the fiber type used and other components installed on the network such as splices and patch panels that can reduce fiber-optic signal strength.				

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Specifications for 1Gb SFP Transceivers			
These modules can be used as follows: • VE6046, VE6047 and VE6048 rack mount switch in the uplink SFP slots on the base module of the switch • VE6043 Modular DIN rail switch Gigabit uplink slots. • These modules cannot be used in 100Mb slots of the VE6049M04 expansion module. All Transceivers are compatible with both standard and Extended Specification switch Modules.			
LC= connector type SX, LX & LH indicate link distance	VE6050T07 M-SFP-SX/LC 1Gb	VE6050T03 M-SFP-LX/LC 1Gb	VE6050T02 M-SFP-LH/LC 1Gb	VE6050T01 M-SFP-LH+/LC 1Gb
Coupled Power max.	-4 dBm	-3 dBm	+5 dBm	0 dBm
Coupled Power min.	-9.5 dBm	-9.5 dBm	-2 dBm	+5 dBm
Center Wavelength	850 nm	1310 nm	1550 nm	1550 nm
Spectral Width (-20dB)	0.85 nm RMS	3 nm RMS	1 nm	1 nm
Low Light Threshold	-20 dBm	-20 dBm	-22 dBm	-30 dBm
Maximum Input	0 dBm	-3 dBm	-3 dBm	-10 dBm
Loss Budget	0–7.5 dB	0-10.5 dB	8-20 dB	15-30 dB
Maximum Link Span	**0-550 m** GI 50/125 3,0 dB/km, 400 MHz*km **0-275 m** GI 62,5/125 3,2 dB/km, 200MHz*km	**0-550 m** GI 50/125 1,0 dB/km, 800MHz*km **0-550 m** GI 62,5/125 1,0 dB/km, 500 MHz*km **0-20 km** SI 9/125 0,4 dB/km 2.5 dB reserve	**38-68 km** 0,25 dB/km	**71-108 km** 0,25 dB/km **71-128 km** 0,21 dB/km
link spans with 3 dB reserve			
Actual fiber-optic distances achieved greatly depend on the fiber type used and other components installed on the network such as splices and patch panels that can reduce fiber optic signal strength.			

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Fiber Optic SFP Transceivers for use in DeltaV Switches

The Gigabit transceivers can be used only in the gigabit ports of the RM100 base module and the MD30 Uplink ports.

The 100Mb transceivers can be used in the Uplink ports of the VE6046, VE6047, VE6048 switch and the VE6094 SFP expansion module of the VE6048

All Transceivers except the VE6050T01 are compatible with the Extended Spec switches and can also be used in the standard spec switches as well.

Power Consumption for all Transceivers

Operating voltage power supply via the switch

Power consumption 1 W

Weight 40g

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VE Number	Description
1 Gigabit Modules	
VE6050T01 Gigabit	Transceiver for Smart Switches: 1 Gigabit Ethernet; Single Mode Long Haul, for up to 120 Kilometers of fiber-optic cable (M-SFP-LH+/LC) [This SFP Module is **not** compatible with Extended Spec usage—not available with extended temperature specifications
VE6050T02 Gigabit	Transceiver for Smart Switches; 1 Gigabit Ethernet; Single Mode Long Haul, for up to 80 Kilometers of fiber-optic cable (M-SFP-LH/LC-EEC) Extended Specs
VE6050T03 Gigabit	Transceiver for Smart Switches; 1 Gigabit Ethernet; Single Mode, for up to 20 Kilometers of fiber-optic cable (M-SFP-LX/LC EEC) Extended Specs
VE6050T07 Gigabit	Transceiver for Smart Switches; 1 Gigabit Ethernet; Multi-mode, for up to 550 meters of fiber-optic cable (M-SFP-SX/LC EEC) Extended Specs
100 Megabit Modules	
VE6050T04	Transceiver for Smart Switches; 100 Megabit Ethernet, Single Mode, for up to 100 Kilometers of fiber-optic cable (M-FAST SFP-LH/LC-EEC) Extended Specs
VE6050T05	Transceiver for Smart Switches; 100 Megabit Ethernet; Single Mode, for up to 65 Kilometers of fiber-optic cable (M-FAST SFP-SM+/LC-EEC) Extended Speca
VE6050T06	Transceiver for Smart Switches; 100 Megabit Ethernet; Single Mode, for up to 25 Kilometers of fiber-optic cable (M-FAST SFP-SM/LC-EEC) Extended Specs
VE6050T08	Transceiver for Smart Switches; 100 Megabit Ethernet: Multi-Mode; for up to 5 Kilometers of fiber-optic cable (M-FAST SFP-MM/LC-EEC) Extended Specs

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Accessories	
KJ1611X1-JA1	Rack-Mount Kit for DIN-rail mounted Smart Switches. Allows FP20 and MD20 and MD30 switches to be mounted on standard 19" rails (Switches not included [shown with FP20 switches installed])
KJ1611X1-MA1 No photo available	Terminal Access Cable; required to set up VE6041-, VE6042-, VE6043-, VE6046-, VE6047- and VE6048-series Smart Switches. One cable is compatible with all switch models. **Cable is not included with switches and must be ordered separately**

DeltaV Setup Wizard	
The Smart Switch setup wizard provides access to only the configuration parameters in this table. There is no user access to any other switch configuration parameters. Switches do not support VLANS.	
Parameter	**Description**
Reset Configuration to DeltaV Defaults	Clears the information in the questions below back to DeltaV default values
Enter IP address for the Switch (010.x.x.x)	Enters network address for the switch to enable one-click lockdown, SNMP and Web access. Entry must be in the range of permitted DeltaV addresses reserved for switches.
Enter Name for Switch [up to 64 characters]	Enters name for switch that appears in one-click lockdown application
Enter Location for Switch [up to 64 characters]	Enters a physical location description used in Web and SNMP access
Change admin password	Allows default DeltaV admin password to be changed – only impacts access to Setup wizard
Change user password	Allows default DeltaV user password to be changed –impacts access to setup wizard and Web access
Enter IP address of SNMP trap destination node	Allows switch to send any preconfigured traps to a computer on the DeltaV network
Enter IP address of SysLog server node	Allows switch to send to a computer on the DeltaV network that is setup to collect communications traffic information from the switch
Disable Telnet Access	Disable remote configuration access using Telnet
Disable HTTP Access	Disable access to the view only web interface on the switch
Time Server IP address	Location to get real time to sync internal clock with system
Backup Time Server IP address	Location to get real time to sync internal clock with system if primary time server is unavailable

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Agency Approvals and Certifications

Declaration/ Approval	FP20	FP20-ES	MD20 MD30	MD20-ES MD30-ES	RM100
CE Declaration – Basic Standards EMC (Harmonized European Standards according to EMC-Directive 2004/108/EC - EN 55022 Emission of ITE, - IEC/EN 61000-6-2:2005 – Immunity in industrial environment, - EN 61000-3-2:2000 + A2:2005 – Limits for harmonic current emissions - EN 61000-3-3:1995 + A1:2001 – Limitation of voltage changes, voltage fluctuations and flicker Safety (Harmonized European Standards according to Low-Voltage-Directive 2006/95/EG) - EN 61131-2:2003 – programmable Controllers	Class A	Class A	Class A	Class A	Pending
FCC Declaration - CFR47: 2005, Part 15	Class A	Class A	Class A	Class A	Pending
cUL Approval according to UL 508 - UL 508:2003 – Industrial control equipment – US. Safety standard - CSA 22.2 No. 142-M1997 – Industrial control equipment – Canadian safety standard	Pending	Pending	Pending	Pending	Pending
cUL Approval according to ISA-12.12.-01 Class 1 Div. 2 /UL1604 - ANSI/ISA 12.12.01:2000, Approved 2001 - CSA 22.2 No. 213-M1987	Pending	Pending	Pending	Pending	-
IEC/EN 61131-2 Declaration - EN 61131-2 : 2003 – Programmable Controllers	X	X	X		-
IEC/EN 61850-3 Declaration - EN 61850-3 :2002 – Communication Networks and Systems in Substations (environmental requirements)	X	X	X		-
cUL Approval according to UL 60950-1 - UL 60950-1:2003 – Safety of Information Technology Equipment – US. Safety standard - CSA 22.2 No. 950:1998 – Safety of Information Technology Equipment – Canadian safety standard	-	-	-	-	Pending
IEC/EN 60950-1 Certification according to CB-scheme - EN 60950-1:2003 – Information technology equipment – Safety	-	-	-	-	Pending
ATEX 100a Approval, Zone 2, - according to EN 60079-15:2005 – Electrical apparatus for explosive atmospheres	-	X	-	X	-
GL (Germanischer Lloyd)	Pending	Pending	Pending	Pending	-
C-TICK (Australia)	X	X	X	X	Pending

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