



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Coast Guard

Garde côtière

Performance Specification for A CCTV System on CCGS Terry Fox



Table of Contents

1.1	INTRODUCTION.....	3
1.2	QUANTITIES	3
1.3	STAINLESS STEEL (316) PTZ CAMERA.....	4
1.4	COMMON SPECIFICATION FOR OUTDOOR DOME HOUSINGS.....	5
1.5	DOME CAMERA POWER SUPPLY.....	7
1.6	PROGRAMABLE PTZ DOME CAMERA ONLY	8
1.7	ZOOM CAMERA	11
1.8	8 CHANNEL CIF REAL-TIME H.264 DIGITAL VIDEO RECORDER W/500 HARD DRIVE	13
1.9	KEYBOARD FULLFUNCTION PTZ CONTROL	16
1.10	VIDEO DISTRIBUTION UNIT 4 CHANNEL.....	17
1.11	CODE DISTRIBUTION UNIT 16 CHANNEL.....	17
1.12	DATA MANAGER.....	19

1.1 INTRODUCTION

CCTV System

This portion of the document describes the old CCTV on board the CCGS Terry Fox. When the Fox was first acquired by Coast Guard it had a two Black/White cameras and monitors. The cameras do not provide the coverage required, mainly Security. In addition, the equipment is nearing the end of its lifecycle.

1.2 QUANTITIES

Part No.	Description	Qty
SCZ3430	SAMSUNG ZOOM COLOR CAMERA 600TV LINES	3
UHOHBGS10	OUTDOOR HOUSING FOR ZOOM CAMERA C/W LTC921500 WALL MOUNT BRACKET	3
ADSDU8E35	OPCWN AMERICAN DYNAMICS PTZ CAMERA C/W DOME HOUSING AND LONG WALL MOUNT	4
ADSPOT	POWER SUPPLY FOR PTZ CAMERA	4
SRD852D500	8CH DVR 500G HD FOR NETWORK ACCESS	1
KBD300A	PELCO KEYBOARD CONTROLLER	3
KBDKIT	KIT FOR KBD300A	3
VIDDIST	4 WAY VIDEO DISTRIBUTION FOR UP TO FOUR MONITORS	1
CM9760DMR	DATA MANAGER	1
CM9760CDUT	MATRIX CODE DISTRIBUTION UNIT 6 OR MORE PTZ	1
NEOVO SC19	19" 4:3 CCTV MONITOR	4
MIC400ST	PTZ MOODDANCE CAMERA C/W 10M CABLE, MIC-115PSU-UL 115Vac to 24Vac POWER SUPPLY, CONNECTION ADAPTOR	1

1.3 STAINLESS STEEL (316L) PTZ CAMERA

SPECIFICATIONS

STAINLESS STEEL CONSTRUCTION (316L)

IP68 RATED

MULTI-PROTOCOL OPERATION

INTERGRATED WIPER, HEATER, & PRIVACY FUNCTION

UPRIGHT MOUNT

NTSC

CSA

TECHNICAL

- 36X OPTICAL ZOOM
- 530 TVL NTSC/PAL TYPICAL
- LENS F=3.4MM TO 122.4MM
- ANGLE OF VIEW 57.8 DEGREE TO 1.7 DEGREE
- MINIMUM ILLUMINATION 0.1 LUX (1/4 s NTSC)
- SHUTTER SPEED 1/4 TO 1/10,000 s (20 steps) NTSC
- IMAGE SENSOR 1/4 inch CCD WDR
- AUTO OR MANUAL FOCUS
- AUTO WHITE BALANCE
- BACK LIGHT COMPENSATION
- S/N RATIO 50 dB or more
- AUTO OR MANUAL IRIS
- AGC -3 TO -28 dB

MECHANICAL

- BRUSHLESS INTEGRAL PAN/TILT MOTOR DRIVE
- 360 DEGREE CONTINUOUS PAN ROTATION
- 6-90 DEGREE PAN SPEED (VARIABLE)
- 270 DEGREE TILT ANGLE
- 0.2-90 DEGREE TILT SPEED (VARIABLE)
- SPEED CONTROL- CLOSED LOOP ELECTRONICS
- +/-0.56 DEGREE PRESET ACCURACY

CONSTRUCTION

- GRADE 316L STAINLESS STEEL
- TEMPERED FLAT GLASS WINDOW
- LONG LIFE SILICONE WIPER
- HEATER- STANDARD
- Approximate DIMENSIONS should be - 205mm W x 360mm H x 165mm D

ELECTRICAL

- 18VAC INPUT VOLTAGE
- 37 WATT MAX POWER CONSUMPTION

ENVIRONMENTAL

Required by Coast Guard;

- -40 to +50 Celsius OPERATING TEMPERATURE
- IP68 WEATHER PROOFING

ACCESSORIES INCLUDED

- 10M CABLE
- POWER SUPPLY
- DEEP CONDUIT ADAPTOR

1.4 COMMON SPECIFICATIONS FOR OUTDOOR DOME HOUSINGS

Electrical (Combined Dome and Housing)

Voltage 24 to 30 VAC, 50/60 Hz

Power 80 W maximum

Power-on In-rush Current 3 A

Video Surge Protection Series Resistor of 3.9 ohms; Low Capacitance TVS with Peak Power Rating of 300 W at 8/20 μ s; 5 kA (8/20 μ s impulse discharge) Gas Discharge tube

Manchester/SensorNet Isolation transformer 2000 Vrms; PTC resettable fuse; Low Capacitance TVS rated at 5.6 VDC, 40 A, 0.1 J, (8/20 μ s impulse discharge current); Gas Discharge tube rated at 5 kA (8/20 μ s impulse discharge current)

RS-422 Series resistors of 3.9 ohms; Low Capacitance TVS rated at 5.6 VDC, 40 A, 0.1 J, (8/20 μ s impulse discharge current); Gas discharge tube impulse rated at 5 kA (8/20 μ s impulse discharge current)

Alarm Input Surge Protection . Low Capacitance TVS with Peak Pulse Current of 17 A max and Peak Pulse Power of 300 W (8/20 μ s impulse discharge current)

Power Line Gas discharge tube impulse rated at 5 kA (8/20 μ s impulse discharge current); TVS rated at 60 VDC, 250 A, 1.5 J

Auxiliary Output One Relay 2FC Contact Arrangement with initial isolation resistance of 1,000 Mohms @ 500 VDC.

The relay contact rating is 30 VDC, 1 A, or 125 VAC , 0.3 A

Mechanical

Construction Enclosure Aluminum

Sun Shade and Trim Ring UV stabilized, polycarbonate

Color Light gray or silver

Approx. Height 321 mm (12.64 in)

Approx. Diameter 244 mm (9.61 in)

Bubble Diameter 75.3 mm (6.93 in) High Impact Acrylic

Mechanical Connection 1.5 in NPT

Connectors (on Integrated I/O Board)

Video Output Female BNC video cable

Manchester/SensorNet/ Plug in dual row header with ejector
RS-422

Alarm Inputs/Auxiliary Output. Plug in dual row header with ejector
Unshielded Twisted

Pair Video Plug in dual row header with ejector

Power Plug in 3.5mm vertical header

Normally Closed (NC) - pin 1

Common (C) - pin 2

Normally Open (NO) - pin 3

I/O Connector Spring contact gold fingers for mate with housing/eyeball assemblies

Environmental

Coast Guard Standard, Weatherproof Standard NEMA 4/IP66

Operating Temperature -40°C to 50°C (-40°F to 122°F)

Humidity 0 to 95% RH (non-condensing)

Storage Temperature -40°C to 50°C (40°F to 122°F)

Wind Loading Sustained winds of 240 km/hour

At least (150 miles/hour) when properly installed and mounted (wall, pole, ceiling, and over the-roof mount with proper support)

Regulatory

Emissions FCC: 47 CFR Part 15, Subpart B
Class A
CE: EN5502 Class B
CE: EN6100-3-2
AS/NZS 3548, Class A
CISPR22
ICES-003
Immunity CE: EN50130-4
UL 60950-1
Safety CSA 22.2 60950-1
EN 60950-1
IEC 60950-1

1.5 DOME CAMERA POWER SUPPLY

- Single Position Outdoor Power Supply
- Supports both 120 VAC and 230 VAC
- Small, compact design
- Weatherproof design: NEMA 4 and IP66 rated
- Euro-style terminal blocks for quick and simple installation

Mechanical

Dimensions (H x W x D) 75 x 125 x 75 mm (6.9 x 4.9 x 3.0 in)
Weight 3.7 kg (8.2 lbs)
Enclosure Material Impact-resistant polycarbonate
Color Light gray
Wall Mounting Options Concrete, wood or sheet rock
Mounting Area (H x W) 281 x 200 mm (11.1 x 7.9 in)
Cover Fasteners Four captive screws
Cable Access Knockouts Eight 21 mm or 15.5 mm (0.83 in or 0.61 in) Four 29 mm or 23 mm (1.14 in or 0.91 in)

Electrical

Power Source 100-120 VAC or 200-240 VAC @ 50/60 Hz
Operational Limits 90-135 VAC or 180-265 VAC
@ 50/60 Hz
Input Current 1.0 A/0.5 A

Output 24 VAC, 2.5 A max.
UL Listed Class 2
Certified Limited Power Source

Environmental - Coast Guard standard;
Weatherproof Standard NEMA 4, IP66
Operating Temperature -40°C to 50°C (-40°F to 122°F)
Storage Temperature -40°C to 50°C (-40°F to 122)

1.6 PROGRAMMABLE PTZ DOME CAMERA (CAMERA ONLY)

Camera

Horizontal Resolution
540 lines

Imager
Interline transfer 1/4-inch CCD array

Scanning System
2:1 interlaced

Wide Dynamic Range, EIS, Day/Night
Yes

Video Output
1.0 V_{p-p}, 75 composite
S/N Ratio
>50 dB (typical)

Minimum Illumination (20IRE, AGC)
0.24 lux (Color); 0.028 lux (Color with 1/4 sec open shutter) 0.021 lux
(B/W IR Mode);
0.00041 lux (B/W IR Mode with 1/2 sec open shutter)

White Balance Through the Lens (TTL) Automatic; Tracing White Balance (ATW)

NTSC (PAL)

Effective Pixels (H x V)
768 x 494 (752 x 582)

Scanning (lines/fields/frames)
525 /60 /30 (625 /50 /25)

Horizontal (kHz) 15.734 (15.625)

Vertical (Hz) 59.9 (50)

Shutter Speed (Auto/Manual) 1/2 - 1/30,000 (1/1.5 - 1/30,000)

Lens

Aperture (Aspherical Design)
f1.4

Focal Length
3.4 to 119 mm

Wide Angle (field of view)
3.4 mm/55.8 (H) x 41.8 (V)

Telephoto (field of view)
119 mm/1.7 (H) x 1.3 (V)

Total/Optical/Digital Zoom
420x/35x/12x

Operational

Manual Pan/Tilt 0.25°-100° per second (based on Zoom Manual position)

Preset Pan/Tilt Speed 360° per second, maximum (Pan) and 220° per second, maximum (Tilt)

Pan Travel 360° continuous

Tilt Travel 110°

Pan/Tilt Accuracy ± 0.5°

Zoom/Focus Accuracy ± 0.5%

Programmable Patterns/Sequences/

Areas/Privacy Zones 16/16/16/8

Direction Indicators Yes

Auto Synchronizations Line-Locked with Remote V-phase adjustment or
Internal with Built-in sync generator

Address Range

RS-422/RS-485 1–99

Manchester 1–64

SensorNet 1–255

AD-UTC Based on number of inputs

Alarm Inputs with I/O

Board (indoor only) 4 dry contacts/3.5 mA sink

Alarm Outputs with I/O

Board (indoor only) 3 open collector drivers at 12 VDC, 40mA

Menu Languages English, French, German, Italian, Spanish, Portuguese

Electrical

Input Voltage 18 to 30 VAC, 50/60 Hz Class 2 LPS

Design Tolerance 16 to 36 VAC, 50/60 Hz

Power 11 watts

Power On

In-Rush Current 1.5 amps

Allowable Drop-Out 100 μ sec

Surge Protection Low-capacitance Zener suppressor of 6.5 V,
1500 watts Isolation transformer coupled, 2000 Vrms; PTC resettable fuse protects
transformer; 9.8V/1A, 500 watts, 8/20 μ sec impulse

RS-422/RS-485 10kA impulse rated gas tube

Alarm Input/Aux Outputs. TVS rated at 9.8V/1A, 500 watts, 8/20 μ sec impulse

Power Line TVS rated at 9.8V/1A, 500 watts, 8/20 μ sec impulse

TVS rated at 60 V, 250 A, 1.5 joules, 8/20 μ sec impulse

Mechanical

These dimensions required for available space;

Height (includes base) 205 mm (8.0 in)

Diameter 120 mm (4.7 in)

Housing & Eyeball Weight . . 1.09 kg (2.40 lbs)

Base (with I/O Board) 0.16 kg (0.35 lbs)

Weight

Environmental

CG standard; Operating Temperature -10° to 50°C (14° to 122°F)

Humidity 0 to 95% RH (noncondensing)

Storage Temperature -20° to 65°C (-4° to 149°F)

1.7 ZOOM CAMERA

Specifications

Item Description

Product Type Power Zoom Camera

Power Source

AC 24V (60Hz), DC 12V

Power Consumption

5.6W

TV Standard

NTSC STANDARD COLOR

SYSTEM

Image Sensor

ExView-HAD PS CCD

Effective Pixels

768(H) × 494(V)

TV line frequency

Horizontal : 15, 734 Hz (INT) / 15, 750 Hz (L/L)

Vertical : 59.94 Hz (INT) / 60 Hz (L/L)

Synchronization INT/LINE LOCK

Resolution

Horizontal : 600 TV LINES (color)

Vertical : 350 TV LINES

S/N Ratio Approximately 52 dB

Item Description

WDR x128

Signal Output

COMPOSITE VIDEO OUT: 1.0 Vp-p 75 ohms/BNC

Lens

x43 Zoom Lens Integrated

Focal length: 3.2 ~ 138.5mm

Aperture: F1.65 (Wide) F3.7 (Tale)

- MOD (Minimum Object Distance): 1000mm

Electronic shutter speed

High Speed: OFF~1/10K sec

Low Speed: OFF~X512

DIGITAL ZOOM 2x ~ 16x

White Balance

ATW1/ATW2/AWC/MANUAL Mode

(3200°K, 5600°K, R/B Gain adjustment)

Operation

Temperature

-10°C~+50°C

Operation Humidity ~90%

Dimensions must be at least, no bigger then

(WxHxD)

59mm x 59.2mm x 154.5mm;

Product Color

silver

1.8 8CH CIF Real-time H.264 Digital Video Recorder W/ 500 G Hard Drive

DISPLAY

Video

Inputs 8 Composite video 0.5-1 Vpp

Resolution NTSC: 704 x 480 / PAL: 704 x 576

Live

Frame Rate NTSC: 480fps / PAL: 400fps NTSC: 240fps / PAL: 200fps

Resolution NTS: 704 x 480 / PAL: 704 x 576

Multi Screen Display 1 / 4 / 6 / 8 / 9 / 13 / 16 / PIP 1 / 4 / 6 / 8 / 9 / 13 / PIP

Performance

Operating System

Embedded Linux

Recording

Compression H.264

Record Rate

NTSC: Up to 120fps@704 x 480

NTSC: Up to 240fps@704 x 240

NTSC: Up to 480fps@352 x 240

NTSC: Up to 60fps@704 x 480

NTSC: Up to 120fps@704 x 240

NTSC: Up to 240fps@352 x 240

Mode NTSC: Manual, Schedule (Continuous / Event), Event (Pre / Post),

Time lapse (0.9 / 1.9 / 3.8 / 7.5 / 15 / 30fps)

Event Video loss, Motion (Level 1 ~ 10), Alarm

Overwrite Modes Continuous

Pre-alarm Up to 5sec

Post-alarm Up to 6hour (5, 10, 20, 30sec, 1, 3, 5, 10, 20min, 1, 2, 3, 4, 5, 6hour)

Search &

Playback

Search Mode Date/Time, Event, Back up, Pos, Motion (*All search mode include preview function)

Playback Function Fast forward / backward, Slow forward / backward, Step forward / backward

Network

Transmission Speed CIF 120/100fps

Bandwidth Up to 8Mbps, Unlimited (8M) / 2 / 1.5 / 1Mbps / 800 / 600 / 500 / 400 / 300 / 200 / 100 / 50kbps

Bandwidth Control Selectable

Stream H.264 (Max. CIF 120)

Max. Remote Users Search 3 / Live unicast 10 / Live multicast 20

Protocol Support TCP/IP, DHCP, PPPoE, SMTP, NTP, HTTP, DDNS, RTP, RTSP, SNMP

Monitoring NET-i Viewer, SmartViewer, Webviewer

Smart Phone

Platform Android, iOS

Protocol Support RTP, RTSP, HTTP, CGI

Max. Remote Users Live 1

Storage

Internal HDD Up to 4 SATA HDDs

DVD Writer (Back up) Yes

USB (Back up) 2 USB ports

File Format (Back up) BU (DVR player), EXE (Include player)

Security

Password Protection 1 Admin, 10 Group, 10 User per 1 group

Data Authentication Watermark

Interface

Monitors

VGA 1 VGA (800 x 600, 1024 x 768, 1280 x 1024)

Main Composite 1 BNC (1 Vp-p, 75 ohm)

Spot Composite Analogue spot (1 BNC, 1 Vp-p, 75 ohm)

Audio

Inputs / Output 4 Line in (Built-in 4CH, RCA / 1CH line out (RCA)

Compression ADPCM

Sampling Rate 16KHz

Alarm

Inputs / Output

Terminal 16 inputs (NO/NC), Terminal 1 inputs
(Alarm Reset), Terminal 4 relay outputs (NO/NC),

Rating: 24V DC / 1A, 125V AC / 0.5A

Terminal 8 inputs (NO/NC), Terminal 1 inputs
(Alarm Reset), Terminal 4 relay outputs (NO/NC),
Rating: 24V DC / 1A, 125V AC / 0.5A

Remote Notification Notification via e-mail

Connections

Ethernet 1 RJ-45 10/100/1000 Base-T

Serial Interface RS-232/RS-485 for PTZ, Samsung system keyboard

USB USB 2.0, 2 ports (Front)

Application Support Mouse, Remote controller

Protocol Support Samsung-T/E, Pelco-D/P, Panasonic, Phillips, AD,
DIAMOND, ERNA, KALATEL, VCL TP, VICON, ELMO

Electrical

Input Voltage / Current 100 ~ 240V AC $\pm 10\%$, 50/60Hz

Power Consumption Max. 60W (With 1x HDD)

Environmental

Operating Temperature / Humidity $+0^{\circ}\text{C} \sim +40^{\circ}\text{C}$ ($+32^{\circ}\text{F} \sim +104^{\circ}\text{F}$) / 20% ~ 85%
RH

Mechanical

Dimensions to fit available space on the vessel (WxHxD) 440.0 x 88.0 x 426.8mm (17.32" x 3.46" x 16.80")

Weight (With hard disks) Approx. 7.5Kg (16.53 lb) not to exceed
Rack Mount Kit 2ea

1.9 KEYBOARD- FULL FUNCTION PTZ CONTROL

The keyboard is a full-function, desktop keyboard controller that can be used in a variety of applications.

A barrel-type joystick provides precise pan and tilt control of fixed speed and variable speed receivers. Keys select cameras and monitors; operate presets, patterns, auxiliaries, and sequences; open and close the iris; zoom and focus the lens; and start and stop auto, frame, and random scanning.

- Joystick Control of PTZ Functions
- Preset Position and Pattern Control
- Auxiliary Operation
- Auto/Random/Frame Scanning

ELECTRICAL

Input Voltage 12 VAC or ± 12 VDC

Power Consumption 5 W

Keyboard Connector RJ-45, 8-pin, modular (female)

GENERAL

Keyboard Keypad Electromechanical

Joystick 3-axis, vector-solving with twisting, return-to-center head

Display Red LED, 7-segment

Dimensions

2.25" H x 9.50" W x 7.125" D

(5.72 x 24.13 x 18.10 cm)

ENVIRONMENTAL

Ambient Operating Temperature

20° to 120°F (-7° to 49°C)

Humidity 10% to 90%, noncondensing

PLS NOTE: Must have wiring kit and power supply

1.10 VIDEO DISTRIBUTION UNIT 4 CHANNEL

The video distribution unit will split one composite bnc video signal into a composite bnc video output for use with up to four cctv monitors.

SPECIFICATIONS

- 1 VIDEO INPUT CHANNEL
- 4 VIDEO OUTPUT CHANNELS
- VIDEO INPUT LEVEL 0.8-1.2Vp-p, 75 OHM
- VIDEO OUTPUT LEVEL 1Vp-p (STANDARD), 75 OHM
- VIDEO BANDWIDTH 10Hz – 10MHz
- POWER SUPPLY 12VDC 500MA, AC24V
- POWER CONSUMPTION 100MA
- DIMENSIONS should be approx. W x H x D mm, 138 x 86 x 29.5 to fit existing space

1.11 CODE DISTRIBUTION UNIT 16 CHANNEL

SPECIFICATIONS

- Two 8-Position, RJ-45 Parallel Connectors Provide an Input from a Controller and an Output for an Additional Daisy-Chained CDU Unit
- Sixteen 3-Position Screw Terminal Connectors Used to Output 16 RS-422 Transmit-Only Code Lines
- Allows for “Star” Type Wiring of PTZ Data Lines
- Standard 100-240 VAC, 50/60 Hz Line Input
- Provides 16 Driver Outputs

The code distribution unit is a 16-channel RS-422 transmit-only (two data wires and ground) data distribution unit.

It can be used with any system that uses RS-422 serial communications. The CDU is used to install pan/tilt and dome receivers in a “star,” or “home run,” configuration.

The remote devices can be located as far as 4,000 feet (1,219 m) away from the controller, depending on the physical parameters of the connection.

The unit is ideal for use on larger switching systems where it becomes desirable to “home run” the RS-422 data lines for controlling pan/tilt or dome receivers.

ELECTRICAL

- Input Voltage 100-240 VAC, 50/60 OR 10-24 VAC/VDC
- Input Current 100 mA
- Data Ports
- Input One RS-422, RJ-45 female connector
- Output One RS-422, RJ-45 female connector
- Drive Lines Sixteen 3-position screw terminals with mating plugs
- Indicators One power LED (green)
- One data LED (red)

MECHANICAL

Connectors

- Power AC power cord input, 3-wire, 18 AWG
- RS-422 Two RJ-45, female
- RS-422 Breakout Ports Sixteen 3-pin headers with mating plug; connectors can accept 14-28 AWG

General Dimensions

- Base Only 1.75" H x 17.40" W x 6.00" D
(4.45 x 44.20 x 15.24 cm)
- With Rack Ears 1.75" H x 19.00" W x 6.00" D (1 RU)
(4.45 x 48.26 x 15.24 cm)
- Mounting Fits 19-inch EIA-standard rack
- Operating Temperature 32° to 122°F (0° to 50°C)

1.12 DATA MANAGER

SPECIFICATIONS

- Ability to choose from three different operating modes; Keyboard Expander, Camera Control Expander or Data Merger.
- Connect up to four KBD300A keyboards.
- Address up to 64 PTZ cameras from one port.
- Allow up to four matrix switchers, DVR's or direct keyboards to share control of up to 32 PTZ cameras
- Both RJ-45 connectors and screw terminals are provided for each port.
- Diagnostic LEDs to identify data activity on each port.

When configured for used with Data Merger, CM9760-DMR allows up to four matrix switchers or other devices to share control of up to 32 cameras using Pelco D or Pelco P protocol.

In Data Merger configuration the CM976-DMR can also interface control from as many as four non-matrix controllers to up to 32 cameras. Devices include direct mode KBD300A keyboards and other pelco products using Pelco P protocol. Priority can be assigned to each device with this configuration.

ELECTRICAL

- Input Voltage 120Vac external adapter
- Power 9.9 W maximum
- Data Ports Input/Output RJ-45, and Screw Terminal
- Indicators One green power led, 5 green port leds, and 5 yellow data leds

MECHANICAL

- Connectors; Power 9.0 Vac Jack, Data Communication RJ-45, screw terminals, DB9.

GENERAL DIMENSIONS

- Base Only 1.75" H x 17.40" W x 7.85" D
(4.45 x 44.20 x 19.94 cm)
- With Rack Ears 1.75" H x 19.00" W x 7.85" D (1 RU)
(4.45 x 48.26 x 19.94 cm)
- Mounting Fits 19-inch EIA-standard rack
- Operating Temperature 32° to 122°F (0° to 50°C)