Accuracii XR

System Specifications
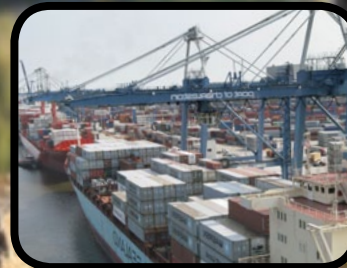
DETECT • RECOGNIZE • IDENTIFY

SYSTEM OVERVIEW

Accuracii XR is a powerful long range, night and day multisensor observation system developed for security applications. It allows long range observation and detection using state of the art thermal imaging and CCD technology. The camera features a color CCD camera for day time operation and high performance cooled and uncooled thermal cameras with several long range lens options for both day and night operation.

Accuracii XR is designed and constructed to withstand the harshest weather and environmental conditions.

Accuracii XR configurations are named based on their thermal imager.
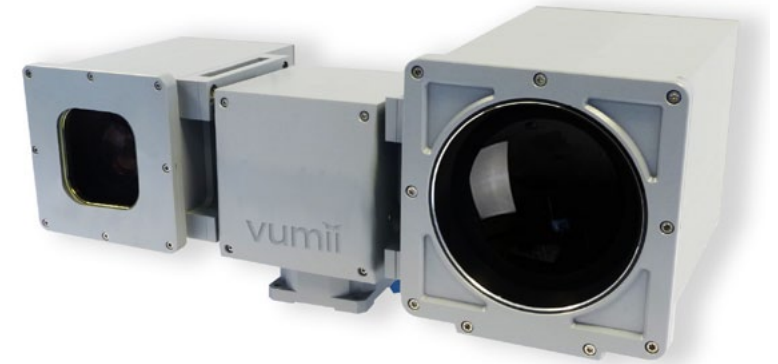
CONFIGURATIONS

Configuration Type	DAY / NIGHT Thermal Camera & Lens	DAY CCD Camera & Lens
CZ225	17μ 640 x 480 25 - 225mm Continuous Zoom Uncooled Thermal	1/4" Color CCD 3.4 - 122.4mm Continuous Zoom
CZ275	15μ 640 x 512 19 - 275mm Continuous Zoom Cooled Thermal	1/2" Color CCD 10 - 320mm Continuous Zoom
CZ300	15μ 640 x 512 15 - 300mm Continuous Zoom Cooled Thermal	1/2" Color CCD 10 - 320mm Continuous Zoom
CZ420	15μ 640 x 512 21 - 420mm Continuous Zoom Cooled Therma	1/2" Color CCD 15.6 - 500mm Continuous Zoom

APPLICATIONS

- Port Security
- Airport Perimeters
- Nuclear Power Plants
- Border Surveillance
- Critical Infrastructure
- Oil and Gas facilities

MAJOR COMPONENTS

- CCD Camera/Lens - Color (Day) Camera and lens for detailed imaging
- Thermal Camera - Thermal (Night) Camera for IR Imaging
- Thermal Camera Lens - Continuous and Dual FOV Lens Options
- Pan/Tilt Positioner - High accuracy pan/tilt unit
- Optional Laser Range Finder module
- Optional GPS module

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SYSTEM SPECIFICATIONS

POWER REQUIREMENTS:
- Power Input: 24VDC ± 1%
- Power Consumption: Uncooled: 30w typical (static, no heaters)
  - 350w max (moving, with heaters)
  - Cooled: 30w typical (static, no heaters)
  - 390w max (moving, with heaters)

ENVIRONMENTAL:
- Storage Temperature: -40°C to +71°C
  - -40° F to +160° F
- Operating Temperature: -40°C to +60°C*
  - -40° F to +140° F
- Humidity: +40°C , 93% RH
- Salt Fog: MIL STD 810E method 509.3
- Environmental Rating: IP66

MECHANICAL PARAMETERS:
- Weight: CZ225: 23 kg (51 lbs)
  - CZ275: 28 kg (62 lbs)
  - CZ300: 28 kg (62 lbs)
  - CZ420: 29 kg (64 lbs)

THERMAL CAMERA
- Imager Type: CZ225: Uncooled
  - CZ275, CZ300, CZ420: Cooled
- Spectral Band: Uncooled: 7.5-14μ
  - Cooled: 3-5μ
- Pixel Size / Resolution:
  - Uncooled: 17μ / 640 x 480 NTSC/PAL
  - Cooled: 15μ / 640 x 512 NTSC/PAL
- NETD: Uncooled: <50° mK
  - Cooled: <25° mK

VIDEO FORMAT:
- Dual Channel (Thermal/CCD) - 2 BNC's
- RS-170/CCIR, 1.0V p-p, 75ohm

COMMUNICATION:
- RS-422/RS-485 Serial
- Protocol: Pelco D, Vumii (SDK Available)

PAN/TILT UNIT
- Pan/Tilt Speed: 0-50° per second
- Pan Range: 360° continuous
- Tilt Range: -90° to +90°
- Pan/Tilt Resolution: +/- 1.5 mRad

EMC:
- FCC 47 CFR part 15 sub B
- EN 55022
- EN 55024

SAFETY:
- EN 60950-1: 06
- EN 60950-22: 06 and A11:08

CERTIFICATIONS:
- ROHS compliant
- CE
- FCC

OPTIONAL LRF SPECIFICATIONS
- Maximum Range: 2000m
- Minimum Range: 5m
- Range Accuracy @<1500m: +/- 3m
- Range Accuracy @>1500m: +/- 5m
- Laser Safety Rating: Class 1
- Nominal Wavelength: 1550nm

*CZ420 Operating Temperature: -20°C to +60°C (-4° F to +140° F)

Thermal Camera

Overview

Accuracii™ XR uses Vumii's high sensitivity cooled and un-cooled thermal cores available in 15μ 640 x 512 resolution (cooled) or 17μ 640 x 480 resolution (uncooled). The uncooled thermal core is paired with an innovative 25-225mm continuous zoom lens and the cooled cores are paired with one of three options: 19-275mm, 15-300mm, or 21-420mm continuous zoom lenses. All Accuracii XR thermal cores feature thermal AutoFocus on Demand that drastically increases the ease of use of the camera system.

The camera is designed and constructed to withstand the harshest weather and environmental conditions.
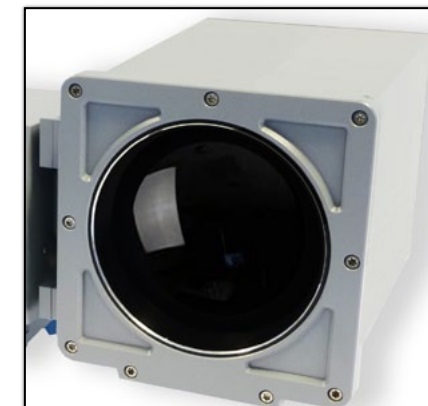
Specifications and Features

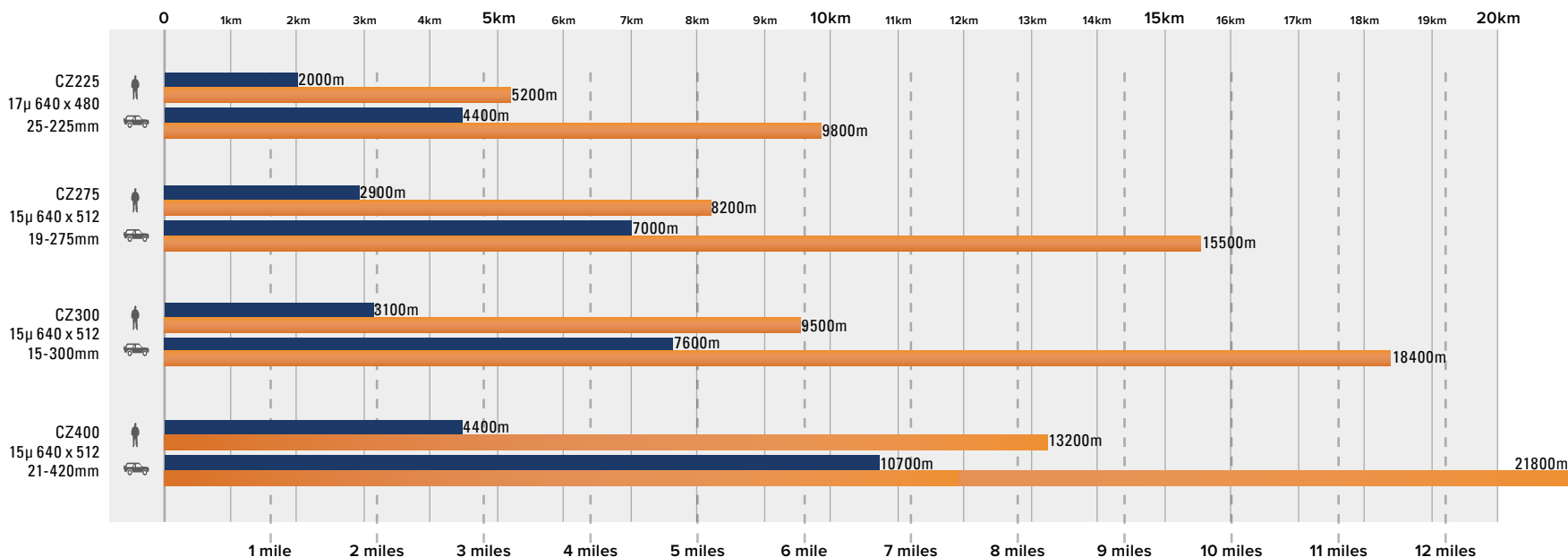| Configuration	CZ225	CZ275	CZ300	CZ420
Thermal Engine	17μ 640 x 480	15μ 640 x 512	15μ 640 x 512	15μ 640 x 512
Lens Type	Continuous Zoom	Continuous Zoom	Continuous Zoom	Continuous Zoom
Focal Length	25 - 225mm	19 - 275mm	15 - 300mm	21 - 420mm
Lens F #	f/1.5	f/5.5	f/4.0	f/4.0
Video Type	(NTSC/PAL)	(NTSC/PAL)	(NTSC/PAL)	(NTSC/PAL)
Spectral band	7.5 - 14μ	3 - 5μ	3 - 5μ	3 - 5μ
NETD	<50° mK	<25° mK	<25° mK	<25° mK
Horizontal Field of View (wide)	24.5°	29.8°	35.1°	25.1°
Horizontal Field of View (narrow)	2.77°	2.0°	1.8°	1.3°
Digital Zoom	1x, 2x, 4x			
Focus control	Motorized, Autofocus on Demand			
Control operation	Polarity, NUC, Image flip, Manual gain/level, Optical & Digital Zoom, Autofocus on Demand			

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Thermal Camera Performance

Legend

D/N Detection (Thermal)- 1.5 PoT
D/N Recognition (Thermal) - 6 VPoT

= Human Subject Size 1.83m x 0.75m

= Vehicle Subject Size 2.3m x 2.3m

Detection: 1.5 pixels across critical dimension
Recognition: 6 pixels across critical dimension
Critical Dimension: 0.75m (human); 2.3m (vehicle)

CZ225 — 17µ 640 x 480 — 25-225mm
- Human: 2000m (recognition), 5200m (detection)
- Vehicle: 4400m (recognition), 9800m (detection)

CZ275 — 15µ 640 x 512 — 19-275mm
- Human: 2900m (recognition), 8200m (detection)
- Vehicle: 7000m (recognition), 15500m (detection)

CZ300 — 15µ 640 x 512 — 15-300mm
- Human: 3100m (recognition), 9500m (detection)
- Vehicle: 7600m (recognition), 18400m (detection)

CZ400 — 15µ 640 x 512 — 21-420mm
- Human: 4400m (recognition), 13200m (detection)
- Vehicle: 10700m (recognition), 21800m (detection)

Scale: 0 to 20km / 1 mile to 12 miles

CCD Camera

Accuracii™ XR includes several daytime color CCD options based on the configuration chosen. Additionally, the CCD camera head will enclose the optional Laser Range Finder and/or GPS position modules.

Overview
The imager is a high sensitivity, high zoom magnification visible camera providing color video for daytime operation.

CCD Camera Specifications

	CZ225	CZ275	CZ300	CZ420
Imager Type	1/4" Color CCD	1/2" Color CCD	1/2" Color CCD	1/2" Color CCD
Effective Pixels	768 x 494 (NTSC) 752 x 582 (PAL)	768 x 494 (NTSC) 752 x 582 (PAL)	768 x 494 (NTSC) 752 x 582 (PAL)	768 x 494 (NTSC) 752 x 582 (PAL)
Lens Type	36x Continuous Zoom	32x Continuous Zoom	32x Continuous Zoom	32x Continuous Zoom
Lens Focal Length	3.3 - 119mm	10 - 320mm	10 - 320mm	15.6 - 500mm
Imager Horizontal FOV	60.2° to 1.8°	35.3° to 1.1°	35.3° to 1.1°	22.4° to 0.45°
S/N ratio	<50 dB	<50 dB	<50 dB	<50 dB

Laser Range Finder Specifications (optional)

Maximum Range	2000 meters
Minimum Range	5m
Range Accuracy @<1500m	+/- 3m
Range Accuracy @>1500m	+/- 5m
Nominal Wavelength	1550nm
Laser Safety Rating	Class 1

GPS Module (optional)
The optional GPS module allows transmission of the camera's current GPS coordinates.

Pan / Tilt Positioner

The variable speed Pan/Tilt unit provides continuous 360° rotation of the cameras at up to 50°/sec (pan/tilt)

The PT platform supports the following modules:
- Thermal (IR) camera enclosure
  Thermal camera/lens
- Charge-coupled device (CCD) camera enclosure
  CCD camera/lens
  Optional LRF module
  Optional GPS module

Specifications

Position accuracy (resolution)	+/- 1.5 mRad
Minimum pan speed	0.1°/sec.
Maximum pan speed	50°/sec
Minimum tilt speed	0.1°/sec.
Maximum tilt speed	50°/sec
Tilt range	+90°/-90°

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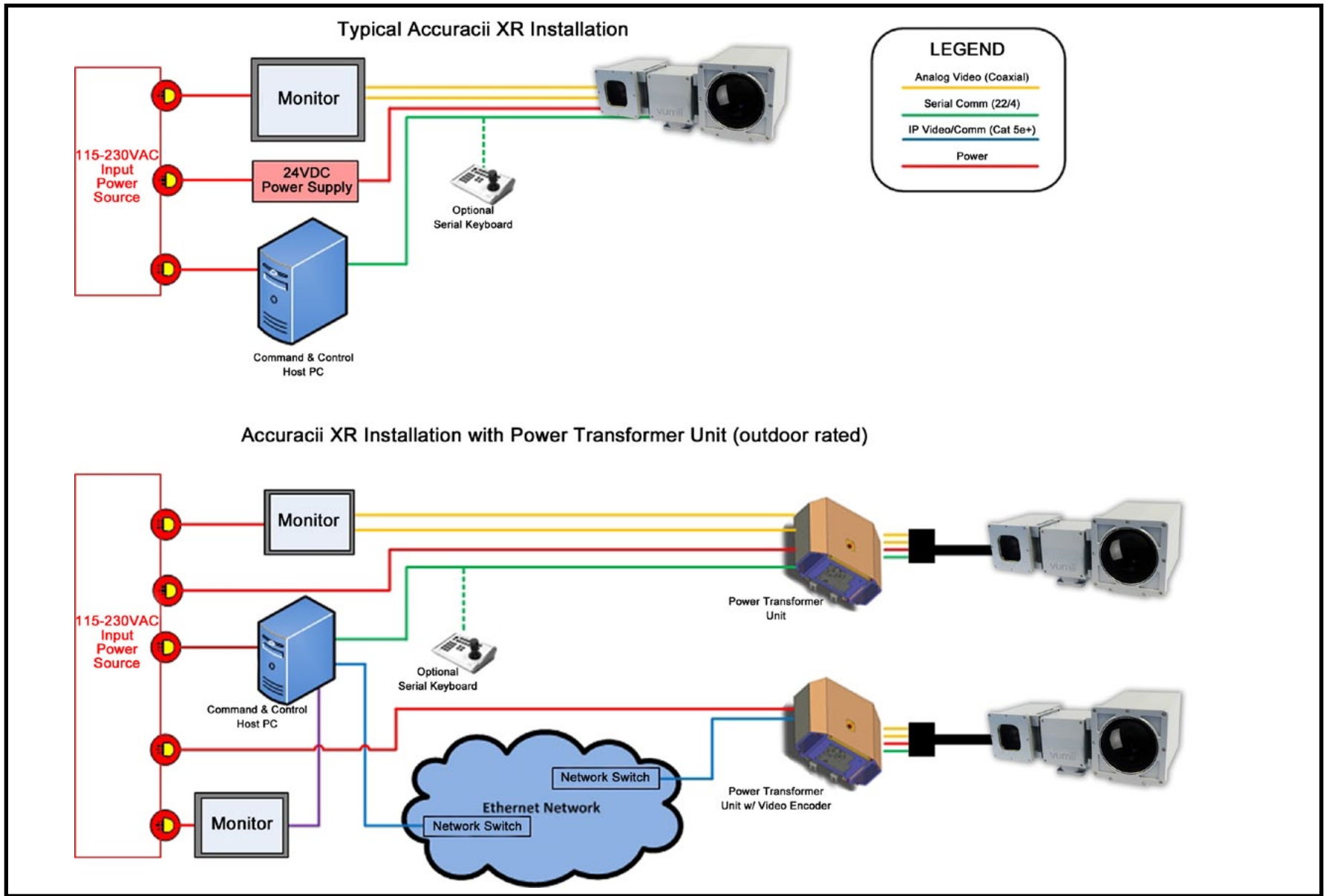
TYPICAL SYSTEM DESIGN

Typical Accuracii XR Installation

Accuracii XR Installation with Power Transformer Unit (outdoor rated)

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Camera Mounting

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Required Installation Clearance

IMPORTANT: The unit should be installed in a location with <u>at least</u> the listed amount of required clearance:

Minimum Total Pan Clearance The minimum pan clearance width is calculated as the diameter. The radius can be found by dividing the diameter in half.

Minimum Total Tilt Clearance The minimum tilt clearance height is calculated starting from the base of the Accuracii XR unit

ALL CONFIGURATIONS

Minimum Total Pan Clearance: 750mm (29.53")

Minimim Total Tilt Clearance: 470mm (18.51")

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Mounting Hardware
  Imperial
  - 4 x SCR 1/3" 20NCX7/8" HEX HD SS bolts
  - 8 x 1/3" Flat SS lock washers
  - 4 x 1/3" SS washer springs
  - 4 x 1/3" 20NC HEX nuts

  Metric
  - 4 x SCR M8 20NCX (22mm length) HEX HD SS bolts
  - 8 x M8 Flat SS lock washers
 - 4 x M8 SS washer springs
  - 4 x M8 20NC HEX nuts

Mounting Options
  Vumii Wall Mount Kit: Part #PA1000019A
      Includes mounting plate MP1000017A

  Vumii Pole Mount Kit: Part #PA1000020A

      Includes Vumii Wall Mount Kit Part #PA100019A
      Includes mounting plate MP1000017A

Custom Mounting Specifications
    The base of the Accuracii XR uses a 77.8mm (3.06") hole pattern
    Mounting plate MP1000017A is available with other hole patterns

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□77,8
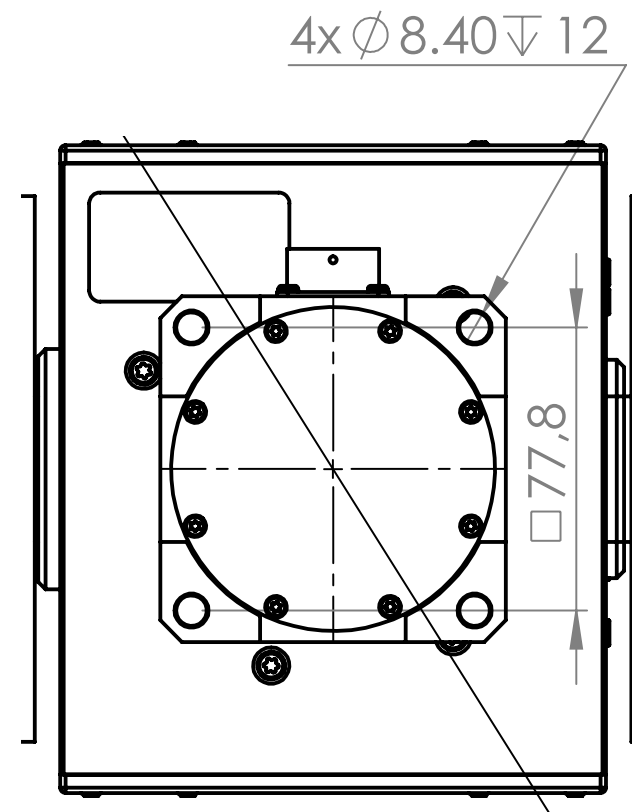
All Dimensions in millimeters

ORDERING INFORMATION

ACCURACII XR MODELS

A standard order **Accuracii XR** ships as an integrated unit consisting two camera heads, one camera head contains the thermal camera and lens and the other camera head contains the CCD camera and lens. If ordered, the optional laser range finder and gps module will be installed above the pan/tilt unit. The system will ship with a mating connector for connection the the pan/tilt base mounted connector, and a CD containing product documentation and test/setup software. See the next page for additional optional accessories

Configuration	CCD Camera/Lens	Thermal Engine/Lens	Video Type	Camera Options	Part Number
CZ225	3.3 - 119mm Continuous Zoom	17µ 640 x 480 Uncooled 25-225mm Continuous Zoom	NTSC	None	AC225D17V-PAN00
				LRF	AC225D17V-PAN10
				GPS	AC225D17V-PAN20
				LRF & GPS	AC225D17V-PAN30
			PAL	None	AC225D17V-PAP00
				LRF	AC225D17V-PAP10
				GPS	AC225D17V-PAP20
				LRF & GPS	AC225D17V-PAP30
CZ275	15 - 300mm Continuous Zoom	15µ 640 x 512 Cooled 19-275mm Continuous Zoom	NTSC	None	AC275Z15V-PAN01
				LRF	AC275Z15V-PAN11
				GPS	AC275Z15V-PAN21
				LRF & GPS	AC275Z15V-PAN31
			PAL	None	AC275Z15V-PAP01
				LRF	AC275Z15V-PAP11
				GPS	AC275Z15V-PAP21
				LRF & GPS	AC275Z15V-PAP31
CZ300	15 - 300mm Continuous Zoom	15µ 640 x 512 Cooled 15-300mm Continuous Zoom	NTSC	None	AC300Z15V-PAN01
				LRF	AC300Z15V-PAN11
				GPS	AC300Z15V-PAN21
				LRF & GPS	AC300Z15V-PAN31
			PAL	None	AC300Z15V-PAP01
				LRF	AC300Z15V-PAP11
				GPS	AC300Z15V-PAP21
				LRF & GPS	AC300Z15V-PAP31
CZ420	15.6 - 500mm Continuous Zoom	15µ 640 x 512 Cooled 21-420mm Continuous Zoom	NTSC	None	AC420Z15V-PAN02
				LRF	AC420Z15V-PAN12
				GPS	AC420Z15V-PAN22
				LRF & GPS	AC420Z15V-PAN32
			PAL	None	AC420Z15V-PAP02
				LRF	AC420Z15V-PAP12
				GPS	AC420Z15V-PAP22
				LRF & GPS	AC420Z15V-PAP32

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ACCESSORY ORDERING INFORMATION

Accuracii XR can be ordered with the following optional accessories and mounts:

Accessory	Description	Part #
Cables		
5m (15') Integration Cable	Mating connector to Dual BNC's (video), DB9 (comm), and power leads	WC1000009A
15m (45') Integration Cable	Mating connector to Dual BNC's (video), DB9 (comm), and power leads	WC1000010A
Power		
Power Transformer Unit	Outdoor rated enclosure with 24VDC 20 amp power transformer 120-230VAC	PA1000018A
Power Transformer Unit & Encoder	Outdoor rated enclosure with 24VDC 20 amp power transformer 120-230VAC and H.264 video encoder	PA1000014A
24VDC Power Supply	24VDC 20 amp (480w) indoor rated power supply	PS1000016A
Video & Communication		
H.264 Video Encoder	H.264 TCP/IP Encoder with four video input channels and one serial communication input channels	PA1000013A
Video Capture Card	USB card allows for the display and recording of 1 analog video channel	880518
Keyboard / Joystick	Pelco -D compatible Serial Communication Keyboard with joystick for camera control	805199
Mounts		
Wall Mount Kit	Wall Mount Kit	PA1000019A
Pole Mount Kit	Pole Mount Adaptor and Wall Mount Kit	PA1000020A

SHIPPING CONTENTS

STANDARD ORDER

■ **Accuracii™ XR** includes:

1) Accuracii XR system
    Thermal camera
    Pan/tilt positioner
    CCD camera

2) Software & Documenation CD containing:
    User Manual
    Test & Configuration Software (Sensorii)

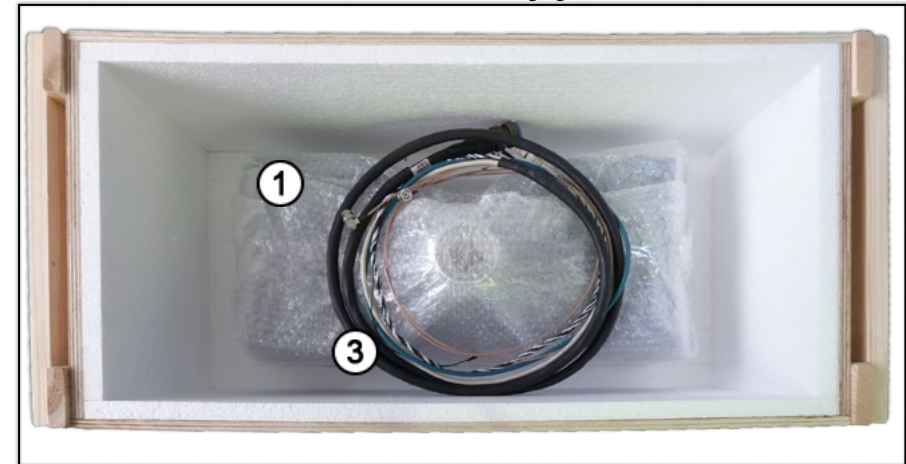   Pan/Tilt base mating connector (not shown)

OPTIONAL EQUIPMENT:

Mounted to Accuracii before shipping

■ Laser Range Finder
■ GPS Module

Not mounted to Accuracii before shipping:

■ 5m (15') Integration Cable (4)
■ 15m (45') Integration Cable (4)
■ Power Transformer Unit (packaged separately)
■ Power Transformer Unit & Encoder (packaged separately)
■ 24VDC Power Supply (packaged separately)
■ H.264 Video Encoder (packaged separately)
■ Video Capture Card (packaged separately)
■ Keyboard / Joystick (packaged separately)
■ Wall Mount (packaged separately)
■ Pole Mount Adaptor (packaged separately)

Accuracii XR Packaging

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WIRING ASSIGNMENT

Accuracii Pedestal Connector & Pinout

Pan/Tilt Base Connector
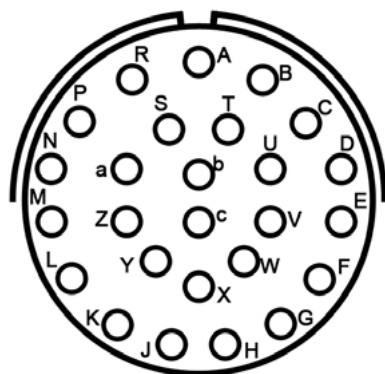
CHASSIS		
E	+24VDC
U	+24VDC
b	+24VDC
F	GND (0V)
V	GND (0V)
W	GND (0V)
A	RS422/RS485 RX-
T	RS422/RS485 RX+
B	RS422/RS485 TX-
C	RS422/RS485 TX+
H	VIDEO 1 GND
G	VIDEO 1
K	VIDEO 2 GND
J	VIDEO 2

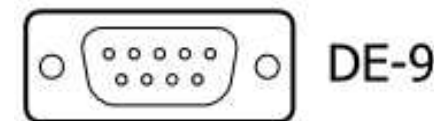### Part Numbers
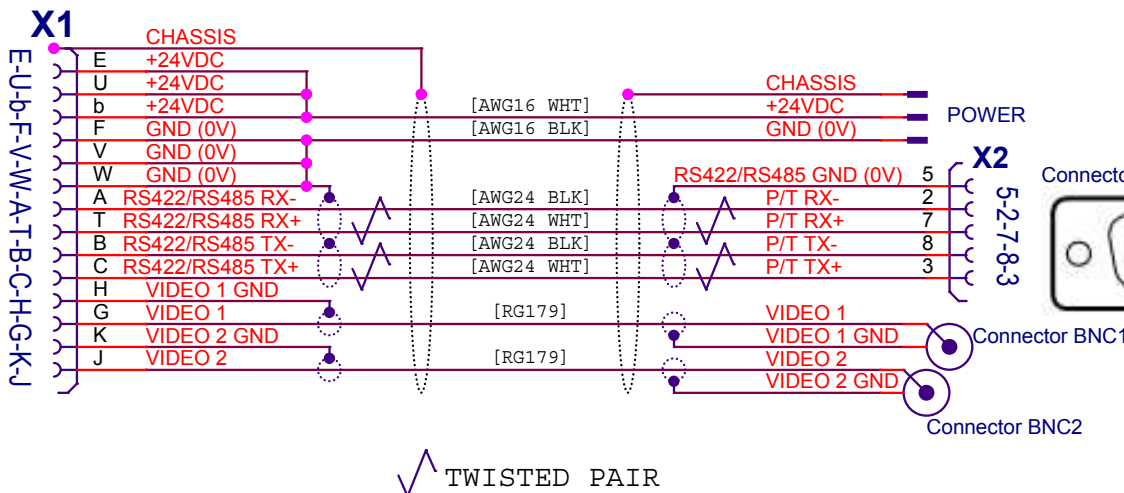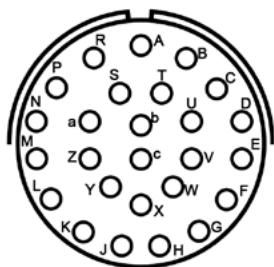
Optional Integration cable 5m (15'): WC1000009A

Optional Integration cable 15m (45'): WC1000010A
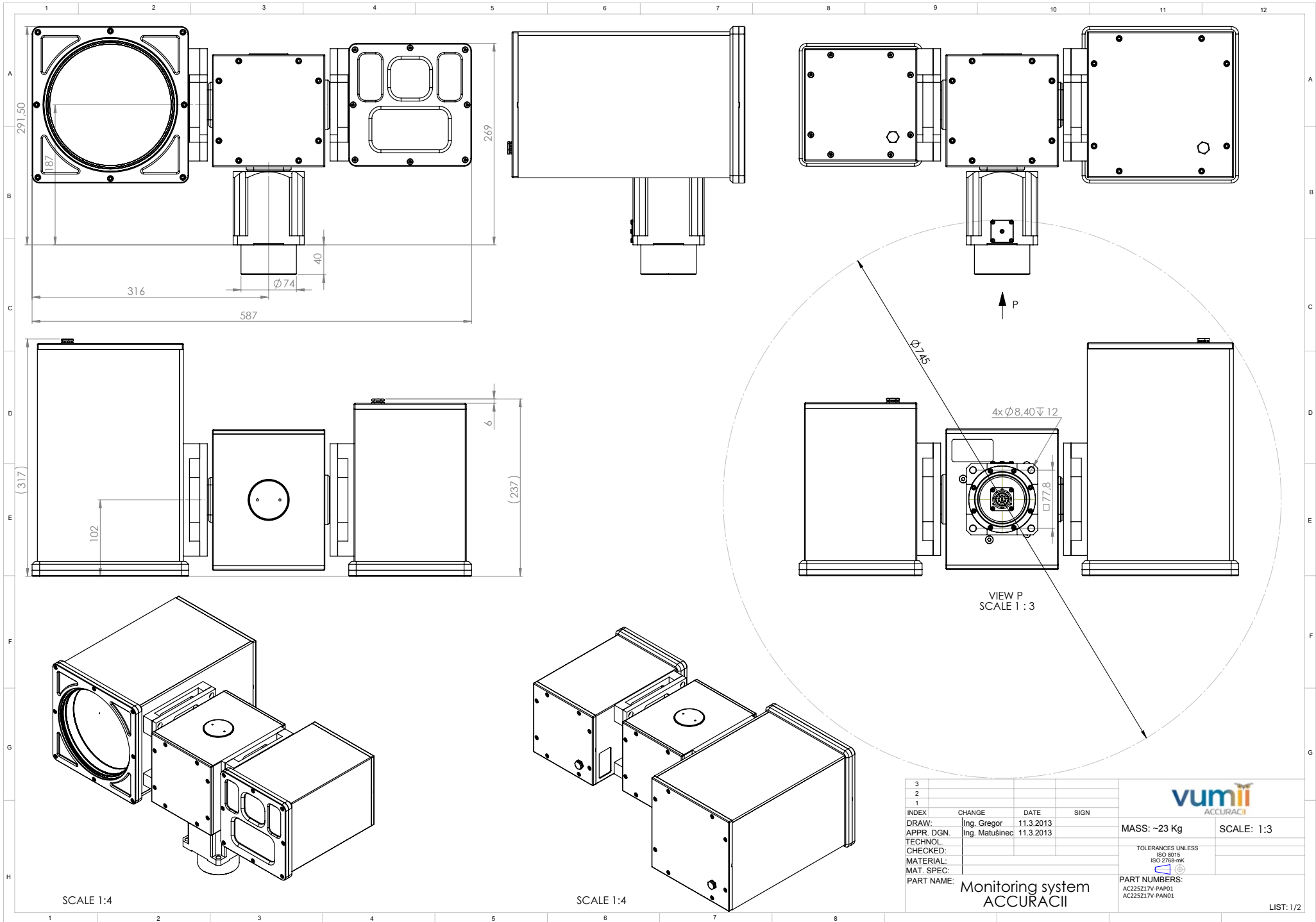
Mating Connector*: 851-36RG1626S50

* All Accuracii orders include a mating connector

Optional Integration Cable Pinout and Connectors

Mating Connector Part #
851-36RG1626S50

291.50
187
269
316
40
Ø74
587
(317)
102
6
(237)

Ø745
4x Ø8,40 ⊽ 12
Ø77,8
P

VIEW P
SCALE 1 : 3

SCALE 1:4

SCALE 1:4

3			
2			
1			
INDEX	CHANGE	DATE	SIGN
DRAW:	Ing. Gregor	11.3.2013	
APPR. DGN.	Ing. Matušinec	11.3.2013	
TECHNOL.			
CHECKED:			
MATERIAL:			
MAT. SPEC:			

MASS: ~23 Kg

SCALE: 1:3

TOLERANCES UNLESS
ISO 8015
ISO 2768-mK

PART NAME: Monitoring system
ACCURACII

PART NUMBERS:
AC225Z17V-PAP01
AC225Z17V-PAN01

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LIST: 1/2

45 degrees

90 degrees

SCALE 1:5

SCALE 1:5

INDEX	CHANGE	DATE	SIGN		
3					
2					
1				**vumii** ACCURACII	
DRAW:	Ing. Gregor	11.3.2013		MASS: ~23 Kg	SCALE: 1:3
APPR. DGN.	Ing. Matušinec	11.3.2013			
TECHNOL.				TOLERANCES UNLESS	
CHECKED:				ISO 8015	
MATERIAL:				ISO 2768-mK	
MAT. SPEC:					
PART NAME:				PART NUMBERS:	
	Monitoring system ACCURACII			AC225Z17V-PAP01 AC225Z17V-PAN01	

LIST: 2/2