VIVAX METROTECH

vCam-6

Technical Specifications V1.6

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A. Typical Applications

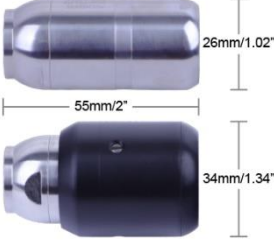| Component	Specification
Purpose	A tool to inspect and provide digital video recordings and JPEG images of the interior of small diameter metallic and non-metallic, pipes, drains, conduits, and ducts. The most typical application is the inspection of sewer laterals and plumbing. Digital video and JPEG picture images are viewed on the control modules LCD and recorded onto the internal hard drive, USB thumb drives, or SD card.
System Components	• **Viewing & Recording Device:** vCam-6 Control Module (supplied with AC/DC power cables, accessory kit, and manual) • **Reel Options:** **Standard size Type-CP Reel** available in lengths of: - 200 ft. / 60m - 300 ft. / 90m - 400 ft. / 120m **Mini size Type-MX Reel** available in lengths of: - 100 ft. / 30m - 150 ft. / 45m - 200 ft. / 60m – North America markets only • **Camera Head Options:** **For Type-CP Standard Reel:** - D34-HD 1.3" / 34mm Self-leveling color camera - D46-HD 1.8" / 46mm Self-leveling color camera **For Type-MX Mini Reel:** - D18-MX 0.70" / 18mm Fixed position color camera - D26-MX 1" / 26mm Self-leveling color camera *The vCam-6 control module is backward compatible with previous camera heads supplied with legacy Type-C, Type-P, Type-M, and Type-M2 reels and camera heads.*

vCam-6 Control Module

Control Module	320mm/12.6" 360mm/14.2" 150mm/5.91"

Type-CP Reel	D34-HD Camera Head	D46-HD Camera Head
Standard size systems 910mm/35.8" 700mm/28" 500mm/19.7"	 34.5mm/1.36" 56mm/2.2" 45mm/1.77"	 46mm/1.8" 50.5mm/1.9" 61.2mm/2.41"

	Type-MX Reel	D18-MX Camera Head	D26-MX Camera Head
Mini size systems			

B. vCam-6 Control Module

Component	Specification
Dimensions	14.2" (L) x 5.91" (W) x 12.6" (H) *(360mm(L) x 150mm(W) x 320mm(H))*.
Weight	12.1 lbs. 5.49kg
Power Supply	• AC Power: 100V / 240V, AC power powers unit, and charges internal batteries • DC Power: 12V DC external power supply powers unit and charges internal batteries
Battery	• Internal Lithium-ion rechargeable batteries and 12V charger
Battery Life	A six-hour charge will provide: • Six hours of battery life • Four hours with sonde mode on
Fuse	10 Amp – 250 Volt, glass, quick blow
Internal Storage	1 TB / 5400 RPM Hard Drive
External Storage	• USB Port – Supports up to 128GB Removable USB 2.0 Drives. • SD Card Slot – Supports up to 32GB Removable Class 10 SD Cards
File Format	• MP4 Video (1920 x 1080) (PAL or NTSC) • JPEG Still Image Capture (1920 x 1080, 96 dpi)
Display	• 9.7" *(24cm)* Daylight viewable HD (1024x 768) (diagonal measurement) • Touch screen option
Environmental	• Water-resistant to IP54 (IEC 60529-Light shower) (lid closed) • Shock resistant (IEC 60068-2-31) (lid closed)
Temperature Range	• Storage: -4ºF to 158ºF *(-20ºC to +70ºC)* • Operating: 14ºF to 122ºF *(-10ºC to +50ºC)*
Mounting	Mounts directly atop standard size Type-CP reel
Operating System	Firmware is updatable via USB port with files available from the Vivax-Metrotech website, local distributor or factory
Options and Accessories	*vCam Live View Mobile* phone/tablet app for video streaming, image capturing, adding text and file sharing

C. Operator Controls

Controls	Functions
Camera LED Dimmer	Variable control on the front panel to adjust the brightness of the camera LEDs
Distance Counter	Push-button control on the front panel to zero distance count*
Sonde Operation	Push-button control on the front panel activates the sonde and changes frequencies
Microphone Operation	• Push-button control on the front panel turns the internal and external microphone on and off • Push-button glows red, and the microphone icon appears on the status bar on LCD when active
Power On/Off	• Push-button control on the front panel turns the internal microphone on and off • Push-button glows red, and the microphone icon appears on the status bar on LCD when active
Recording Control	• Push-button on the front panel, push to record, push second time to stop recording • Push-button glows red when recording and flashing icon appears on the status bar on LCD

	when recording
Image Capture	• Press the push-button on the top panel, and the image is captured to the default drive • A JPEG icon flashes on the status bar confirming the image capture
Video Playback control	• Push-buttons on the top panel to pause the video, rewind/fast forward, play and stop • Icons appear on the status bar to advise which function is active
Digital Zoom	Push-button on the top panel. Pressing the button repeatedly toggles through 4 x zoom then off. When the button is pressed, a movable window appears on the LCD, use the left/right/up/down keys to move window and zoom in on the desired area
On-Screen Display (OSD)	Pressing keyboard F2 brings up OSD showing time, date, and distance counter on the bottom of the screen, press to move to the top of the screen, pressing again turns off the OSD
Wi-Fi	150' / 45m Wi-Fi range for use with *vCam Live View Mobile* streaming and recording app
Keyboard	Custom QWERTY splash-proof keyboard with specifically labeled function keys F1 through F12

Custom Keys	Functions
F1	**Help** - Press to view help screens describing icons, keys, and their functions
F2	**Info** - (On Screen Display) move the position of systems date, time and distance of pushrod deployed
Ctrl + F2	**Colors** - Use to change the color choice of the On-Screen Display. White, black, yellow or green
F3	**Text Colors** - Use to change the color choice of the Text Writer. White, black, yellow or green
Ctrl + F3	**Text** - Use to turn the Text Writer on and off
F4	**Background** - Use to add a background to the text from the text writer, white, black or grey
F5	**Recall** - Use to recall a saved page of text
F6	**Save** - Use to save a page of text
F7	**Delete Page** - Use to delete a saved page of text
F8	**Delete All** - Use to delete all saved pages of text
F9	**Display** - Use to adjust the LCD color settings, backlight and touch screen
F10	**Menu** - Use to access file transfer menu and setup menu
Ctrl + F10	**Show/Hide Status Bar** - Use to show or hide the status bar
F11	**Font** - Choose between four font sizes/types
F12	**Wi-Fi** - Turns the internal Wi-Fi on and off

Sockets and Jacks	Functions
Audio and Video	RCA Sockets: Color-coded industry-standard female socket for video out, video in, and audio out VGA Port: 15-pin DE-15 connector to connect to external monitors HDMI Port: to connect to HD monitors, LCD's and TV's
Microphone	3.5mm female industry-standard socket
Media Sockets	USB 2.0 and SD (secure digital) sockets Supports up to 128GB USB 2.0 USB Drives and 32 GB Class 10 SD Cards
AC Power	100V-240V Grounded power socket
Data Port	USB Mini data port for use with third-party LACP software
Camera Test Port	4 Pin female keyed socket to test camera head picture and LEDs
DC Power	12V 1 Pin male circular sock for DC power cable assembly
Reel Interconnect	9 Pin female keyed locking socket for reel interconnect cable

D.   Type-CP Standard Reels

Component	Specification
Pushrod	Fiberglass rod, conductors and coax with a high-density Polyethylene Jacket
Pushrod length Options	200ft *(60m)*, 300ft *(90m)*, or 400ft *(120m)*
Pushrod Diameter	0.47" *(12mm)*
Minimum Break Strength	4000lbs *(1800kg)*
Bend Radius	Approximately 40 x the rods OD, Minimum bend radius approximately 5.5"/139mm
Sonde Frequencies	512Hz, 640Hz, or 33kHz selectable and set as default in the control module setup menu
Sonde Output/Range	5-Watt output power provided by the control module. Average maximum locatable depth approximately 12ft *(4m)* in cast-iron pipes. Possibly more in non-metallic pipes
Pushrod Tracing	Post for connecting an external utility locating transmitter. When connected and energized the entire length of pushrod can be traced with a buried utility locator
Termination Springs	Field serviceable coiled cable, lanyards, and spring
Distance Counter	Encoder driver accurate to 0.33ft *(0.1m)* resolution*

Reel Dimensions	28''(L) x 19.7''(W) x 35.8''(H) *(710(L) x 500(W) x 910(H) mm).*
Weight	200 ft (60m): 57 lbs. (26kg) 300 ft (90m): 68 lbs. (31kg) 400 ft (120m): 79 lbs. (36kg)
Environmental	Water-resistant to IP54
Construction	All stainless-steel tubular fame with stainless hardware
Braking/Locking	Hand tightening friction brake to slow pushrod cage, push/pull brake lever to lock the cage
Options and Accessories	• Interconnect Cable – Extended length 25ft (8m) cable to provide greater distance from the control module. (Standard version is 12ft (4m) long) • Drip Bag - Attaches around the reel cage to catch debris from pushrod. • Rotate and Tilt Table (RATT Table) – Mounts between the control module and Type-CP reel, allowing it to be able to tilt and rotate the control module to a comfortable viewing position. • Short Spring Kit – Consist of shorter length (7inch/18cm) and stiffer spring, coiled cable, and lanyards. Suitable for use in larger diameter lines with few bends

E. Camera Heads (For Type-CP Standard Reel)

D34-HD, Self-Leveling Color Camera, 1.3inch/34mm diameter

Component	Specification
Application	Used with Type-CP Reel, in pipe diameters from three to six inches
Resolution	1080P
Active Pixels	NTSC: 1920 x 1080 (30 fps) PAL: 1920 x 1080 (25 fps)
Focus Point	7.8"/*20cm*
Aperture / Field of View	F2.4/96º
Light Sensitivity	0.01 Lux
Lighting	12.87 Lumen
Auto Upright	Cantilever self-leveling design
Construction	Stainless steel housing with scratch-resistant Sapphire lens
Environmental	Water resistance up to 11 BAR pressure
Temperature Range	Storage: -4ºF to 158ºF *(-20ºC to +70ºC)*, Operating: 14ºF to 122ºF *(-10ºC to +50ºC)*
Dimension Installed	1.36" (Dia.) x 2.2" (L) / *34.5mm (Dia.)* x *56mm (L)* without standard skid 1.77" / 45mm Diameter with standard skid installed
Total Dimensions	1.36" (Dia.) x 2.9" (L) / *34.5mm (Dia.)* x *73mm (L)* without standard skid 1.77" / 45mm Diameter with standard skid installed
Weight	0.49lbs *(0.22kg)*
Shipping Weight	0.77lbs *(0.35kg)*
Warranty	1 Year
Options and Accessories	Camera Exchange Program Guide skid range: 2.25", 3", and 4" (57 mm, 75 mm, and 100 mm) Type-B Adjustable Skid

D46-HD, Self-Leveling Color Camera, 1.8inch/46mm diameter

Component	Specification
Application	Used on Type-CP Reel, in pipe diameters from four to eight inches
Resolution	1080P
Active Pixels	NTSC: 1920 x 1080 (30 fps) PAL: 1920 x 1080 (25 fps)
Focus Point	7.8"/*20cm*
Aperture / FOV	F2.4/96º
Light Sensitivity	0.01 Lux
Lighting	44.02 Lumen
Auto Upright	Cantilever self-leveling design
Construction	Stainless steel housing with scratch-resistant Sapphire lens
Environmental	Water resistance up to 11 BAR pressure
Temperature Range	Storage: -4ºF to 158ºF *(-20ºC to +70ºC)*, Operating: 14ºF to 122ºF *(-10ºC to +50ºC)*
Dimension Installed	1.8" (Dia.) x 1.9" (L) / 46mm (Dia.) x 50.5mm (L) without standard skid 2.41" / 61.2mm Diameter with standard skid installed
Total Dimensions	1.8" (Dia.) x 2.6" (L) / *46mm (Dia.)* x *68.4mm (L)* without standard skid 2.41" / 61.2mm Diameter with standard skid installed
Weight	0.73lbs *(0.33kg)*
Shipping Weight	0.84lbs *(0.38kg)*
Warranty	1 Year

Options	Camera Exchange Program
	Guide skid range: 3", 4", and 5" (75 mm, 100 mm, and 127 mm)
	Type-B Skid

F. Type-MX Mini Reel

Component	Specification
Pushrod	Fiberglass rod, conductors and coax with a high-density Polyethylene jacket
Pushrod length Options	100 ft. 60m or 150 ft. 90m (200ft./60m - available in the North America market)
Pushrod Diameter	*0.39" (10mm)*
Minimum Break Strength	4000lbs *(1800kg)*
Bend Radius	Approximately 40 x the pushrods diameter, Minimum bend radius approximately 3"/75mm
Sonde Frequencies	33kHz, 512Hz, or 640Hz selectable and set as default in the control module setup menu
Sonde Output/Range	5-Watt output power provided by the control module. Average maximum locatable depth approximately 12ft *(4m)* in cast-iron pipes. Possibly more in non-metallic pipes.
Pushrod Tracing	Post for connecting an external utility locating transmitter. When connected and energized the entire length of pushrod can be traced with a buried utility locator
Termination Spring	Removable spring assembly consists of spring, coiled cable, and lanyard
Distance Counter	Encoder driver accurate to 0.33ft *(0.1m)* resolution*
Reel Dimensions	20.9" (L) x 12.7" (W) x 22.4" (H) (531mm (L) x 322mm (W) x 570mm (H)).
Weight	100 ft (30m): 22 lbs. (*10kg*)
	150 ft (45m): 27 lbs. (12kg)
	200 ft (60m): 32 lbs. (14kg) - Available only in the North American market
Environmental	Water-resistant to IP54
Construction	Stainless-steel tubular fame with lightweight carbon fiber drum
Braking/Locking	All-in-one locking and friction lever slow pushrod drum or lock in place
Options and Accessories	Drip Bag - Attaches around the reel cage to catch debris from the pushrod

G. Camera Heads (For MX Mini Reel)

D18-MX, Fixed Position Color Camera, 0.70 inch / 18mm diameter

Component	Specification
Application	Used on MX Reel, in pipe diameters from 1.5" to 4" / 40 to 100mm
Resolution	520 TVL
Active Pixels	NTSC: 704 x 480 PAL: 704 x 576
Focus Point	4.7" *(120mm)*
Aperture / FOV	F2.0/55o
Light Sensitivity	0.008 Lux
Lighting	17.53 Lumen
Auto Upright	None, fixed position non-leveling camera
Construction	Stainless steel housing with scratch-resistant Sapphire lens
Environmental	Water resistance up to 11 BAR pressure
Temperature Range	Storage: -4ºF to 158ºF *(-20ºC to +70ºC)*, Operating: 14ºF to 122ºF *(-10ºC to +50ºC)*
Dimensions	0.70" (Dia.) x 1.2" (L) / 18.6mm (Dia.) x 29.5mm (L) without standard skid
	1.22" / 31mm Diameter with standard skid installed
Weight	0.039lbs *(0.018kg)*
Shipping Weight	0.22lbs *(0.1kg)*
Warranty	1 Year
Options and Accessories	Optional 2.5 / 57mm Guide skid
	Camera exchange program

D26-MX, Self-Leveling Color Camera, 1 inch / 26mm diameter

Component	Specification
Range	Used on MX reel, in pipe diameters from 2 to 4" / 50 to 100mm
Resolution	700 TVL
Active Pixels	NTSC: 704 x 480 PAL: 704 x 576
Focus Point	7.87" (20cm)
Aperture / FOV	F2.0/88.4º
Light Sensitivity	0.01 Lux
Lighting	20.39 Lumens
Auto Upright	Cantilever self-leveling design
Construction	Stainless steel housing with scratch-resistant Sapphire lens

Environmental	Water resistance up to 10 BAR pressure
Temperature Range	Storage: -4ºF to 158ºF *(-20ºC to +70ºC),* Operating: 14ºF to 122ºF *(-10ºC to +50ºC).*
Dimensions Installed	1.02" *(Dia.)* x 2" (L) / *26mm(Dia.) x 55mm(L)* without standard skid 1.34" / 34mm Diameter with standard skid installed
Weight	0.205lbs *(0.093kg)*
Shipping Weight	0.4lbs *(0.18kg)*
Warranty	1 Year
Options and Accessories	Optional 2.5 and 3" guide skids (57 and 75mm) Camera exchange program

H. Shipping Weights

Model	Dimensions and Weights
vCam-6 Control Module (with tool kit)	Dimension: 15.8" (L) x 8.7" (W) x 17.3" (H) *(400(L) x 220(W) x 440(H) mm.* Weight: 14.3 lbs. *(6.5 kg)*

Type-CP Reel with Pushrod (Reels with pushrod, camera head, insert sleeve and interconnect cable)	• 200ft/60m
	  o Dimension: 31.1" (L) x 21.3" (W) x 38.6" (H) *(790(L) x 540(W) x 980(H) mm)*
	  o Weight: 74 lbs. *(34kg)*
	• 300ft/90m
	  o Dimension: 31.1" (L) x 21.3" (W) x 38.6" (H) *(790(L) x 540(W) x 980(H) mm)*
	  o Weight: 83 lbs. *(38kg)*
	• 400ft/120m
	  o Dimension: 31.1" (L) x 21.3" (W) x 38.6" (H) *(790(L) x 540(W) x 980(H) mm)*
	  o Weight: 95 lbs. *(43kg)*

D34-HD Camera Head	* Dimensions: 9" (L) x 5" (W) x 5" (H) *(228(L) x 127(W) x 127(H) mm)* * Weight: 2 lbs. (0.90kg)
D46-HD Camera Head	* Dimensions: 9" (L) x 5" (W) x 5" (H) *(228(L) x 127(W) x 127(H) mm)* * Weight: 2 lbs. (0.90kg)

MX Reel with Pushrod (Reels with pushrod, camera head, insert sleeve and interconnect cable)	• 100 ft / 30m
	  o Dimension: 22.6" (L) x 13.5" (W) x 24.2" (H) *(574 (L) x 343 (W) x 615 (H) mm)*
	  o Weight: 31 lbs. *(14 kg)*
	• 150 ft / 45m
	  o Dimension: 22.6" (L) x 13.5" (W) x 24.2" (H) *(574 (L) x 343 (W) x 615 (H) mm)*
	  o Weight: 34 lbs. *(16 kg)*
	• 200 ft / 60m (North America Markets only)
	  o Dimension: 22.6" (L) x 13.5" (W) x 24.2" (H) *(574 (L) x 343 (W) x 615 (H) mm)*
	  o Weight: 48 lbs. *(23 kg)*

D18-MX Camera Head	* Dimensions: 9" (L) x 5" (W) x 5" (H) *(228(L) x 127(W) x 127(H) mm)* * Weight: 2 lbs. (0.90kg)
D26-MX Camera Head	* Dimensions: 9" (L) x 5" (W) x 5" (H) *(228(L) x 127(W) x 127(H) mm)* * Weight: 2 lbs. (0.90kg)

*Shipping dimensions and weight are approximate

I. Warranty

Item	Parameter	
Warranty	Control Module:	1 year
	Reels & Pushrod:	1 year
	Camera Heads:	1 year
	Accessories:	1 year

J. Warnings

Dimensions and weight conversions are approximate (metric data is the most accurate). Shipping dimensions and weight are approximate.

The LCD and Hard Drive used in this product are consumer products, and models may change. Vivax-Metrotech Corporation attempts to ensure that the minimum features listed here are present in every LCD, some additional features may vary from model to model.

Vivax-Metrotech Corporation will continue to update and improve its products. The information in these specifications are subject to change, obsolescence, or superseding. Check with your local sales representative or Vivax-Metrotech Corporation for updates.

*The distance count given on the LCD should is designed to provide an estimate. Care should always be used by actually locating the camera head with a sonde or pipe and cable locator.

All products are designed and manufactured per ISO 9001:2015.

Disclaimer: Product and accessory specification and availability information are subject to change without prior notice.