

NOVITEC INDUSTRIAL CAMERA

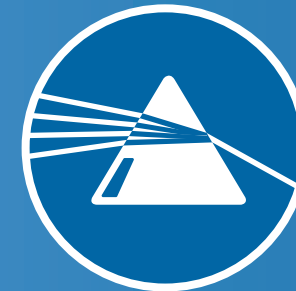
PRODUCTS CATALOG



ITS CAMERA



3D & MACHINE VISION
CAMERA



OPTICAL SENSOR

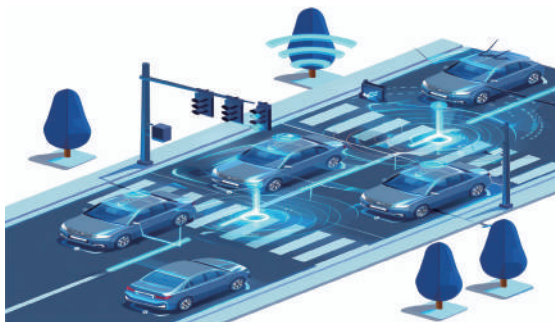
NOVITEC manufactures
ITS, 3D & Machine Vision cameras,
and precision optical sensors.



Novitec products

ITS & Security

We offer products for variety of applications in road surveillance, traffic enforcement, speed camera.



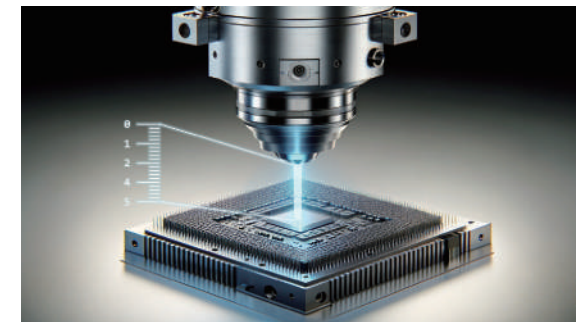
3D & Machine vision

Provide optimal solutions for vision inspections in factory automation and robot vision.



Optical sensor

Researching precision optical measurement to provide thin film thickness measurement and 3D shape measurement sensors.



APPLICATIONS



Parking control



Surveillance



Speed enforcement



Red light enforcement



Smart intersection



Intelligent video analysis



Traffic monitoring



Access control system



Automotive



Robotics



Semiconductor



Entertainment



Inspection



Logistics



Autonomous transportation



Medical industry

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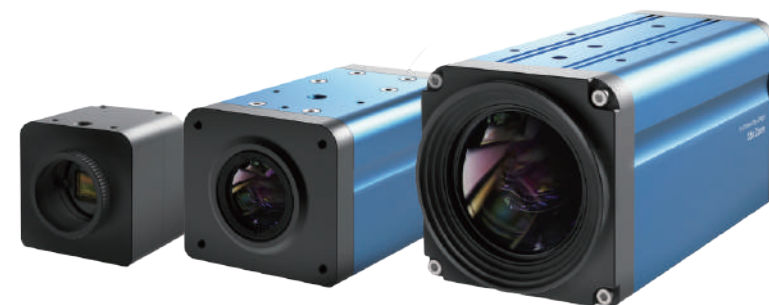
Optical products

Spectrometer / Hyperspectrometer	s-Nova / s-Nova-H	09
Measurement sensor	t-Nova / t-Nova-H	10

2MP ITS Camera Series

i-Nova2 · i-Nova2-Motor · i-Nova2-Zoom

- Global shutter
- 3 Motorized zoom lens (3.6x, 10x, 35x)
- IR cut filter On / Off
- Pseudo / Multi shot trigger mode
- H.264 + H.265 + JPEG, ONVIF



Applications



Parking control



Surveillance



Speed enforcement



Red light enforcement

Multi shot trigger mode

You can capture multiple images consecutively with different range of brightness. (Max. 4 frames)



Options







LED for i-Nova2-Motor

Waterproof Camera



White / IR LED



Model	iN2-23SC-C 	iN2-23OC-C 	iN2M-23SC-6M22  / iN2M-23SC-5M50 	iN2M-23OC-6M22  / iN2M-23OC-5M50 	iN2Z-23SC-6Z210 
Image sensor	Sony IMX392, 1/2.3"	ON-Semi AR0234CS, 1/2.6"	Sony IMX392, 1/2.3"	ON-Semi AR0234CS, 1/2.6"	Sony IMX392, 1/2.3"
Resolution	1920 x 1080 pixels	1920 x 1080 pixels	1920 x 1080 pixels	1920 x 1080 pixels	1920 x 1080 pixels
Pixel size	3.45 μm x 3.45 μm	3 μm x 3 μm	3.45 μm x 3.45 μm	3 μm x 3 μm	3.45 μm x 3.45 μm
Frame rate	30 fps	30 fps	30 fps	30 fps	30 fps
Lens mount	C / CS - mount	C / CS - mount	-	-	-
Lens control	-	-	Motorized zoom / focus / iris	Motorized zoom / focus / iris	Motorized zoom / focus / iris
Focal length	-	-	6 ~ 22 mm / 5 ~ 50 mm	6 ~ 22 mm / 5 ~ 50 mm	6 ~ 210 mm
Trigger mode	Pseudo, external (one shot / multi shot), software	Pseudo, external (one shot / multi shot), software	Pseudo, external (one shot / multi shot), software	Pseudo, external (one shot / multi shot), software	Pseudo, external (one shot / multi shot), software
Protocol	RTSP, Novitec protocol, ONVIF	RTSP, Novitec protocol, ONVIF	RTSP, Novitec protocol, ONVIF	RTSP, Novitec protocol, ONVIF	RTSP, Novitec protocol, ONVIF
Interface	100 / 1000 Mbps Ethernet (RJ45)	100 / 1000 Mbps Ethernet (RJ45)	100 / 1000 Mbps Ethernet (RJ45)	100 / 1000 Mbps Ethernet (RJ45)	100 / 1000 Mbps Ethernet (RJ45)
Power	12 V DC ~ 24 V DC / < 4 W	12 V DC ~ 24 V DC / < 4 W	12 V DC ~ 24 V DC / < 4 W	12 V DC ~ 24 V DC / < 4 W	12 V DC ~ 24 V DC / < 6 W
Dimension / weight	46 x 46 x 40.5 mm / 137 g	46 x 46 x 40.5 mm / 137 g	6M22 : 62 x 54 x 85.6 mm / 319 g, 5M50 : 62 x 54 x 98.5 mm / 375 g		70 x 72 x 150 mm / 795 g
Certificate	KC, CE	KC, CE	KC, CE	KC, CE	KC, CE

5MP ITS Camera Series

i-Nova4 · i-Nova4-Motor · i-Nova4-Zoom

- Global shutter
- 3 Motorized zoom lens (5x, 25x)
- IR cut filter On / Off
- Pseudo / Multi shot trigger mode
- H.264 + H.265 + JPEG, ONVIF, GenICam



Applications



Smart intersection



Intelligent video analysis



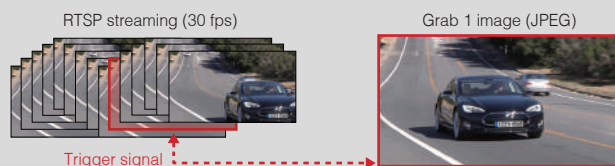
Speed enforcement



Red light enforcement

Pseudo trigger




When camera receive a trigger input signal during RTSP stream, it can send a still cut image closest to the signal.



Options

3 Motor lens controller for i-Nova4.



Model	iN4-50EC 	iN4M-50EC 	iN4Z-50EC 
Image sensor	Te2v Emerald EV2S05MC, 1/1.8"	Te2v Emerald EV2S05MC, 1/1.8"	Te2v Emerald EV2S05MC, 1/1.8"
Resolution	2560 x 1936 pixels	2560 x 1936 pixels	2560 x 1936 pixels
Pixel size	2.8 μm x 2.8 μm	2.8 μm x 2.8 μm	2.8 μm x 2.8 μm
Frame rate	30 fps	30 fps	30 fps
Lens mount	C / CS - mount	-	-
Lens control	-	Motorized zoom / focus / iris	Motorized zoom / focus / iris
Focal length	-	10 ~ 50 mm	6.5 ~ 162.5 mm
Trigger mode	Pseudo, external (one shot / multi shot), software	Pseudo, external (one shot / multi shot), software	Pseudo, external (one shot / multi shot), software
Protocol	RTSP, GigE Vision, GenICam, ONVIF	RTSP, GigE Vision, GenICam, ONVIF	RTSP, GigE Vision, GenICam, ONVIF
Interface	100 / 1000 Mbps Ethernet (RJ45)	100 / 1000 Mbps Ethernet (RJ45)	100 / 1000 Mbps Ethernet (RJ45)
Power	12 V DC ~ 24 V DC / 3 W	12 V DC ~ 24 V DC / 5 W	12 V DC ~ 24 V DC / 6.5 W
Dimension / weight	60 x 60 x 54.8 mm / 270 g	70 x 72 x 108 mm / 574 g	74 x 74 x 150 mm / 950 g
Certificate	KC, CE, TTA	KC, CE, TTA	KC, CE, TTA

8.9MP ITS Camera Series

i-Nova3 · i-Nova3-Zoom

- Global shutter
- 3 Motorized zoom lens (30x)
- HDMI (Option)
- Pseudo / Multi shot trigger mode
- H.264 + H.265 + JPEG, ONVIF, GenICam



Applications



Smart intersection



Intelligent video analysis



Traffic monitoring



Access control system

Triple streaming

By setting the resolution and image codec of each stream (A/B/C), triple streams can be transmitted simultaneously.





- Stream A M-JPEG
- Stream B M-JPEG, H.264, H265
- Stream C M-JPEG, H.264, HDMI

Options

3 Motor lens controller for i-Nova3.



Model	iN3-89EC 	iN3Z-89EC-10Z300 
Image sensor	Te2v Emerald EV2S8M9C, 2/3"	Te2v Emerald EV2S8M9C, 2/3"
Resolution	4096 x 2160 pixels	4096 x 2160 pixels
Pixel size	2.8 μm x 2.8 μm	2.8 μm x 2.8 μm
Frame rate	30 fps	30 fps
Lens mount	C / CS - mount	-
Lens control	-	Motorized zoom / focus / iris
Focal length	-	10 ~ 300 mm
Trigger mode	Pseudo, external (one shot / multi shot), software	Pseudo, external (one shot / multi shot), software
Protocol	RTSP, GigE Vision, GenICam, ONVIF	RTSP, GigE Vision, GenICam, ONVIF
Interface	100 / 1000 Mbps Ethernet (RJ45)	100 / 1000 Mbps Ethernet (RJ45)
Power	12 V DC ~ 24 V DC / < 8.5 W	12 V DC ~ 24 V DC / < 14 W
Dimension / weight	72 x 70 x 82 mm / 665 g	90 x 90 x 204 mm / 1.8 kg
Certificate	KC, CE, TTA	KC, CE, TTA

USB 3.0 Machine Vision Camera Series

u-Nova2

- Global shutter
- 2.3MP / 5MP / 8.9MP
- GenICam
- USB 3.0 Interface
- Compact size



Applications



Medical industry



Inspection



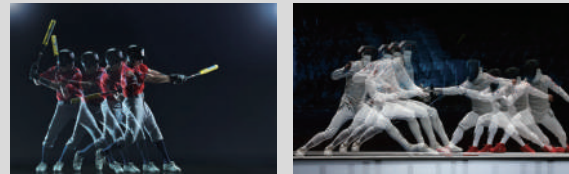
Logistics



Entertainment

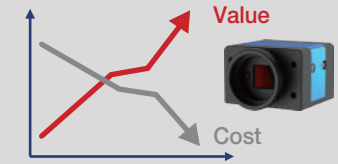
120 fps high speed camera (2.3MP model)











With 5Gbps of USB 3.0 bandwidth, it can take 120 images per second.



Cost Effective

The camera with the best performance at a reasonable price.



Model	uN2-23C 		uN2-23M 		uN2-50C 		uN2-50M 		uN2-89EC 	
Image sensor	ON-semi AR0234CS		ON-Semi AR0234CS		Te2v Emerald EV2S05MC		Te2v Emerald EV2S05MC		Te2v Emerald EV2S8M9C	
Sensor size	1/2.6"		1/2.6"		1/1.8"		1/1.8"		2/3"	
Color / Mono	Color		Mono		Color		Mono		Color	
Resolution	1920 x 1200 pixels		1920 x 1200 pixels		2560 x 1936 pixels		2560 x 1936 pixels		4096 x 2160 pixels	
Pixel size	3 μm x 3 μm		3 μm x 3 μm		2.8 μm x 2.8 μm		2.8 μm x 2.8 μm		2.8 μm x 2.8 μm	
Frame rate	120 fps		120 fps		54 fps		54 fps		32 fps	
Lens mount	C / CS - mount		C / CS - mount		C / CS - mount		C / CS - mount		C / CS - mount	
Interface	USB 3.0 Super speed		USB 3.0 Super speed		USB 3.0 Super speed		USB 3.0 Super speed		USB 3.0 Super speed	
Power	5 V via USB		5 V via USB		5 V via USB		5 V via USB		5 V via USB	
Dimension / weight	30 x 44 x 43.3 mm / 70 g		30 x 44 x 43.3 mm / 70 g		30 x 44 x 43.3 mm / 70 g		30 x 44 x 43.3 mm / 70 g		30 x 44 x 43.3 mm / 70 g	
IP rate	IP 20		IP 20		IP 20		IP 20		IP 20	
Certificate	KC, CE		KC, CE		KC, CE		KC, CE		KC, CE	

3D Camera

g-Nova3D

- Global shutter
- 32,160 profiles @ 1280 x 32 pixels
- GenICam
- Dual laser line extraction
- 1/16 sub-pixel laser position detection



Applications



Automotive



Robotics



Semiconductor



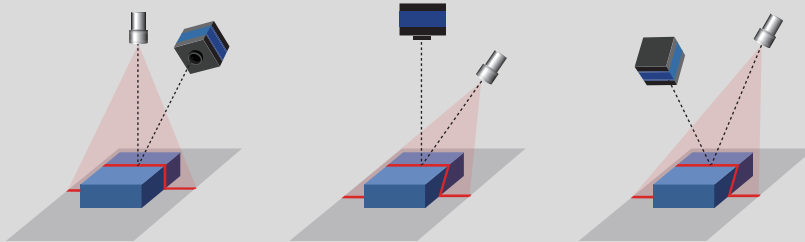
Autonomous transportation



Medical industry

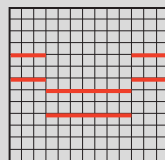
Flexible calibration

It can be calibrated as desired by the user, so it can be applied to a variety of applications.



Dual laser line


Reliable and highly accurate 3D data with dual laser line scan technology.



Options

Scheimpflug for C - mount lens.



Model	gN3D-13L 
Image sensor	Luxima LUX1310
Sensor size	2/3"
Resolution	1280 x 1024 pixels
Pixel size	6.6 μm x 6.6 μm
Profile speed	1,600 Profile / Sec @ 1280 x 1024 pixels 32,160 Profile / Sec @ 1280 x 32 pixels
Shutter mode	Global shutter
Lens mount	C / CS - mount
Image data format	Mono8 (2D), Coord3D_C16 (3D)
I/O port	Encoder / Trigger input, Profile sync output
Trigger source	TTL / Encoder_dif / Software
Interface	Gigabit Ethernet
SDK	Viewer and example code for Novitec Camera API(C++, C#)
Power	12 V DC ~ 24 V DC / < 6 W
Dimension / weight	65 x 65 x 52.5 mm / 386 g
Certificate	KC, CE

3D Sensor Series

Swing3D

- Real-time point cloud
- 1.3 million 3D points
- Rotating line lasers allow 3D scans from fixed positions
- Wide scan range (up to 2745 x 1755 mm coverable, Large Model)
- GenICam
- Extended FOV



Applications



Automotive



Robotics



Semiconductor

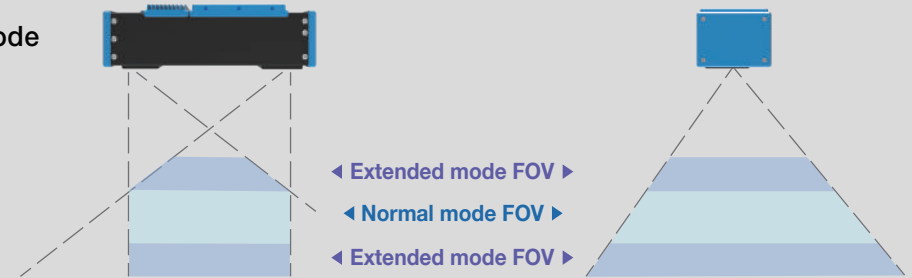





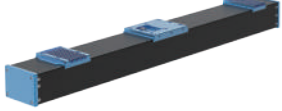
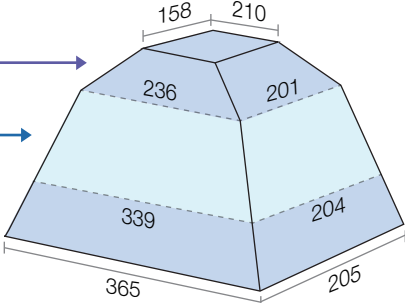
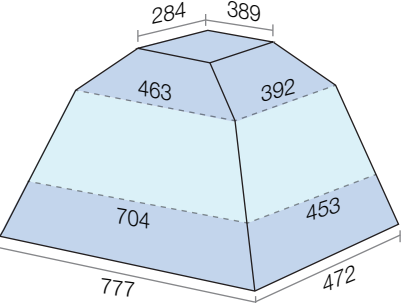
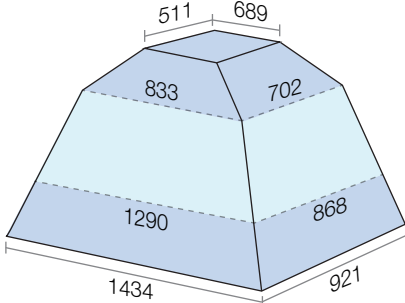
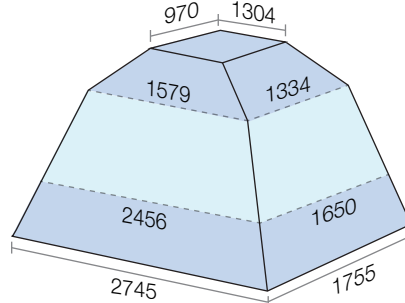
Logistics



Medical industry

Extended mode



Model	Extra small		Small		Medium		Large	
								
								
Mode	Normal	Extended	Normal	Extended	Normal	Extended	Normal	Extended
Clearance distance	425 mm	375 mm	650 mm	540 mm	1200 mm	990 mm	2300 mm	1900 mm
Measurable depth distance	> 200 mm	> 300 mm	> 360 mm	> 580 mm	> 670 mm	> 1090 mm	> 1280 mm	> 2100 mm
Dimension / weight	94 x 80 x 307 mm / 1.5 kg		94 x 80 x 338 mm / 1.6 kg		94 x 80 x 470 mm / 2.6 kg		94 x 80 x 832 mm / 2.9 kg	
Baseline	195 mm		275 mm		405 mm		767 mm	

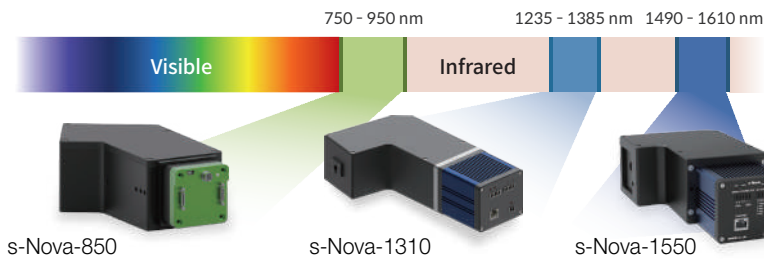
Spectrometer



s-Nova Series

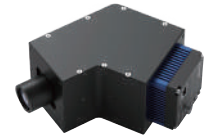
Features

- High-resolution, High-speed measurement
- Reliable wavelength calibration traceable to international standards



Spectrometer	s-Nova-850	s-Nova-1310	s-Nova-1550
Spectral range	750 - 950 nm	1235 - 1385 nm	1490 - 1610 nm
Spectral resolution	0.1 nm	0.15 nm	0.1 nm
Max. speed	250 Hz	40 Hz	40 Hz
Number of pixels	2048	1024	1024
Optical fiber type	780 HP	SMF-28	SMF-28
Optical interface	FC/APC, FC/PC, SMA	FC/APC, FC/PC, SMA	FC/APC, FC/PC, SMA
PC interface	Camera Link, USB 3.0	Gigabit Ethernet (RJ45)	Gigabit Ethernet (RJ45)
Dimensions	130 x 246 x 78 mm	136 x 253 x 68 mm	142 x 245 x 76 mm
Weight	2.4 kg	2 kg	2.7 kg

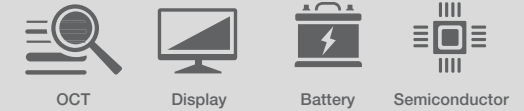
Hyperspectrometer



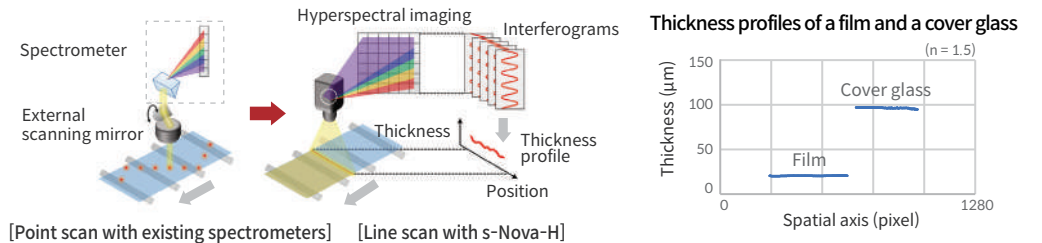
s-Nova-H Series

Features

- High-resolution line measurement
- Area scanning with external stage mechanism



Hyperspectrometer measurement process



[Point scan with existing spectrometers] [Line scan with s-Nova-H]

Hyperspectrometer	s-Nova-850H	s-Nova-575H	s-Nova-530H
Spectral range	750 - 950 nm	400 - 750 nm	514.5 - 539.5 nm
Spectral resolution	0.27 nm	0.25 nm	0.02 nm
Spectral pixels	750	1420	1420
Spatial channels	938	1100	1100
Max. frame rate	200 Hz	200 Hz	200 Hz
Bit depth	12 bit	12 bit	12 bit
Slit width	10 μ m	10 μ m	10 μ m
Measurement range	10 - 300 μ m (n = 1.5)	1 - 100 μ m (n = 1.5)	20 - 1000 μ m (n = 1.5)
Working distance	70 - 200 mm	70 - 200 mm	70 - 200 mm
Measurement width	85 - 200 mm	85 - 200 mm	85 - 200 mm
PC interface	USB 3.0	USB 3.0	USB 3.0
Dimensions	140 x 182 x 83 mm	225 x 115 x 85 mm	410 x 130 x 85 mm
Weight	1.8 kg	1.6 kg	3.4 kg

The specifications above are preliminary and are subject to change. Please contact us for customization of working distance and spatial measurement width.

Thickness measurement sensor



3D surface profile sensor



t-Nova Series

Features

- Robustness to Vibration
- Various target materials transparent to the measurement light



Display



Battery



Semiconductor

t-Nova-H Series

Features

- Submicron height measurement realized with the hyperspectrometer s-Nova-H
- Visible LED or NIR SLD used as a light source



OCT



Display



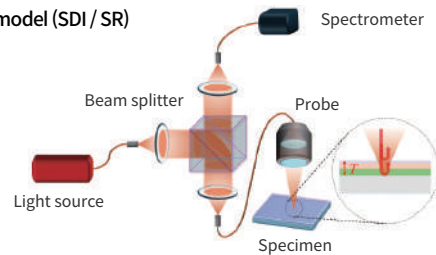
Battery



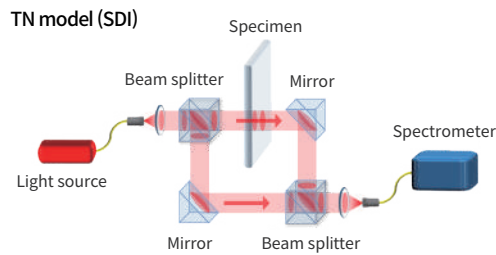
Semiconductor

Measurement principles

R model (SDI / SR)



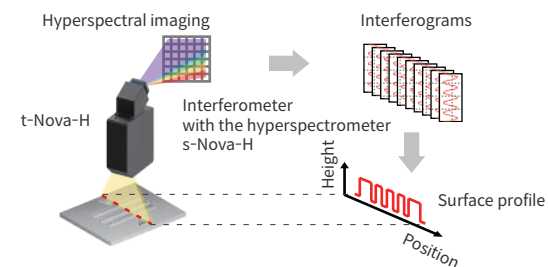
TN model (SDI)



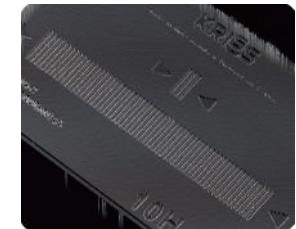
Optical thickness sensor	t-Nova-850			t-Nova-1550		
	TN	T	R	TN	T	R
Measurands	Physical thickness, Refractive index		Optical thickness	Physical thickness, Refractive index		Optical thickness
Thickness range*	Min.	6 μm	400 nm	20 μm	2 μm	
	Max.	1.2 mm		3 mm		
Thickness resolution	10 nm	10 nm (or 0.1 nm)		10 nm	10 nm (or 0.1 nm)	
Refractive index resolution	0.001	-		0.001	-	
Measurement principles	SDI		SDI, SR	SDI		SDI, SR
Max. measurement speed	250 kHz			40 kHz		
Wavelength range	750 nm - 950 nm			1490 nm - 1610 nm		
Target materials	Photoresists, Oxide and Nitride films Glass substrates			Glass and Silicon substrates / coatings		
Optical fiber connector	FC/APC, FC/PC			FC/APC, FC/PC		
Software support	Software development kit (SDK), Viewer			Software development kit (SDK), Viewer		

* Refractive index of 1.5

3D surface profile measurement process



A 3D surface profile of the CRM



3D surface profile measurement sensor	t-Nova-850H	t-Nova-530H
Max. height measurement range	500 μm	2 mm
Height resolution	50 nm	0.02 nm
Spatial measurement width	25 mm	20 mm
Spatial resolution	27 μm	39 μm
Spatial channels	938	1100
Working distance	39 mm	USB 3.0
Max. frame rate	200 Hz	200 Hz
Spectral range	750 - 950 nm	514.5 - 539.5 nm
Spectral resolution	0.27 nm	0.02 nm
Spectral pixels	750	1420
PC interface	USB 3.0	USB 3.0
Dimensions	213 x 95 x 377 mm	215 x 95 x 575 mm
Weight	5.2 kg	6.52 kg

Always be with your vision partner, NOVITEC