PEMBROKE INSTRUMENTS, LLC

SWIR CAMERA DATA SHEET

WIDY SenS 640ML ST

Manufacturer: New Imaging Technologies (NIT)

Technical data reproduced from the original manufacturer datasheet.

For a quote or more information email

sales@pembrokeinstruments.com

Ordering Information

Commercial Reference

Commercial reference	Description	Ordering information
WiDy SenS 640M-ST	WiDy SenS 640 Cameralink (VGA) **SDR26 & HR10-10R connector**	9SMC1601AE31MC0# #: **product revision, B or higher**
WiDy SenS 640M-STP	WiDy SenS 640 Cameralink (VGA) With gated mode (100ns exposure time) **SDR26 & HR10-10R connector**	9SMG1601AE31MC0# #: **product revision, B or higher**
WiDy SenS 640L-ST	WiDy SenS 640 Cameralink (VGA) LSHM130 Connector	9SMC1601AE31LC0# #: **product revision, A or higher**
WiDy SenS 640L-STP	WiDy SenS 640 Cameralink (VGA) With gated mode (100ns exposure time) **LSHM130 Connector**	9SMG1601AE31LC0# #: **product revision, A or higher**

Included Accessories

- Power and trigger Cable (Hirose HR10 connector)
- NITVision GUI/NITLibrary SDK
- Cardboard shipping and storage box

Optional Accessories

- Heatsinks
- Optical Filter mount
- Hardened protective case

Custom variants (OEM)

Various options may be available depending on your camera model:

- Open frame housing
- Sensor without cover glass
- Flex configuration (sensor board split from camera electronics)
- …

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FUNCTIONALITIES

Camera

Main camera features (For full documentation contact):

Sensor characteristics	Sensor type	InGaAs (0.9-1.7 spectral response, see QE curve)
	Pixel pitch	$15\mu m$
	Resolution	640x512
	Sensor diagonal	12.3mm
	Sensor noise	• High gain (CDS): <50e^- • Low gain: < 270e^- • Log: <340e^-
	Dynamic range	• High gain (CDS): 49dB typical • Low gain: 63dB typical • Log: 120dB typical
	Peak QE	>70%
Camera features	Frame rate	>200Hz
	Sensor Readout	Global shutter: ITR (Integrate Then Read) and IWR (Integrate While Read) Gated mode (optional): ITR only
	Sensor modes	Global shutter: Log, Linear Low Gain, Linear High Gain and Linear High Gain with CDS Gated mode (Optionnal **-STP** variant): Log & Lin High
	Output Type	14 bits pixel format
	Exposure time	Minimum Integration time: 10us (Linear) / 100us (Log) Controlled by camera register or Trigger width Gated mode (Optionnal **-STP** variant): exposure time between 100ns and 9µs
	Trigger	Internal/External (LVTTL) Software Trigger
	Trigger delay	User-Selectable
	Partial reading mode	Region of Interest (ROI). User-Selectable with a step of 8 pixels Maximum FPS increase with reduced ROI
Software (Processing on host system)	NIT Software	NITVision GUI (Windows/Linux, x64/aarch64 platforms) NITLibrary SDK (Windows/Linux, x64/aarch64 platform, C++ language) NIT software for this model is only compatible with Teledyne Dalsa frame grabbers
	AGC (Histogram Stretching)	Automatic/Manual Automatic: continuous offset and gain adjustment based on current image histogram User Selectable parameters: % pixels to ignore, ROI Manual: User-Selectable low and high limits
	NUC correction	Correction 1-Point or 2-Point. 2 Point factory calibrated @ 15°C sensor temperature
	Bad pixel correction	Factory calibrated Bad Pixel Map
	Temperature monitoring	Image Sensor
	Image Flip	Horizontal/Vertical
	Image recording	JPEG, PNG, TIFF
	Video recording	AVI, PTW

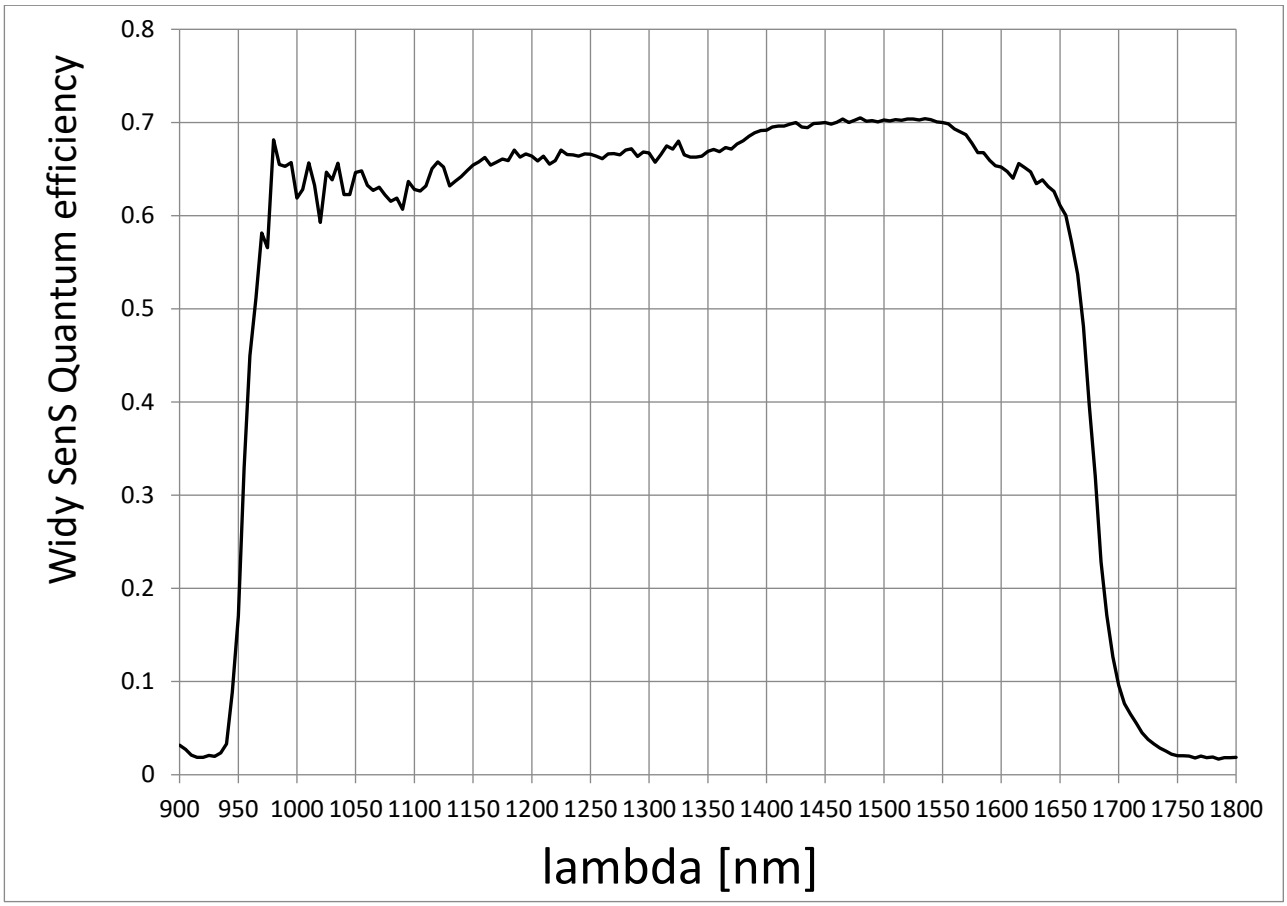
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Environment and mechanical characteristics	Power consumption (12V supply)	• Camera: <2.5W
		• Cooling: User-Selectable TEC power limit
		  ○ Off
		  ○ Low: <1Ws
		  ○ Medium: <2W
		  ○ High: <4W

	Supply voltage range	6 to 15V, 12V nominal (Overvoltage, reverse polarity protection). PoCL available upon request
	Storage temperature	-40 to +80°C
	Operating temperature	-40 to +71°C
	Size (WxHxL, mm)	46x46x65.4 (M-ST) / 54.9 (L-ST) 90x46x65.4 with heatsinks
	Weight	<215g <315g with heatsinks
	Lens mount	C-Mount

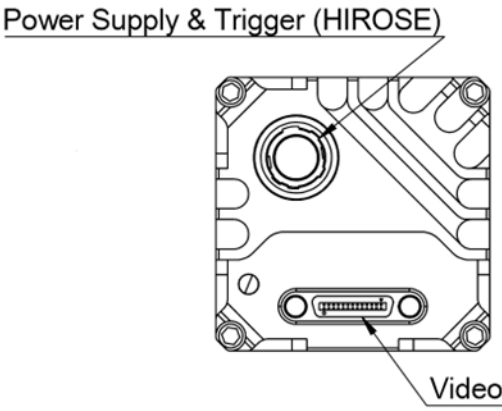
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QE Curve (typical)



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Electrical ICD (M-ST(P) – SDR26 video output)



Reference	Designation	Manufacturer
HR10-10R-12SA	12 pins female connector	Hirose

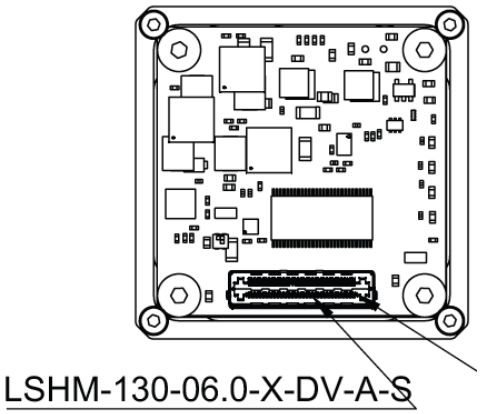
Reference	Designation	Manufacturer
12226-1150-00FR	SDR26 connector	3M

Power supply possible via the HR10 connector or the SDR26 with PoCL (available on request).

Hirose Connector Pinout		
Pin	Signal Name	Cable color
1	Power (6-24V)	Red/Purple/(Orange)
2	Power GND	Blue/Brown
3	Trigger OUT2	White
4	Trigger OUT1	Yellow
5	NC	
6	NC	
7	Reserved	
8	Power GND	Blue/Brown
9	Power (6-24V)	Red/Purple/(Orange)
10	Trigger IN/OUT (LVTTL)	Green
11	Not connected	
12	Trigger GND	Black

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Electrical ICD (L-ST(P) – LSHM130 output)

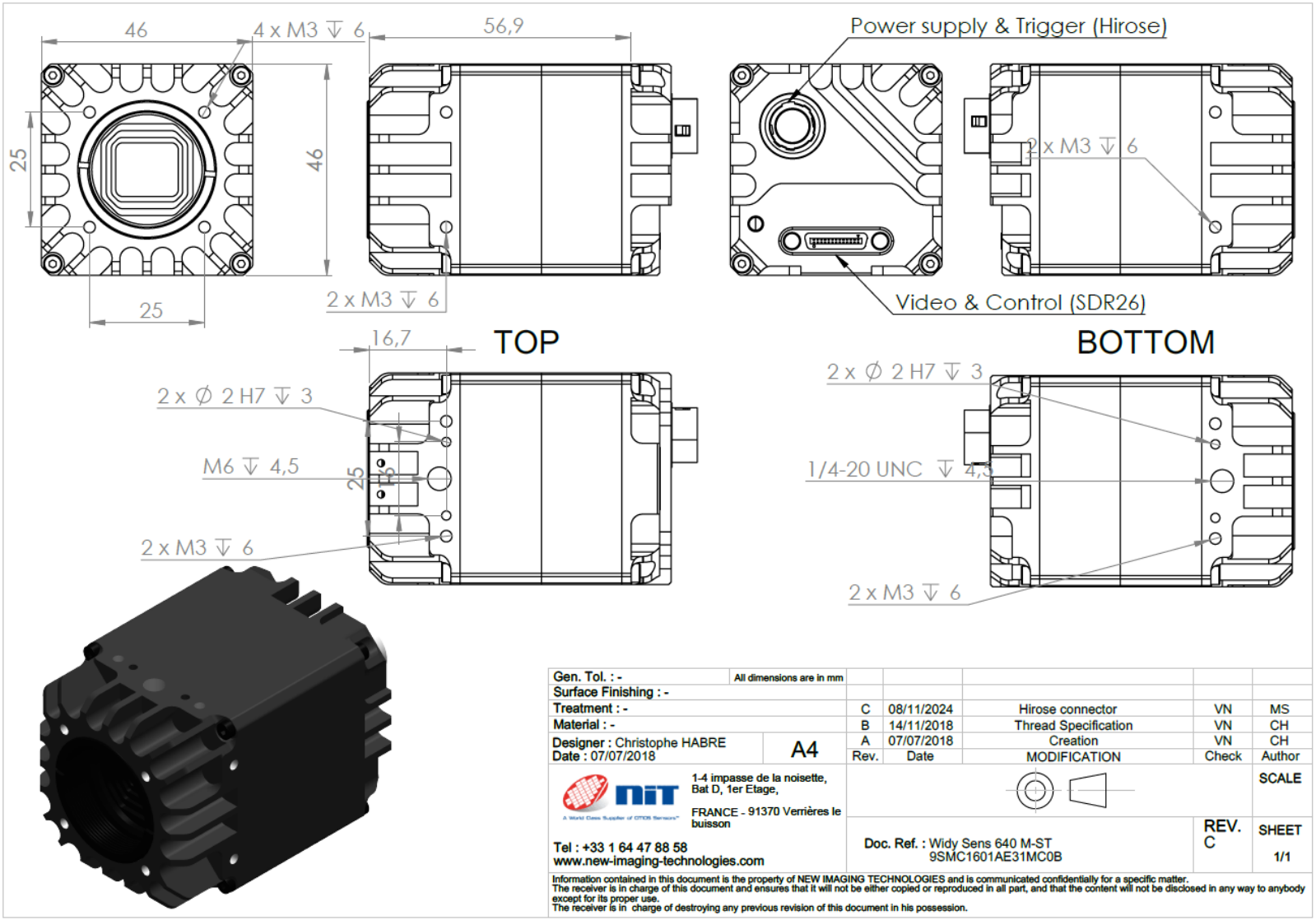


Reference	Designation	Manufacturer
12226-1150-00FR	SDR26 connector	3M

Pin Number	Name	Type	Comment	Pin Number	Name	Type	Comment
1	GND	Power	Supply voltage groun	31	NC		
2	GND	Power	Supply voltage groun	32	NC		
3	CamLinkPair4+	Clock		33	NC		
4	CamLinkPair5+	Data3		34	Trigger Out	TTL	Programmable
5	CamLinkPair4-	Clock		35	NC		
6	CamLinkPair5-	Data3		36	Trigger Out	TTL	Programmable
7	GND			37	NC		
8	GND			38	Trigger In/Ou	TTL	Programmable
9	CamLinkPair3+	Data2		39	GND		
10	CamLinkPair2+	Data1		40	GND		
11	CamLinkPair3-	Data2		41	NC		
12	CamLinkPair2-	Data1		42	NC		
13	GND			43	NC		
14	GND			44	NC		
15	CamLinkPair1+	Data0		45	Cable detect		100 Ohm to GND
16	NC			46	NC		
17	CamLinkPair1-	Data0		47	Enable		On : 1.6 to 3.3V or floating Off: Connect to GND to turn off
18	NC			48	NC		
19	GND			49	GND		
20	GND			50	GND		
21	CamLinkPair7+	SerTG		51	GND		
22	CamLinkPair8+	CC1		52	GND		
23	CamLinkPair7-	SerTG		53	GND		
24	CamLinkPair8-	CC1		54	GND		
25	CamLinkPair6+	SerTC		55	Power Input	Power	9 to 35V
26	CamLinkPair9+	CC2		56	Power Input	Power	9 to 35V
27	CamLinkPair6-	SerTC		57	Power Input	Power	9 to 35V
28	CamLinkPair9-	CC2		58	Power Input	Power	9 to 35V
29	GND			59	Power Input	Power	9 to 35V
30	GND			60	Power Input	Power	9 to 35V

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Mechanical ICD (WiDy SenS 640 M-ST(P))



Gen. Tol. : - All dimensions are in mm						
Surface Finishing : -						
Treatment : -		C	08/11/2024	Hirose connector	VN	MS
Material : -		B	14/11/2018	Thread Specification	VN	CH
Designer : Christophe HABRE	A4	A	07/07/2018	Creation	VN	CH
Date : 07/07/2018		Rev.	Date	MODIFICATION	Check	Author

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SCALE

Doc. Ref. : Widy Sens 640 M-ST
9SMC1601AE31MC0B

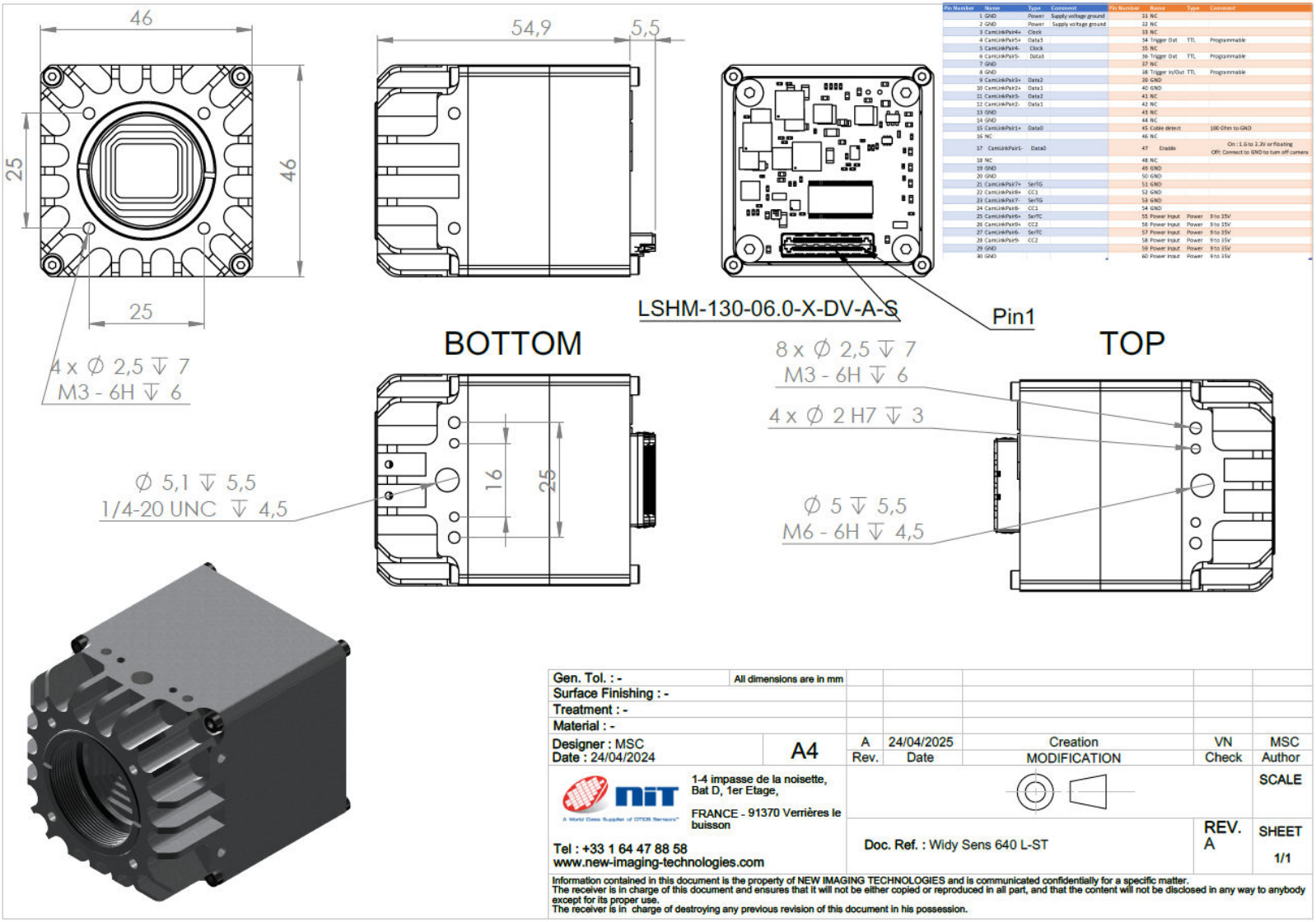
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SHEET 1/1

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Mechanical ICD (WiDy SenS 640 L-ST(P))



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