



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Coast Guard

Garde côtière

# *Performance Specification for A CCTV System on CCGS Terry Fox*



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## 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. This two camera system was improved with off the shelf units to what she has today. The cameras do not provide the coverage required, mainly Security. In addition, the equipment is nearing the end of its lifecycle. Propose replacement of the VINGTOR Phone system/ICS/SRE will be the National Standard, United Marine Unit.

## 1.2 QUANTITIES

Part No.	Description	Qty
SCZ3430	SAMSUNG ZOOM CAMERA 600 LINES	1
UHOHBGS10	OUTDOOR HOUSING FOR ZOOM CAMERA C/W LTC921500 WALL MOUNT BRACKET	1
FTC7524Q	POWER SUPPLY FOR ZOOM CAMERA	1
ADSDU8E35	OPCWN AMERICAN DYNAMICS PTZ CAMERA	4
ADSPOT	POWER SUPPLY FOR PTZ CAMERA	4
SRD852D500	8CH DVR 500G HD FOR NETWORK ACCESS	1
KBD300A	PELCO KEYBOARD CONTROLLER	1
KBDKIT	KIT FOR KBD300A	1
VIDDIST	4 WAY VIDEO DISTRIBUTION FOR UP TO FOUR MONITORS	1
CM9760CDUT	MATRIX CODE DISTRIBUTION UNIT 5 OR MORE PTZ	1
SC19	19" 4:3 CCTV MONITOR	4
MIC400ST	PTZ MOODDANCE CAMERA C/W CABLE, 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  $\mu$ s; 5 kA (8/20  $\mu$ 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  $\mu$ s impulse discharge current); Gas Discharge tube rated at 5 kA (8/20  $\mu$ 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  $\mu$ s impulse discharge current); Gas discharge tube impulse rated at 5 kA (8/20  $\mu$ 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  $\mu$ s impulse discharge current)

Power Line . . . . . Gas discharge tube impulse rated at 5 kA (8/20  $\mu$ 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 Vp-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 . . . . .  $\pm 0.5^\circ$

Zoom/Focus Accuracy . . . .  $\pm 0.5\%$

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  $\mu$ 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  $\mu$ 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  $\mu$ sec impulse

Power Line . . . . . TVS rated at 9.8V/1A, 500 watts, 8/20  $\mu$ sec impulse

TVS rated at 60 V, 250 A, 1.5 joules, 8/20  $\mu$ 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  $\pm 12$  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**

### **1.9.1 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**

### **1.9.2 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)