

NAUTITECH[®]

HARNESSING TECHNOLOGY TO KEEP MINERS SAFE



HD Camera
(with optional gimbal)



Thermal Camera

CUBEx Deepsight

Intrinsically Safe Camera



Scan QR Code for
more information

nautitech.com.au

SYSTEM OVERVIEW

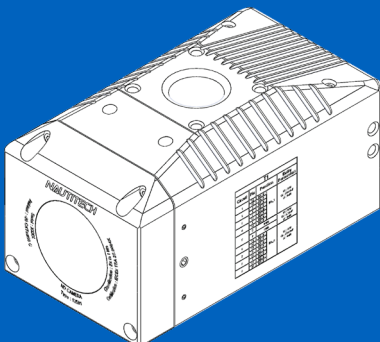
The CUBEx Deepsight Camera by Nautitech® incorporates a Neural Processing Unit (NPU) and is enabled for AI-enhanced real-time analytics. This powerful combination enables real-time visual analysis for proactive safety monitoring and predictive maintenance

**Available in HD
and Thermal
Variants**



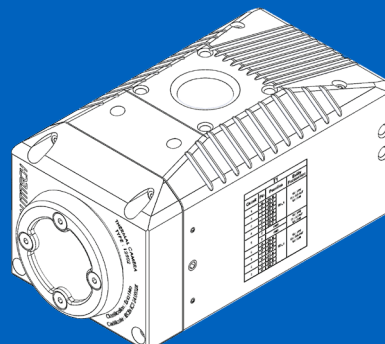
KEY FEATURES

- ✓ Available in HD and Thermal variants
- ✓ Dual Video Streams
- ✓ Integrated Neural Processing Unit (NPU)
- ✓ Supports Edge AI-enhanced real-time analytics and object detection of workers, cables, machinery, or other heat sources
- ✓ Daisy-chain multiple cameras using a single cable for ethernet and power
- ✓ Dual Video Streams
- ✓ Supports ONVIF
- ✓ On-Board Video Recording capability up to 4 hours
- ✓ Robust WiFi and low latency streaming
- ✓ Motion detection
- ✓ Stream mode and Capture mode
- ✓ Adjustable brightness, contrast, sharpness, and saturation
- ✓ Replaceable Lens Cover
- ✓ Adjustable Mounting Angle



HD CAMERA

Exceptional low-light performance



THERMAL CAMERA

High resolution thermal images unaffected by darkness, dust or water

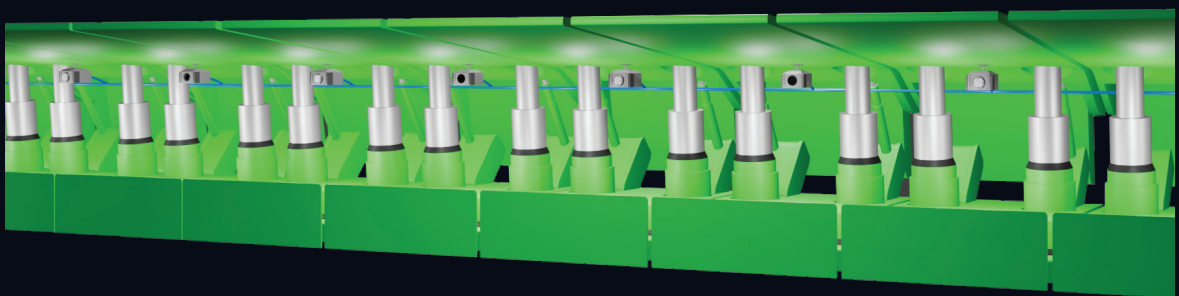
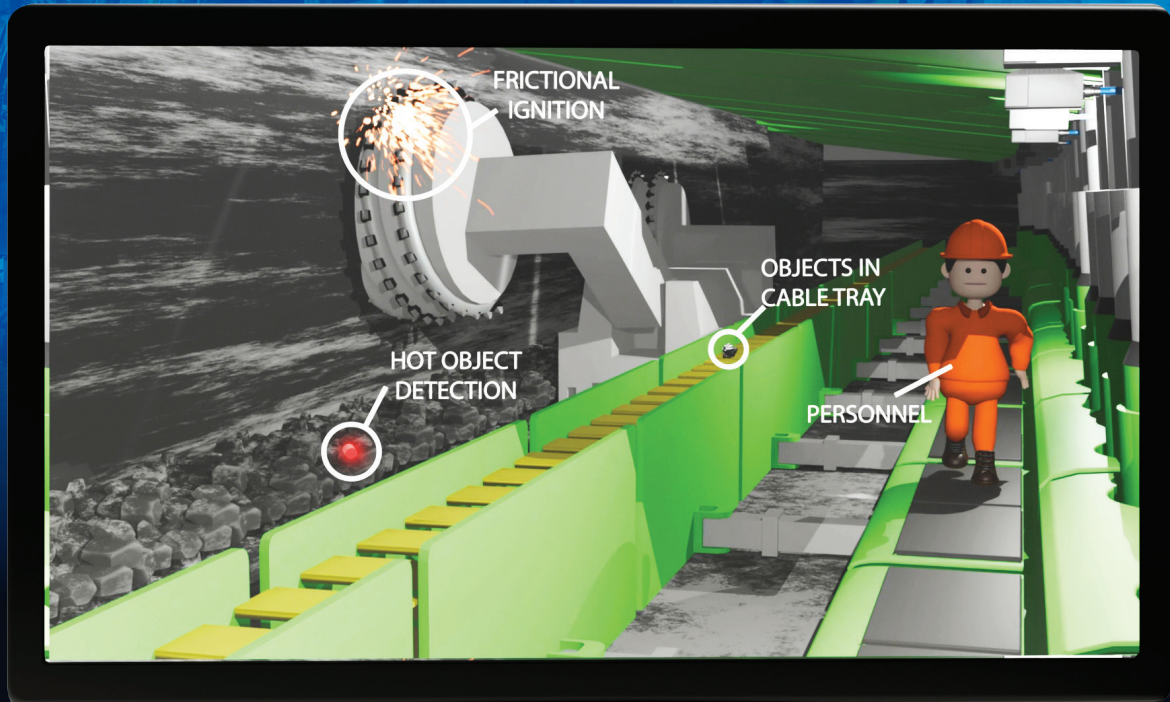
* Software modifications are required to enable AI features for specific application

SYSTEM APPLICATIONS

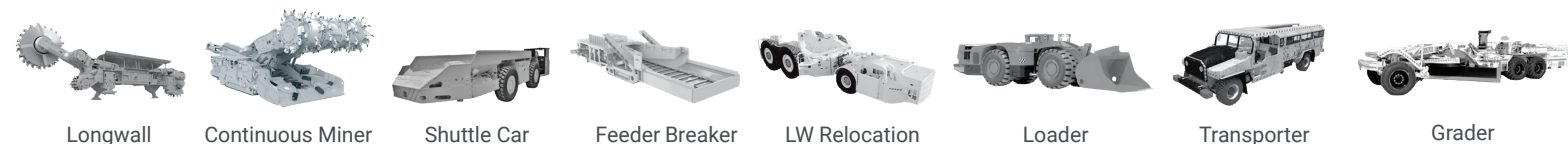
Intelligent networking links power and ethernet - with a built-in ethernet switch – to daisy-chain a mix of Thermal and HD cameras. This enables real-time visual monitoring and diagnostic data collection across the entire length of the Longwall

Robust Wi-Fi and low-latency streaming promotes seamless connectivity with exceptional signal strength and stable connections without freezes.

Efficient data transmission, ONVIF compliant thermal video streaming at 4Mbps, and a fast frame rate of 25Hz support real-time visual monitoring



The Deepsight IS Camera is ideal for a wide range of underground mining applications including Longwall and longwall relocation, Development, shuttle cars, feeder breakers, loaders, personnel transporters and other mobile machinery



Longwall

Continuous Miner

Shuttle Car

Feeder Breaker

LW Relocation

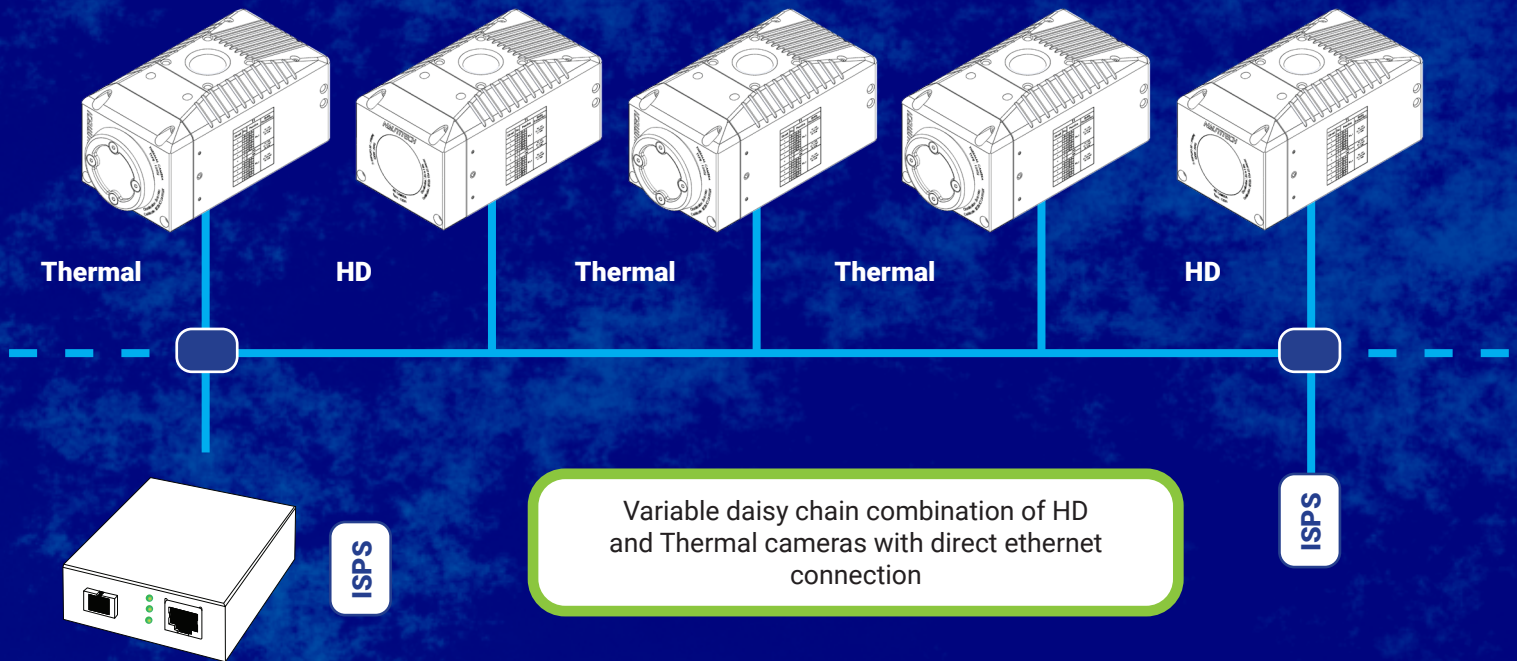
Loader

Transporter

Grader

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SYSTEM SCHEMATIC & FEATURES



COMMON FEATURES OF BOTH CAMERA VARIANTS

FRAME RATE	Adjustable up to 30 FPS
VIDEO COMPRESSION	MJPEG, MPEG4, H.264, HVEC/H.265 with adjustable bitrate
ETHERNET PROTOCOL	TCP/IP, ICMP, HTTP, DHCP, DNS, NTP, UDP
STREAMING PROTOCOL	RTP/UDP, RTP/RTSP/TCP, RTP/UDP Multicast
STILL IMAGE COMPRESSION FORMAT	JPEG
WI-FI STANDARD	802.11 b/g/n
BITRATE	500Kbps to 32Mbps
IMAGE FEATURES	DOL WDR, Motion Detection, 2D/3D Noise Reduction, BLC, Rolling/Global Shutter

HD CAMERA FEATURES

SUBSTREAM RESOLUTIONS	848x480, 640x360, 384x216
MAINSTREAM RESOLUTIONS	1920x1080 (Full HD), 1280x720
STILL IMAGE SIZE	1920x1080
FIELD OF VIEW (CUSTOM OPTIONS AVAILABLE)	83.5° (H) x 44.6° (V) (adjustable based on lens selection)
FOCUS RANGE	1m to ∞

THERMAL CAMERA FEATURES

SUBSTREAM RESOLUTIONS	320x256
MAINSTREAM RESOLUTIONS	640x512
STILL IMAGE SIZE	640x512
FIELD OF VIEW	48.3° (H) x 38.7° (V) (manually adjusted)
THERMAL SENSITIVITY	As low as ≤40mK

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SPECIFICATIONS

ENVIRONMENTAL LIMITATIONS

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
T _A	Ambient Temperature		-20		+60	°C
H _A	Ambient Humidity		0		90	%
P _A	Atmospheric Pressure (Ambient)			100		kPa

MECHANICAL SPECIFICATIONS

PARAMETER	CX501-XXX (HD) CX502-XXX (Thermal)	CX501-XXX (HD) CX504-XXX (HD CAN) CX502-XXX (Thermal) CX505-XXX (Thermal CAN)	CX502-XXX (Thermal) CX505-XXX (Thermal CAN)	UNITS
Options	No Options	Antenna	Lens Shield	
Length (incl connector)	166		177.80	mm
Width	85.00	111.00	85.00	mm
Height	81.00			mm
Mass	4.00			kg
Enclosure Material	Stainless Steel			
Ingress Protection	IP66			
Connector	SS-Link19 Connector (T1)			

ELECTRICAL OPERATING SPECIFICATIONS

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
I _{PEAK}	Input Current @12V	Power-up		0.450		A
I _{PEAK}	Input Current @12V	Steady-state		0.390		A
I _{MEAN}	Input Current @12V	Steady-state		0.350		A
V _{IN}	Input Voltage		7.5	12	14	V

ELECTRICAL OPERATING SPECIFICATIONS (AI enabled cameras)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
I _{PEAK}	Input Current @8V	Power-up		0.675		A
I _{PEAK}	Input Current @8V	Steady-state		0.585		A
I _{MEAN}	Input Current @8V	Steady-state		0.525		A
V _{IN}	Input Voltage		7.5	8	9	V

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Certified under IECEx 60079-11:2023 and IECEx 60079-0:2017 electrical apparatus for explosive gas atmospheres

Certificate Number IECEx TSA 25.0004X
Certificate Number IECEx ICS 24.0032X

IECEX ENTITY PARAMETERS

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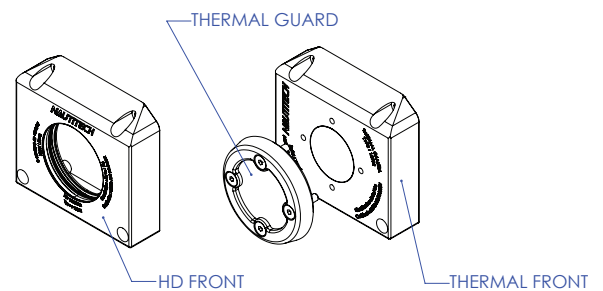
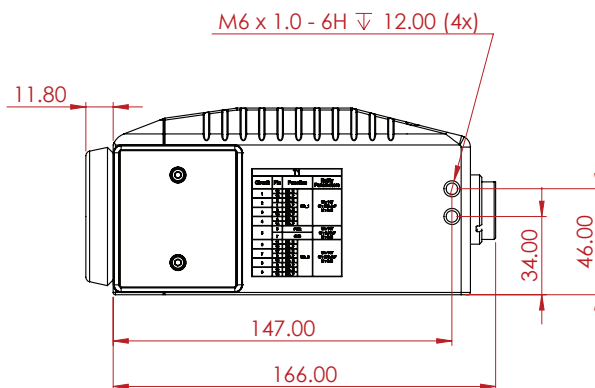
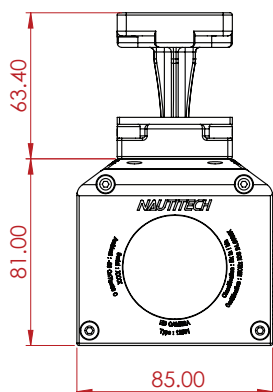
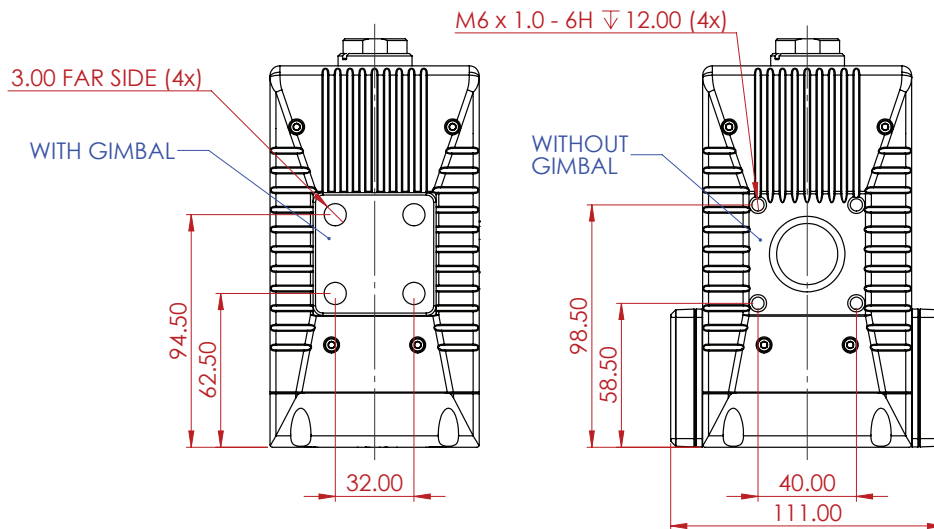
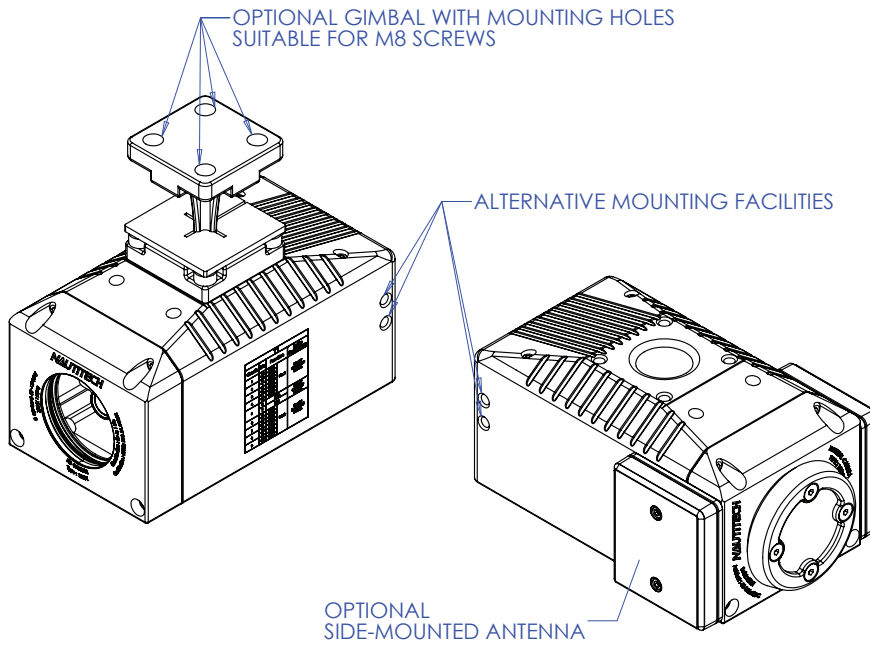
SYMBOL	PARAMETER	CONDITIONS	VALUE	UNITS
U_i	Input Voltage	Power Port Pins	14	V
C_i	Input Capacitance	Power Port Pins	2.31	μF
L_i	Input Inductance	Power Port Pins	0	μH
U_i	Input Voltage	Ethernet Port Pins	14	V
C_i	Input Capacitance	Ethernet Port Pins	290.4	nF
L_i	Input Inductance	Ethernet Port Pins	0	μH
U_o	Output Voltage	Ethernet Port Pins		V
I_o	Output Current	Ethernet Port Pins		A
C_o	Output Capacitance	Ethernet Port Pins		μF
L_o	Output Inductance	Ethernet Port Pins		μH

IECEX ENTITY PARAMETERS (AI enabled cameras)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNITS
U_i	Input Voltage	Power Port Pins	9	V
C_i	Input Capacitance	Power Port Pins	2.31	μF
L_i	Input Inductance	Power Port Pins	0	μH
U_i	Input Voltage	Ethernet Port Pins	14	V
C_i	Input Capacitance	Ethernet Port Pins	290.4	nF
L_i	Input Inductance	Ethernet Port Pins	0	μH
U_i	Input Voltage	CAN Pins	9	V
P_i	Input Power	CAN Pins	3.15	A
C_i	Input Capacitance	CAN Pins	8.75	μF
L_i	Input Inductance	CAN Pins	0	μH
U_o	Output Voltage	Ethernet Port Pins		V
I_o	Output Current	Ethernet Port Pins		A
C_i	Output Capacitance	Ethernet Port Pins		μF
L_o	Output Inductance	Ethernet Port Pins		μH

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MECHANICAL SPECIFICATIONS

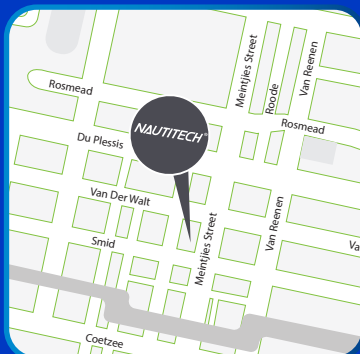


NAUTITECH®

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NAUTITECH® is an Original Technology Manufacturer (OTM), and global provider of **smart electronic** and **software** solutions for OEMs and mine sites in underground mining.

We design and manufacture equipment that delivers **Communications** and **Visibility**, supports Automation, and provides a platform for **Asset and Condition Monitoring** of underground equipment. Our **data analytics** software can help detect safety risks and gain intelligence for improved mining operations.



South Africa

Middelburg, Mpumulanaga
South Africa

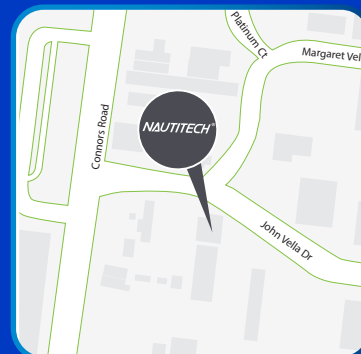
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