# **3D Sensor**

## MLAS203 Part Number



- 10 Gbit/s interface for high speed data transfer
- 12 MP resolution
- Short recording times of up to 0.188 s

ShapeDrive MLAS 3D Sensors are distinguished by high precision for minimal measuring volumes. The ten models in this series are available in two performance classes with camera resolutions of 5 and 12 megapixels. All ShapeDrive sensors are ideally suited for use in industrial environments thanks to the rugged IP65 housing. With its 10 Gigabit Ethernet interface and five measuring ranges in each performance class, ShapeDrive is also distinguished by great diversity and high speed.



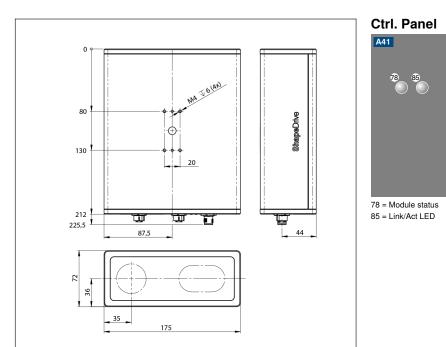
#### **Technical Data**

Working range Z     225315 mm       Measuring range X     120 mm       Measuring range Y     80 mm       Resolution Z     9 µm       Resolution X/Y     29 µm       Camera Resolution X/Y     20000 h       Wavelength     460 nm       Service Life (T = +25 °C)     20000 h       Risk Group (EN 62471)     2       Max. Ambient Light     5000 Lux       Electrical Data     5000 Lux       Supply Voltage     1830 V DC       Max. Current Consumption (Ub = 24 V)     3,5 A       Recording duration     0,1880,61 s       Interfac	Optical Data	
Measuring range X120 mmMeasuring range Y80 mmResolution Z $9 \ \mu$ mResolution X/Y $29 \ \mu$ mCamera Resolution $4096 \times 3000 \ Pixel$ Light SourceLED (blue)Wavelength460 nmService Life (T = +25 °C)20000 hRisk Group (EN 62471)2Max. Ambient Light50000 LuxElectrical Data $\mathbf{U}$ Supply Voltage1830 V DCMax. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate100 Mbit/sBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataMuminium; PlasticDegree of ProtectionIP65Connection EthernetM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.687	Working range Z	225315 mm
Measuring range Y80 mmResolution Z $9 \ \mu m$ Resolution X/Y $29 \ \mu m$ Camera Resolution $4096 \times 3000 \ Pixel$ Light SourceLED (blue)Wavelength $460 \ nm$ Service Life (T = +25 °C) $20000 \ h$ Risk Group (EN 62471) $2$ Max. Ambient Light $5000 \ Lux$ Electrical Data $5000 \ Lux$ Supply Voltage $1830 \ V \ DC$ Max. Current Consumption (Ub = 24 V) $3,5 \ A$ Recording duration $0,1880,61 \ s$ Temperature Range $035 \ °C$ Storage temperature $-570 \ °C$ Short Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataAluminium; PlasticDegree of ProtectionIP65Connection EthernetM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoveryesConnection Diagram No. <b>238</b> 1022Connection Diagram No. <b>238</b> 1022Connection Equipment No. <b>50</b> 87	Measuring range Z	90 mm
Resolution Z9 $\mu$ mResolution X/Y29 $\mu$ mCamera Resolution4096 × 3000 PixelLight SourceLED (blue)Wavelength460 nmService Life (T = +25 °C)20000 hRisk Group (EN 62471)2Max. Ambient Light5000 LuxElectrical Data5000 LuxSupply Voltage1830 V DCMax. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataHousing MaterialAluminium; PlasticDegree of ProtectionIP65Connection EthernetM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoveryesConnection Diagram No.238 1022Control Panel No.50 87	Measuring range X	120 mm
Resolution X/Y     29 µm       Camera Resolution     4096 × 3000 Pixel       Light Source     LED (blue)       Wavelength     460 nm       Service Life (T = +25 °C)     20000 h       Risk Group (EN 62471)     2       Max. Ambient Light     5000 Lux       Electrical Data     5000 Lux       Supply Voltage     1830 V DC       Max. Current Consumption (Ub = 24 V)     3,5 A       Recording duration     0,1880,61 s       Temperature Range     035 °C       Storage temperature     -570 °C       Short Circuit Protection     yes       Reverse Polarity Protection     yes       Interface     Ethernet TCP/IP       Baud Rate     100 Mbit/s       Baud Rate (10 GbE)     10 Gbit/s       Protection Class     III       Mechanical Data     Iuminium; Plastic       Degree of Protection     M12 × 1; 12-pin       Type of Connection Ethernet     M12 × 1; 8-pin, X-cod.       Optic Cover     Plastic       Weight     2500 g       Web server     yes	Measuring range Y	80 mm
Camera Resolution4096 × 3000 PixelLight SourceLED (blue)Wavelength460 nmService Life (T = +25 °C)20000 hRisk Group (EN 62471)2Max. Ambient Light5000 LuxElectrical Data5000 LuxSupply Voltage1830 V DCMax. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataIIIHousing MaterialAluminium; PlasticDegree of ProtectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Resolution Z	9 <i>µ</i> m
Light SourceLED (blue)Wavelength460 nmService Life (T = +25 °C)20000 hRisk Group (EN 62471)2Max. Ambient Light5000 LuxElectrical DataSupply Voltage1830 V DCMax. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate100 Gbit/sProtection ClassIIIMechanical DataHousing MaterialAluminium; PlasticDegree of ProtectionIP65Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.50 87	Resolution X/Y	29 <i>µ</i> m
Wavelength460 nmService Life (T = +25 °C)20000 hRisk Group (EN 62471)2Max. Ambient Light5000 LuxElectrical Data5000 LuxSupply Voltage1830 V DCMax. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate10 Gbit/sProtection ClassIIIMechanical DataHousing MaterialHousing MaterialAluminium; PlasticDegree of ProtectionIP65Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.50 87	Camera Resolution	4096 × 3000 Pixel
Service Life (T = +25 °C)     20000 h       Risk Group (EN 62471)     2       Max. Ambient Light     5000 Lux       Electrical Data	Light Source	LED (blue)
Risk Group (EN 62471)2Max. Ambient Light5000 LuxElectrical Data3000 LuxSupply Voltage1830 V DCMax. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical Data	Wavelength	460 nm
Max. Ambient Light5000 LuxElectrical DataSupply Voltage1830 V DCMax. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataHousing MaterialHousing MaterialAluminium; PlasticDegree of ProtectionIP65Connection EthernetM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.50 87	Service Life (T = +25 °C)	20000 h
Electrical DataSupply Voltage1830 V DCMax. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataHousing MaterialHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Risk Group (EN 62471)	2
Supply Voltage1830 V DCMax. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataHuminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50Storage Marken No.50	Max. Ambient Light	5000 Lux
Max. Current Consumption (Ub = 24 V)3,5 ARecording duration0,1880,61 sTemperature Range035 ° CStorage temperature-570 ° CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataHuminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Electrical Data	
Recording duration0,1880,61 sTemperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataIIIHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Supply Voltage	1830 V DC
Temperature Range035 °CStorage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataHuminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Max. Current Consumption (Ub = 24 V)	3,5 A
Storage temperature-570 °CShort Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataIIIHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.50 87	Recording duration	0,1880,61 s
Short Circuit ProtectionyesReverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataIIIHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.441Suitable Connection Equipment No.50 87	Temperature Range	035 °C
Reverse Polarity ProtectionyesInterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataIIIHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Storage temperature	-570 °C
InterfaceEthernet TCP/IPBaud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataIIIHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.50 87	Short Circuit Protection	yes
Baud Rate100 Mbit/sBaud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataIIIHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Reverse Polarity Protection	yes
Baud Rate (10 GbE)10 Gbit/sProtection ClassIIIMechanical DataIIIHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Interface	Ethernet TCP/IP
Protection ClassIIIMechanical DataIIIHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Baud Rate	100 Mbit/s
Mechanical DataHousing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Baud Rate (10 GbE)	10 Gbit/s
Housing MaterialAluminium; PlasticDegree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Protection Class	III
Degree of ProtectionIP65ConnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Mechanical Data	
OnectionM12 × 1; 12-pinType of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Housing Material	Aluminium; Plastic
Type of Connection EthernetM12 × 1; 8-pin, X-cod.Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Degree of Protection	IP65
Optic CoverPlasticWeight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Connection	M12 × 1; 12-pin
Weight2500 gWeb serveryesConnection Diagram No.238 1022Control Panel No.A41Suitable Connection Equipment No.50 87	Type of Connection Ethernet	M12 × 1; 8-pin, X-cod.
Web server yes   Connection Diagram No. 238 1022   Control Panel No. A41   Suitable Connection Equipment No. 50 87	Optic Cover	Plastic
Connection Diagram No.2381022Control Panel No.A41Suitable Connection Equipment No.5087	Weight	2500 g
Control Panel No. A41   Suitable Connection Equipment No. 50 87	Web server	yes
Suitable Connection Equipment No. 50 87	Connection Diagram No.	238 1022
	Control Panel No.	A41
Suitable Mounting Technology No. 343	Suitable Connection Equipment No.	50 87
	Suitable Mounting Technology No.	343

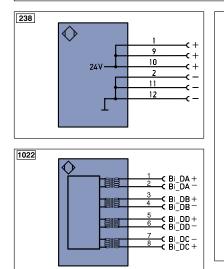
#### 2D/3D Sensors

### ShapeDrive





All dimensions in mm (1 mm = 0.03937 Inch)



Legen	d	PŤ	Platinum measuring resistor	ENARS422	Encoder A/Ā (TTL)
+	Supply Voltage +	nc	not connected	ENBR5422	Encoder B/B (TTL)
-	Supply Voltage 0 V	U	Test Input	ENA	Encoder A
~	Supply Voltage (AC Voltage)	Ū	Test Input inverted	ENв	Encoder B
А	Switching Output (NO)	W	Trigger Input	Amin	Digital output MIN
Ā	Switching Output (NC)	W -	Ground for the Trigger Input	Амах	Digital output MAX
V	Contamination/Error Output (NO)	0	Analog Output	Аок	Digital output OK
V	Contamination/Error Output (NC)	0-	Ground for the Analog Output	SY In	Synchronization In
E	Input (analog or digital)	BZ	Block Discharge	SY OUT	Synchronization OUT
т	Teach Input	Awv	Valve Output	OLT	Brightness output
Z	Time Delay (activation)	а	Valve Control Output +	м	Maintenance
S	Shielding	b	Valve Control Output 0 V	rsv	reserved
RxD	Interface Receive Path	SY	Synchronization	Wire Co	lors according to DIN IEC 757
TxD	Interface Send Path	SY-	Ground for the Synchronization	BK	Black
RDY	Ready	E+	Receiver-Line	BN	Brown
GND	Ground	S+	Emitter-Line	RD	Red
CL	Clock	÷	Grounding	OG	Orange
E/A	Output/Input programmable	SnR	Switching Distance Reduction	YE	Yellow
۲	IO-Link	Rx+/-	Ethernet Receive Path	GN	Green
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path	BU	Blue
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)	VT	Violet
OSSD	Safety Output	La	Emitted Light disengageable	GY	Grey
Signal	Signal Output	Mag	Magnet activation	WH	White
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation		Pink
ENO RS422	Encoder 0-pulse 0-0 (TTL)	EDM	Contactor Monitoring	GNYE	Green/Yellow

### **Measuring Volume**

