

OTL- VS SCM61505NR



UNCOOLED LWIR THERMAL CAMERA MODULE

640 × 512 | 30-150 mm | 5× Motorized Zoom

Long-range thermal observation with AI video analytics

640 × 512

VOx Detector

12 μm

Pixel Pitch

8-14 μm

Spectral Band

50 Hz

Detector Frame Rate



LONG-RANGE DETECTION

Vehicles / small boats: 19 km*

AI ANALYTICS

Perimeter & behavior detection

5× CONTINUOUS ZOOM

30-150 mm motorized lens

NETWORK OUTPUT

Ethernet / CVBS; optional SDI

*Source headline lists target-dependent detection claims; see DRI reference table and notes.

OTL | THERMAL IMAGING

OTL- VS SCM61505NR

Uncooled LWIR | 640 × 512 | 30–150 mm motorized zoom

PRODUCT OVERVIEW

VS-SCM61505NR is a network thermal camera module designed for long-distance monitoring. The source specifies a 640 × 512 vanadium oxide (VOx) uncooled infrared sensor and a 30–150 mm motorized zoom lens.

The source overview states that the module can detect flames at 1 km, people at 6 km, and vehicles or small boats at 19 km. The DRI table lists corresponding detection distances of 1,083 m, 6,250 m, and 19,167 m; the source labels the table as a reference and notes that performance varies with environment.



KEY FEATURES

Feature	Source description
High-sensitivity sensor	640 × 512 VOx uncooled detector, 12 μm pixel pitch; source says the smaller pitch compared with 17 μm sensors helps reduce module size and weight.
5× continuous zoom	30–150 mm motorized zoom lens, F/0.9–1.2 aperture, 14.59° to 2.93° horizontal FoV; auto, manual and one-shot focus modes.
AI-powered capabilities	Perimeter intrusion and abnormal-behavior analytics; source says built-in deep-learning algorithms improve event detection and reduce false alarms.
Network video	H.265/H.264 family encoding and MJPEG; main stream up to 1280 × 1024 at 50 fps as stated in the source.
Rich interfaces	Network and CVBS direct output; optional adapter boards can expand output to SDI and other interfaces.
Single-IP bi-spectral integration	Source states compatibility with OTL visible-light cameras for single-IP dual-spectrum integration.

Editorial note: marketing claims about detection range depend on target size/type and environment; use the DRI table on the next page as the detailed source reference.

Technical Specifications

Detector, optics, field of view and DRI reference

CAMERA / DETECTOR

Parameter	Specification
Detector	VOx uncooled infrared FPA detector
Pixel pitch	12 μm
Sensing spectral range	8–14 μm
NETD	≤40 mK @ 25°C, F/1.0
Maximum resolution	640 × 512
Detector frame rate	50 Hz

LENS

Parameter	Specification
Type	Motorized zoom lens
Coating	DLC (Diamond-Like Carbon)
Focal length	30–150 mm (5× motorized zoom)
Aperture	F/0.9–1.2
Focus modes	Auto / Manual / One-shot
FoV (H, V, D) — Wide	14.59° (±5%) / 11.69° (±5%) / 18.62° (±5%)
FoV (H, V, D) — Tele	2.93° (±5%) / 2.35° (±5%) / 3.76° (±5%)

DRI RATINGS — SOURCE REFERENCE

Target	Detection (m)	Recognition (m)	Identification (m)
Human (1.8 × 0.5 m)	6,250	1,563	781
Vehicle (1.4 × 4.0 m)	19,167	4,792	2,396
Fire (0.13 × 0.13 m)	1,083	271	135

Source note: DRI distances are calculated based on Johnson standards; the PDF says detection is 1.5+ pixels, identification 6+ pixels, and characterization 12+ pixels. The table headings instead use "Recognition" and "Identification"; this wording difference is flagged for confirmation, and the source says the values are for reference only.

Video, Imaging & Network

VIDEO / IMAGE

Parameter	Specification
Video encoding	H.265 / H.264 / H.264H / H.264B / MJPEG
Main stream	50 fps: 1280 × 1024; 1280 × 720; D1 (704 × 576 / 704 × 480)
Sub stream 1/2	50 fps: D1 (704 × 576 / 704 × 480); CIF (352 × 288 / 352 × 240)
Compression bit rate	4 kbps–40 Mbps
Pseudo-color	20 options (e.g. White Hot, Black Hot, Fusion, Iron Red)
FFC mode	Auto / Manual (time-based)
Image controls	Brightness, contrast, sharpness and noise reduction adjustable
Flip	Center (source wording)
Digital zoom	8×
Image format	JPEG; interval 1–7 s (1280 × 1024)

AUDIO / NETWORK / CYBERSECURITY

Parameter	Specification
Audio encoding	AAC / MP2L2
Network protocols	IPv4, IPv6, HTTP, HTTPS, TCP, UDP, RTSP, RTCP, RTP, ARP, NTP, FTP, DHCP, PPPoE, DNS, DDNS, UPnP, IGMP, ICMP, SNMP, SMTP, QoS, 802.1x, Bonjour
API	ONVIF Profiles S / G / T; HTTP API; SDK
Cybersecurity	User authentication, IP/MAC filtering, HTTPS, IEEE 802.1x
Supported browsers	IE, Edge, Firefox, Chrome
Web languages	English; other languages customizable
OSD overlay	Channel title, time title, preset, temperature, coordinates, zoom, test overlay, picture overlay, crosshair, OSD warning
Users	Up to 20 users, 2 levels: Administrator and User
Firmware upgrade	Supported
Storage	MicroSD up to 1 TB, edge storage, FTP, NAS

ANALYTICS

Analytics group	Functions listed in source
Perimeter protection	Line crossing, fence crossing, intrusion
Behavioral detection	Object left in area, object removal, fast moving, gathering, loitering, parking
Event detection	Motion, masking, scene change, audio detection, SD card error, network disconnection, IP conflict, illegal network access

Interfaces & General Specifications

Power, operating conditions, protection and physical size

INTERFACES

Item	Specification
Ethernet	1 × RJ45, 10M/100M
Audio input	1 channel
Audio output	1 channel
External control — TTL	1 channel TTL (3.3 V), compatible with VISCA protocols
External control — RS485/TTL	1 channel RS485/TTL (3.3 V); default RS485, can be changed to TTL; compatible with PELCO protocols
Video output	10/100M Ethernet, CVBS
Optional output expansion	SDI output through optional adapter board; see Accessories

GENERAL / ENVIRONMENTAL / MECHANICAL

Parameter	Specification
Power	DC 12 V $\pm 10\%$
Power consumption	Typical 2.5 W; maximum 7.3 W
Operating environment	-30°C to $+60^{\circ}\text{C}$; humidity 20%–80% RH
Storage environment	-40°C to $+70^{\circ}\text{C}$; humidity 20%–95% RH
Front protection level	IP67
Weight	3.36 kg ($\pm 5\%$)
Dimensions	$\Phi 187 \times 263$ mm (see original drawing)

Editorial note: "Front Protection Level" is the source's exact label; the catalog does not reinterpret it as an overall enclosure rating.

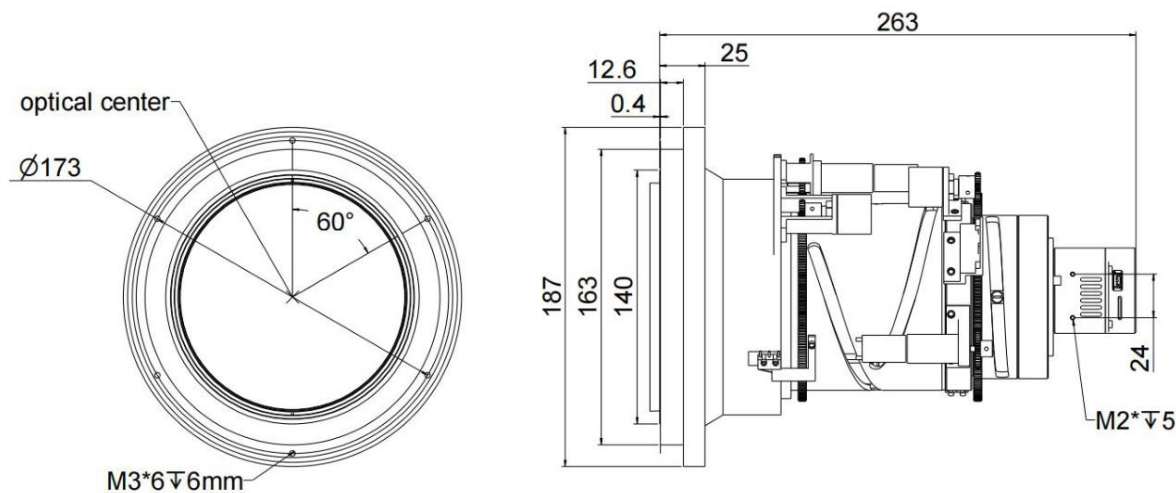
Pin Assignment

Connector definitions transcribed from pages 4–5 of the source

Connector / type	Pin	Signal	Remark
J1 — A1251-06A, 1.25 mm	1	DC_IN	DC power input, DC 12 V $\pm$ 10% required
J1 — A1251-06A, 1.25 mm	2	GND	Ground
J1 — A1251-06A, 1.25 mm	3	RS485A	RS485A interface, PELCO protocol
J1 — A1251-06A, 1.25 mm	4	RS485B	RS485B interface, PELCO protocol
J1 — A1251-06A, 1.25 mm	5	RXD0	TTL level (3.3 V); camera serial port receives signal; VISCA protocol
J1 — A1251-06A, 1.25 mm	6	TXD0	TTL level (3.3 V); camera serial port sends signal; VISCA protocol
J2 — A2001AWR-02, 2.0 mm	1	DC_IN	+12 V
J2 — A2001AWR-02, 2.0 mm	2	GND	Ground
J3 — A1251-04A, 1.25 mm	1	ETHRX-	Adaptive network port; physical receive (– differential)
J3 — A1251-04A, 1.25 mm	2	ETHRX+	Adaptive network port; physical receive (+ differential)
J3 — A1251-04A, 1.25 mm	3	ETHTX-	Adaptive network port; physical send (– differential)
J3 — A1251-04A, 1.25 mm	4	ETHTX+	Adaptive network port; physical send (+ differential)
J4 — A1251-05A, 1.25 mm	1	ALARM_IN	Alarm input
J4 — A1251-05A, 1.25 mm	2	GND	Alarm input ground
J4 — A1251-05A, 1.25 mm	3	ALARM_OUT+	Alarm output circuit pass-through when an alarm occurs
J4 — A1251-05A, 1.25 mm	4	ALARM_OUT-	Source says output is break-through when there is no alarm; no positive/negative polarity
J4 — A1251-05A, 1.25 mm	5	GND	Alarm output ground (continuation on source page 5)
J5 — A1251-04A, 1.25 mm	1	AUDIO_OUT	Audio output; supports LINE OUT mode
J5 — A1251-04A, 1.25 mm	2	GND	Ground
J5 — A1251-04A, 1.25 mm	3	AUDIO_IN	Audio input; supports LINE IN mode
J5 — A1251-04A, 1.25 mm	4	GND	Ground
J5 — A1251-04A, 1.25 mm	5	CVBS	CVBS video output

Engineering review note: confirm connector orientation and cable mating before wiring. Pin mapping above is transcribed from the source; the original connector and board drawing is retained in the source-page appendix.

DIMENSION DRAWING (ORIGINAL)



Accessories, Ordering & Precautions

OPTIONAL ACCESSORIES

Item	Description from source
SDI/CVBS output tail board	SDI output interface: standard SAM connector (female); CVBS output interface: 2-pin socket, A1251LF-02A 1.25 mm
30P Fine Coaxial Cable	30P fine coaxial cable

ORDERING INFORMATION

Model No.	Description
VS-SCM61505NR	640 × 512, 30–150 mm zooming thermal camera module

PRECAUTIONS FOR USE

- Avoid looking the thermal imaging lens directly at high-intensity radiation sources such as the sun.
- Avoid striking the lens with sharp objects.
- Keep the external lens cable straight and avoid excessive bending or stress.
- Avoid contaminating the lens with corrosive chemicals.
- Disconnect the power cord before connecting cables; use the correct power supply.
- Pay attention to electrostatic protection.
- Do not disassemble the device without permission; contact qualified staff for repair.

SOURCE & EDITORIAL NOTES

Source: Specification_VS-SCM61505NR.pdf, 5 pages; source document shows “August 2025 | Rev 1.”

The source states that images, specifications and information are for reference and may differ from the actual product; designs and specifications may change without notice.

Added contextual notes, cross-check reminders, and editorial review notes are highlighted in red. Core specifications and pin assignments are transcribed from the source document.

Visual appendix — all five pages of the supplied specification retained

Use these page images to cross-check the editable tables, original product image, dimension drawing, connector layout, accessories, ordering code, and handling notes.

Source Reference — Page 1

Original supplied specification

OTL

Uncooled LWIR VS-SCM61505NR

640*512 30-150mm Zooming Thermal Camera Module

VS-SCM61505NR is a network thermal camera module designed for long-distance monitoring. The module is equipped with a 640x512 vanadium oxide sensor and a 30~150mm zoom lens. It can detect flames 1km away, people 6km away, vehicles or small boats 19km away.



Key Features

High Sensitivity Sensor

- High-sensitivity 640×512 VOx uncooled sensor with 12 μm pixel pitch provides more target pixels compared to 17μm sensors, which reduces product size and weight, making it ideal for long-range monitoring.

5x Continuous Zoom Lens

- Large-aperture F#0.9-1.2 lens (30-150mm, 5x optical zoom) offers horizontal FOV from 14.59° to 2.93° for detailed thermal observation.
- Fast autofocus and clear imaging during zoom.

Network Output Up to 1280 *1024@50fps

- Advanced H.265/H.264 compression algorithm reduces bandwidth pressure, enabling smooth thermal video streaming.

AI-Powered Capabilities

- **AI Analytics:** Supports a comprehensive suite of intelligent video analysis function, including perimeter intrusion detection, abnormal behavior detection, etc. The built-in deep learning algorithms greatly improve the accuracy of event detection and reduce false alarms, which enhances security and improves efficiency.

Rich Interfaces

- Supports network, CVBS direct output.
- Can be expanded to SDI output and other output interfaces through optional adapter boards.

Single IP Bi-Spectral System

- Compatible with OTL visible-light cameras for single IP dual-spectrum integration.

Source Reference — Page 2

Original supplied specification

Specifications

Camera				
Detector	VOx uncooled infrared FPA detector			
Pixel Pitch	12μm			
Sensing Spectral Range	8-14μm			
Noise Equivalent Temperature Difference (NETD)	≤40mK@25°C, F#1.0			
Maximum Resolution	640 × 512			
Detector frame rate	50Hz			
Lens				
Type	Motorized Zoom Lens			
Coating	DLC(Diamond-Like Carbon)			
Focal Length	30 - 150mm (5x motorized zoom)			
Aperture	F: 0.9- 1.2			
Focus Modes	Auto/Manual/One-shot			
FoV(H, V, D)	Wide	14.59°(±5%)	11.69°(±5%)	18.62°(±5%)
	Tele	2.93°(±5%)	2.35°(±5%)	3.76°(±5%)
DRI Ratings*	Detection(m)		Recognition(m)	Identification(m)
Human (1.8 x 0.5m)	6,250		1,563	781
Vehicle(1.4 x 4.0m)	19,167		4,792	2,396
Fire (0.13 x 0.13m)	1,083		271	135
*DRI distances are calculated based on Johnson standards: detection (1.5 or more pixels), identification (6 or more pixels), and characterization (12 or more pixels); this table is for reference only, and performance may vary by environment.				
Video				
Video Encoding	H.265/H.264/H.264H/H.264B/MJPEG			
Main Stream	50fps: 1280*1024、1280*720、D1(704*576/704*480)			
Sub Stream 1/2	50fps: D1(704*576/704*480)、CIF(352*288/352*240)			
Compression Bit Rate	4kbps - 40Mbps			
Pseudo-color	20 options (White Hot, Black Hot, Fusion, Iron Red, etc.)			
FFC Mode	Auto/Manual(time-based)			
Image	Brightness, Contrast, Sharpness, Noise Reduction adjustable			
Flip	Center			
Digital Zoom	8x			
Image				
Image Format	JPEG, Interval: 1~7s(1280 × 1024)			
Audio				
Audio Encoding	AAC / MP2L2			
Network				
Network Protocols	IPv4, IPv6, HTTP, HTTPS, TCP, UDP, RTSP, RTCP, RTP, ARP, NTP, FTP, DHCP, PPPoE, DNS, DDNS, UPnP, IGMP, ICMP, SNMP, SMTP, QoS, 802.1x, Bonjour			
API	ONVIF (Profile S, Profile G, Profile T), HTTP API, SDK			
Cyber Security	User authentication, IP/MAC filtering, HTTPS, IEEE 802.1x			

Source Reference — Page 3

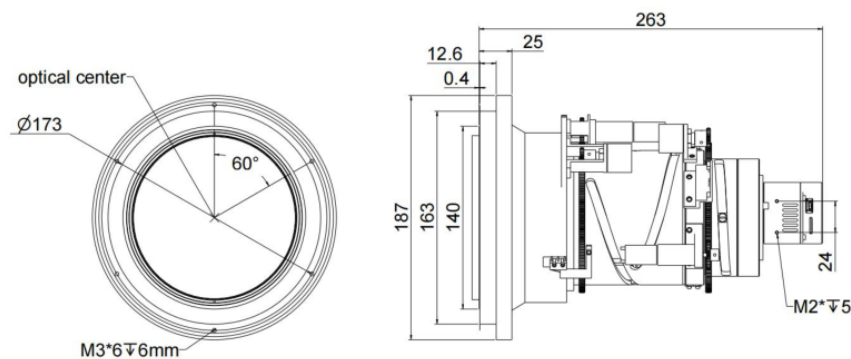
Original supplied specification

Web Browser	IE, EDGE, Firefox, Chrome
Web Languages	English (other languages customizable)
OSD Overlay	Channel Title, Time Title, Preset, Temperature, Coordinates, Zoom, Test overlay, Picture overlay, Crosshair, OSD warning
User	Up to 20 users, 2 levels: Administrator, User
Firmware Upgrade	Support
Storage	MicroSD (Up to 1Tb), edge storage, FTP, NAS
Analytics	
Perimeter Protection	Line crossing, Fence crossing, Intrusion
Behavioral Detection	Object left in area, Object removal, Fast moving, Gathering, Loitering, Parking
Events Detection	Motion, Masking, Scene change, Audio detection, SD card error, Network disconnection, IP conflict, Illegal network access
Interface	
Ethernet	1-ch RJ45 10M/100M
Audio Input	1-ch
Audio Output	1-ch
External Control	1 -ch TTL(3.3V) (compatible with VISCA protocols) 1 -ch RS485/TTL(3.3V) (default RS485, support to be changed to TTL, compatible with PELCO protocols)
Video Output	10/100M Ethernet, CVBS
General	
Power	DC 12V±10%
Consumption	Typical: 2.5W, Maximum: 7.3W
Operating Environment	Temperature: -30°C - +60°C Humidity:20%-80%RH
Storage Environment	Temperature: -40°C - +70°C Humidity:20%-95%RH
Front Protection Level	IP67
Weight	3.36kg (±5%)
Dimensions	Φ187*263(mm)

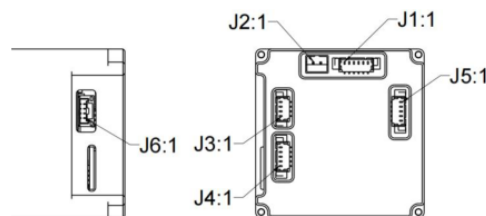
Source Reference — Page 4

Original supplied specification

Dimensions(mm)



Pin Assignment



Type	Pin No.	PIN Name	Remark
J1 (A1251-06A 1.25MM)	1	DC_IN	DC power input port, DC 12V±10% required
	2	GND	GND
	3	RS485A	RS485A Interface, Pelco Protocol
	4	RS485B	RS485B Interface, Pelco Protocol
	5	RXD0	TTL level(3.3V),Camera serial port receives signal, Visca protocol
	6	TXD0	TTL level(3.3V),Camera serial port sends signal, Visca protocol
J2 (A2001AWR-02 2.0MM)	1	DC_IN	+12V
	2	GND	GND
J3 (A1251-04A 1.25MM)	1	ETHRX -	Adaptive network port, physical receiving signal (-differential)
	2	ETHRX +	Adaptive network port, physical receiving signal (+differential)
	3	ETHTX -	Adaptive network port, physical sending signal (-differential)
	4	ETHTX +	Adaptive network port, physical sending signal (+differential)
J4 (A1251-05A 1.25MM)	1	ALARM_IN	Alarm Input
	2	GND	Alarm input GND
	3	ALARM_OUT+	Alarm output is realized through the circuit pass-through (pass-through when there is an alarm, break-through when there is no alarm, no positive and negative polarity)
	4	ALARM_OUT-	

Source Reference — Page 5

Original supplied specification

J5 (A1251-04A 1.25MM)	5	GND	Alarm output GND
	1	AUDIO_OUT	Audio output signal, support LINE OUT output mode
	2	GND	GND
	3	AUDIO_IN	Audio input signal, support LINE IN input mode
	4	GND	GND
	5	CVBS	CVBS

Optional Accessories

Appearance	Description
	SDI/CVBS output tail board: SDI output docking: standard SAM connector (female) CVBS output docking: 2pin socket (A1251LF-02A 1.25MM)
	30P Fine Coaxial Cable

Ordering Information

Model No.	Description
OTL- VS SCM61505NR	640*512 30-150mm Zooming Thermal Camera Module

Precautions

Improper operation may cause damage to the device or even personal injury. If you have any questions during use, please contact our staff!

1. Avoid looking the thermal imaging lens directly at high-intensity radiation sources such as the sun.
2. Avoid striking the lens with sharp objects.
3. Keep the external lens cable straight and avoid excessive bending or stress.
4. Avoid contaminating the lens or the lens itself with corrosive chemicals.
5. Disconnect the power cord before connecting cables to avoid incorrect connections and use the correct power supply.
6. Pay attention to electrostatic protection.
7. Do not disassemble the device without permission. If any malfunction occurs, please contact our company for professional repair assistance.



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