

A. Typical Applications

| Component | Specification |
|--------------------------|---|
| Purpose | To inspect and provide a digital video and image record of the inspection of the interior of metallic and non metallic, pipes, drains, conduits and ducts. The most typical application is the inspection of sewer laterals, sewer mainlines and plumbing. Digital video and jpeg picture images are viewed on the control module LCD and recorded onto the internal hard drive, USB thumb drives or SD (secure digital) card. |
| System Components | <ul style="list-style-type: none"> • Viewing & Recording Device: vCam-5 Control Module (comes with an accessory kit, quick guide and manual) • Reels: (reels purchased with pushrod come with a insertion sleeve) Type-CP Standard Reel with pushrod options of: <ul style="list-style-type: none"> - 200ft/60m - 400ft/120m • Camera Head Options: <ul style="list-style-type: none"> ○ Type-CP Standard Reel Cameras (<i>Type-CP reel cameras are interchangeable</i>) <ul style="list-style-type: none"> - D34-C 1.3"/34mm Self leveling color camera - D46-C 1.8"/46mm Self leveling color camera <p><i>The vCam-5 control module and Type-CP standard reel are backward compatible with previous vCamDigital and vCamModular modules.</i></p> |

| Control Module | Type-CP Reel | D34-CCamera | D46-C Camera |
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B. vCam-5 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 | 10.6lbs (4.8kg) |
| Power Supply | <ul style="list-style-type: none"> 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 |
| Internal Storage | 320GB / 7200 RPM Hard Drive |
| External Storage | <ul style="list-style-type: none"> USB Drives SD Card |
| File Format | <ul style="list-style-type: none"> AVI Video JPEG Still Image Capture |
| Video Format | Automatically senses PAL or NTSC and changes format |
| Display | 8" TFT LCD (800x600) diagonal measurement |
| Distance Counter | Approximate distance is shown (forward and backwards) in feet or meters on the LCD screen with the option to appear in still images or recorded video.* |
| Environmental | <ul style="list-style-type: none"> Water resistant to IP54 (IEC 60529-Light shower) (lid closed) Shock resistant (IEC 60068-2-31) (lid closed) |
| Temperature Range | <ul style="list-style-type: none"> Storage: -4°F to 158°F (-20°C to +70°C) Operating: 14°F to 122°F (-10°C to +50°C) |
| Internal Batteries | <ul style="list-style-type: none"> Internal Lithium-ion rechargeable batteries and charger (12V). 4 hour runtime when Sonde on, 6 hour when Sonde off |
| Mounting | Mounts directly atop Type-CP reel. Mount kit is available for previous Type-C reel. |

Operator Controls

| Controls | Functions |
|-------------------------|---|
| Camera LED Dimmer | Variable control on front panel to adjust brightness of camera LED |
| Distance Counter | Push button control on front panel to zero out distance out* |
| Sonde Operation | <ul style="list-style-type: none"> Push button control on front panel turns Sonde on and off. Push button glows green and Sonde icon appears on status bar on LCD when active |
| Microphone Operation | <ul style="list-style-type: none"> Push button control on front panel turns both internal and external microphone on and off. Push button glows red and microphone icon appears on status bar on LCD when active |
| Unit On/Off | <ul style="list-style-type: none"> Push button control on front panel turns unit on and off. Push button glows green and battery icon appears on status bar on LCD showing battery status and if powered by AC/DC power or internal battery power |
| Recording Control | <ul style="list-style-type: none"> Push button control on top panel, push to record, push second time to stop recording. Push button glows red when recording and flashing icon appears on status bar on LCD when recording |
| Image Capture | Push button control on top, press once and image is captured to the default storage device selected during setup. JPEG icon flashes on LCD status bar with image file name. |
| Video Playback control | Push button control strip on top panel for video pause, step reverse, play, step forward and stop. Icons appear on status bar to advise which function is being used. |
| Digital Zoom | Push button on top panel, pressing repeatedly toggles through 4 X zoom then off. When button is pressed a movable window appears on the LCD, use the left/right/up/down keys to move window and zoom in on a desired area. |
| On Screen Display (OSD) | Pressing keyboard F2 brings up OSD showing time, date and distance counter on bottom of screen, press to move to top of screen, pressing again turns off the OSD |
| Keyboard | Custom QWERTY splash proof keyboard specifically labeled function keys F1 through F12 |

| Sockets and Jacks | Functions |
|--------------------|---|
| Audio and Video | Color coded industry standard RCA female sockets on left panel for video in, video and audio out |
| Microphone | 3.5mm female industry standard socket on front panel |
| Media Sockets | USB 2.0 and SD (secure digital) sockets on left side panel |
| Ethernet | Industry standard RJ45 Ethernet socket on left panel for direct PC interface |
| AC Power | 100V-240V Grounded power socket on left panel |
| RS232 | 9 Pin female D Socket on right panel for RS232 interface for CCTV survey software |
| Camera Test Port | 4 Pin female keyed socket on right panel to test camera head picture and LED's |
| 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 assembly |
| Battery Indicators | <ul style="list-style-type: none"> Battery Icon on front panel glows red while charging and turns off when fully charged. Battery icon also shows on status bar indicating if running on AC/DC power or internal batteries. |

| Software | Functions |
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| Software | Free vCam Media Central software available from download at our website. Software will convert video formats, play videos, take snapshots from playing video and burn DVD's. |

C. Type-CP Reel Assemblies

Pushrod

| Component | Specification |
|------------------------|---|
| Pushrod | Fiberglass rod surrounded by multi conductors and coax wrapped in a Kevlar braid with a high density Polyethylene jacket |
| Pushrod length Options | <ul style="list-style-type: none"> 200ft (60m) 400ft (120m) |
| Pushrod Diameter | 0.47" (12mm) |
| Minimum Break Strength | 4000lbs (1800kg) |
| Bend Radius | Approximately 40 x the rods OD |
| Sonde Frequencies | 512Hz and 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. |
| Termination | <ul style="list-style-type: none"> Termination Base - Custom stainless steel hardware with white POM (a plastic) housing a Sonde coil. Filled with two part epoxy securing Kevlar braids and waterproofing. Termination Spring Assembly - Tempered steel spring, steel lanyards and detachable coiled cord. |

Type-CP Reel Assemblies

| Component | Specification |
|------------------|---|
| Distance Counter | The encoder driver accurate to 0.33ft (0.1m) resolution* |
| Dimensions | 28"(L) x 19.7"(W) x 35.8"(H) (710(L) x 500(W) x 910(H) mm) (without pushrod) |
| Weight | <ul style="list-style-type: none"> without pushrod: 31lbs (14kg) with 200ft/60M of 12mm pushrod: 53lbs (24kg) with 400ft/120M of 12mm pushrod: 75lbs (34kg) |
| 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 cage in place |
| Other Options | <ul style="list-style-type: none"> Interconnect Cable - Standard 12ft (4m) long version comes with all reels, 25ft (8m) long version is available an accessory purchase. Insertion Sleeve - Used to protect pushrod from rubbing on edges at entry point. |

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| | <ul style="list-style-type: none"> • Drip Bag -An accessory attaches around the reel to catch water. |
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D. Camera Heads

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

| Component | Specification |
|-----------------------|--|
| Application | Used with Type-CP Reel attached to spring, in pipe diameters from 3 to 6 inches |
| Horizontal Resolution | 540 TVL |
| Focus Point | 12" (300mm) |
| Aperture / FOV | F2.0/90° |
| Light Sensitivity | 0.5 LUX |
| Lighting | 10000 mcd illumination LED x 9 pcs |
| Auto Upright | Cantilever self leveling design |
| CCD Type | Color CCD camera assembly available in NTSC or PAL format |
| Camera Housing | Stainless steel |
| Camera Lens | Scratch resistant Sapphire |
| Environmental | Water resistance up to 6 BAR pressure |
| Temperature Range | <ul style="list-style-type: none"> • Storage: -4°F to 158°F (-20°C to +70°C) • Operating: 14°F to 122°F (-10°C to +50°C) |
| Dimension | 1.3"(Dia) x 2.49"(L) (33(Dia) x 75(L) mm) without skid |
| Weight | 0.45lbs (0.205kg) |
| Shipping Weight | 0.75lbs (0.34kg) |
| Warranty | 1 Year |
| Options | Various skids and aftermarket skids |

D46-C SL 1.8inch/46mm Self Leveling Color Camera

| Component | Specification |
|-----------------------|--|
| Application | Used on Type-CP Reel attached to spring, in pipe diameters from 4 to 8 inches |
| Horizontal Resolution | 420 TVL |
| Focus Point | 12" (300mm) |
| Aperture / FOV | F2.0/75° |
| Light Sensitivity | 0.5 LUX |
| Lighting | 10000mcd illumination LED x 27 pcs |
| Auto Upright | Cantilever self leveling design |
| CCD Type | Color CCD camera assembly available in NTSC or PAL format |
| Camera Housing | Stainless steel |
| Camera Lens | Scratch resistant Sapphire |
| Environmental | Water resistance up to 6 BAR pressure |
| Temperature Range | Storage: -4°F to 158°F (-20°C to +70°C) Operating: 14°F to 122°F (-10°C to +50°C) |
| Dimension | 1.8"(Dia) x 2.6"(L) (46(Dia) x 65.5(L) mm) without skid |
| Weight | 0.86lbs (0.39kg) |
| Shipping Weight | 1.19lbs (0.54kg) |
| Warranty | 1 Year |
| Options | Various skids and aftermarket skids |

E. Shipping Weights

| Model | Dimensions and Weights |
|---|---|
| vCam-5 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: 14.3lbs (6.5kg) |
| Reels without Pushrod | Dimension: 31.1"(L) x 21.3"(W) x 38.6"(H) (790(L) x 540(W) x 980(H) mm) Weight: 44.7lbs (20.3kg) |
| Reels with Pushrod (Reels with pushrod, camera head, insert sleeve and interconnect cable) | <ul style="list-style-type: none"> • 200ft/60m <ul style="list-style-type: none"> ○ Dimension: 31.1"(L) x 21.3"(W) x 38.6"(H) (790(L) x 540(W) x 980(H) mm) ○ Weight: 66.7lbs (30.3kg) • 400ft/120m <ul style="list-style-type: none"> ○ Dimension: 31.1"(L) x 21.3"(W) x 38.6"(H) (790(L) x 540(W) x 980(H) mm) ○ Weight: 88.7lbs (40.3kg) |
| Pushrod (Coiled pushrod sections with base termination (no coiled cord, lanyard or spring)) | <ul style="list-style-type: none"> • 200ft/60m <ul style="list-style-type: none"> ○ Dimension: 25" (L) x 25" (W) x 6" (H) (635(L) x 635(W) x 152(H) mm) ○ Weight: 26lbs (11.8kg) • 400ft/120m <ul style="list-style-type: none"> ○ Dimension: 25" (L) x 25" (W) x 6" (H) (635(L) x 635(W) x 152(H) mm) ○ Weight: 54lbs (24.5kg) |


F. Service Items

| Item | Details |
|--|---|
| Camera Removal Tool | Used to remove the camera head. |
| Terminations | <ul style="list-style-type: none"> • Base Kit (12mm) - parts supplied to attach termination spring base and Sonde coil to push rod. • Spring Kits (12mm) - consist of coiled cord assembly, lanyard set and spring. |
| Service Exchange Camera Program | A limited number of 'service exchange' cameras are generally available at reduced cost provided the non working camera is returned. |
| Control Module Tool Kit | A carry pouch is included with the control module to carry: <ul style="list-style-type: none"> • SD Card • USB thumb drive • Camera removal tool • AC power cord • DC power cord • 2mm and 3mm hex wrenches • Ethernet cable • CD with manual and video codec |
| Camera Head Skids | Various plastic ball skids and range of aftermarket skids are available. |
| Pipe Insertion Sleeve | A plastic flexible sleeve used to protect pushrod from rubbing against sharp pipe edges. |

G. Warranty

| Item | Parameter |
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| Standard Limited Warranty | Camera Heads: 1 year Reels & Pushrod: 1 year Control Module: 1 year Plastic Ball Skids: 6 months Aftermarket Skids: 6 months |

H. Warnings

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|  | <p>Dimensions and weight conversions are approximate (metric data is the most accurate). HDD recorder and LCD display 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 recorder – some additional features may change from model to model. Vivax-Metrotech Corporation continues to update and improved its products – information on this data sheet may have changed or been superseded – check with your local sales representative or Vivax-Metrotech Corporation for updates.</p> |
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*Contact your local distributor or service center for more detail and ordering information on aftermarket skids.

* Distance counter show on LCD should be used for an estimate. Care should always be used by actual locating the camera head with a Sonde of pipe and cable locator.

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

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| <p>USA Vivax-Metrotech Corp. 3251 Olcott Street, Santa Clara, CA 95054, USA</p> <p>T/Free: +1-800-446-3392 Tel: +1-408-734-1400 Fax: +1-408-734-1415</p> <p>sales@vxmt.com www.vivax-metrotech.com</p> | <p>Canada Vivax Canada Inc. 41 Courtland Ave Unit 6, Vaughan, ON L4K 3T3, Canada</p> <p>Tel: +1-289-846-3010 Fax: +1-905-752-0214</p> <p>CanadianSales@vxmt.com www.vivax-metrotech.com</p> | <p>UK Vivax-Metrotech Ltd. 14-15, Bishops Court Gardens, Bishops Court Lane, Clyst St. Mary, Exeter, Devon, EX51DH, UK</p> <p>Tel: +44(0)1392-368833</p> <p>salesUK@vxmt.com www.vivax-metrotech.com</p> | <p>Australasia Vivax-Metrotech AUS Unit 1, 176 South Creek Road, Cromer NSW 2009, Australia</p> <p>Tel: +61-2-9972-9244 Fax: +61-2-9972-9433</p> <p>sales@vxmtaus.com service@vxmtaus.com www.vivax-metrotechaus.com</p> | <p>China Leidi Utility Supply (Shanghai) Ltd. No. 780, Tianshan Rd, Shanghai, China 200051</p> <p>T/Free: +86-4008-206-719 Tel: +86-21-5235-3001 Fax: +86-21-5235-8365</p> <p>info@leidi.cn www.leidi.com</p> |
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