NCCG-124C.I

Gigabit-Ethernet-Flächenkamera NCCG-124C.I Farbe, IP-Schutz

Gigabit Ethernet area scan camera NCCG-124C.I color, IP protection

Technische Beschreibung / *Specification*

Chip / *Sensor*	*1.1" CMOS Progressive Scan*
Shutter / *Shutter*	*Global*
Größe / *Scan aera*	14.13 mm x 10.35 mm
Pixelgröße / *Pixel size*	3.45 µm x 3.45 µm
Monochrom	
Auflösung / *Resolution*	4096 x 3000 pixels
Bildwechselfrequenz / *Frame rates*	9 fps (Full Frame) 15 fps (Binning)
Belichtungszeit / *Exposure time*	1 µs … 60 s
Verstärkungsfaktor / *Gain*	0…48 dB
Pixelformat / *Pixel formats*	BayerRG8, BayerRG10, BayerRG12, BayerRG12p Mono8, Mono10, Mono12, Mono12p, RGB8, BGR8
Partial Scan / *Partial Scan*	Ja / *Yes*
Binning / *Binning* 2x2, 2x1, 1x2	Ja / *Yes*
Farbmodelle / *Color models*	Mono, Raw Bayer, RGB, BGR
Farbanpassungen / *Color processing and adjustment*	Ja / *Yes*
Objektivanschluss / *Lens mount*	C-Mount
Optischer Filter / *Optical filter*	IR Sperrfilter / *IR cut filter*
Prozesssynchronisation / *Process synchronization*	
Trigger Mode	*Off (Free Running), On (Trigger)*
Trigger Overlap Type	*Readout*
Trigger Sources	*Hardware (Line 0, 1, 2, 3), Software, All* *ActionCMD (Action 1) or Off* *fixed Trigger Delay out of $t_{readout}$: 97.7 µsec @ 12 bit* *max. Trigger Delay during $t_{readout}$: 114.1 µsec @ 12 bit*
Trigger Delay	*0 … 2 sec., Tracking and buffering of up to 256 triggers*
External Flash Sync	*via Exposure Active, $t_{delay\ flash} \leq 1$ µsec, $t_{duration} = t_{exposure}$*

NeuroCheck GmbH
Neckarstr. 76/1, 71686 Remseck
Tel.: +49 7146 8956-0
Fax: +49 7146 8956-29
E-Mail: sales@neurocheck.com

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Digital-Ein-Ausgänge / ***Digital I/Os***			
Lines	*Input: Line 0…3, Output: Line 4…7, GPIO: No*		
Output Sources	*Off, ExposureActive, Timer1, ReadoutActive*		
Output Line Mode	*Yes, Tri-State, PushPull, OpenDrain, OpenSource*		
Output PWM function	*Yes, Line 4…7* *PWM Mode: Off, One Pulse, FixedFrequency* *PWM Feature: PWMDuration, PWMDutyCycle* *Configuration Mode for lightning protection: MaxPWMDuration, MaxPWMDutyCycle*		
Line Debouncer	*Low and high signal separately selectable* *Debouncing time 0…5 msec, Step size: 1 µsec*		
Speicher / ***Memory***	36 MB		
Image Buffer	*1 Images (Trigger Mode) / 1 Image (Free Running Mode)*		
Non-volatile Memory	128 kB		
Netzwerkeinstellungen / ***Network Interface Data***			
Interface	*Gigabit Ethernet* *1000BASE-T* *1000 Mbit/sec* *Fast Ethernet* *100BASE-T* *100 Mbit/sec*		
Ethernet IP Configuration	*Persistent IP, DHCP, LLA*		
Package Size	*576…9000 Byte, Jumbo Frames supported*		
GigE Vision® **Eigenschaften** / ***Features***	*DeviceTemperatureStatusChanged, EventLost, ExposureEnd, ExposureStart, FrameEnd, FrameStart, FrameTransferSkipped, GigEVisionError, GigEVisionHeartbeatTimeOut, PrimaryApplicationSwitch, Line 0…3 FallingEdge, Line 0…3 RisingEdge, TransferBufferFull, TransferBufferReady, TriggerOverlapped, TriggerReady, TriggerSkipped*		
Events *(Transmission via Asynchronous Message Channel)*			
Action CMD	*Yes, Action 1 for Trigger*		
Frame Counter	*Up to* 2^{32}		
Payload Size	*0…36864224 Byte*		
Timestamp	*64 Bit, resolution in nsec, increment = 8*		
Packet Delay	*0…*2^{32} *– 1 nsec*		
Packer Resend	*Resend Buffer: 71 MB (2 images)*		
GigE Vision	*V2.0 (v1.2 backward compatible)*		
LED Signalisierung / ***LED signalling***	1	Gelb statisch / *Yellow static* Gelb blinkend / *Yellow flash*	*Error* *TX active*
	2	Grün statisch / *Green static* Grün blinkend / *Green flash*	*Link ON* *RX active*

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Daten- und Versorgungs-Schnittstelle / *Data and Power Interface*

M12 Buchse, 8 polig, X-codiert, verschraubbar / *M12 female connector, 8 pin, X-coded, screwable*
(SACC-CI-M12FS-8CON-L180-10G)

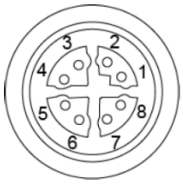
Gigabit-Ethernet-Anschluss mit PoE: Daten und Steuerung / *Gigabit Ethernet connection with PoE: data and control interface*

Gigabit Ethernet Transfer Rate / *transfer rate*: 1000 Mbits/sec

Fast Ethernet Transfer Rate / *transfer rate*: 100 Mbit/sec

Pin Belegung / *Pin assignment*

1 – MX1+	2 – MX1-
3 – MX2+	4 – MX2-
5 – MX4+	6 – MX4-
7 – MX3-	8 – MX3+



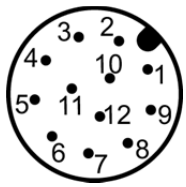
Prozessschnittstelle / *Process Interface*

M12 Stecker, 12 polig, A-codiert, verschraubbar / *M12 male connector, 12 pin, A-coded, screwable*
(SACC-CI-M12MS-12CON-L180)

Spannungsversorgung, Trigger, Blitz / *voltage feed, trigger, flash*

Pin Belegung / *Pin assignment*

1 – Power VCC	2 – GND (Power)
3 – IN1 (Line 0)	4 – OUT1 (Line 4)
5 – IN2 (Line 1)	6 – OUT2 (Line5)
7 – OUT3 (Line 6)	8 – IN3 (Line2)
9 – OUT4 (Line 7)	10 – IN4 (Line3)
11 – GND (IO)	12 – Power (IO)



Spannungsversorgung / *Voltage feed*

Power over Ethernet (PoE)

Über / *via* Data Interface (Power over Ethernet IEEE 802.3af, PoE)
Class 1 Gerät / *device*

Spannung / *voltage*	VCC:	36…57 VDC
Strom / *current*	I:	67 mA @ 48 VDC

Externe Spannungsversorgung / *Power Supply (ext.)*

Über / *via* Process Interface (extern / *external*)

Spannung / *voltage*	VCC:	12…24 VDC ± 20%
Strom / *current*	I:	107…215 mA

Leistungsaufnahme / *Power Consumption*

approx. 2.6 W @ 12 VDC and 9 fps
approx. 3.2 W @ 48 VDC (PoE) and 9 fps

Digital Input (Trigger)

Isoliert, kurzschlussgesichert / *Isolated, short circuit protection*

$U_{IN(low)}$ = 0.0 … 4.5 VDC
$U_{IN(high)}$ = 11.0 … 30.0 VDC
I_{IN} = 3.0…10.0 mA
min. impulse length (t_{min}): 2 µs

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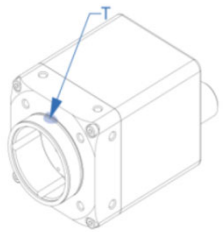
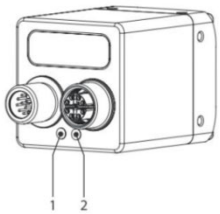
Digital Output (Flash)	Isoliert, kurzschlussgesichert / *Isolated, short circuit protection* U_{EXT} = 12 … 48 VDC, 24 VDC [Power (IO)] I_{OUT} = Continuously: max. 1.5 A PWM t_{ON} max 1s / Duration max 40%: max. 2.5 A (Max. current for each output itself or summary of all outputs) t_{ON} = < 0.2 µs t_{OFF} = < 0.2 µs max. Frequency: 500 kHz
Gehäuse / *Housing*	Aluminium, hartanodisierter, IP40 (mit montiertem Objektiv und GigE-Kabel) IP65/67 (mit montiertem Tubus und Kabel) / *Aluminum, hard anodized,* *IP40 (with mounted lens and GigE cable)* *IP65/67 (with mounted tube and cable)* Tubus und Adapter in zwei Größen als Zubehör erhältlich / *Tube and adapter in two different sizes available as an accessory*
Abmessungen / *Dimensions*	Gehäuse ohne Stecker / *Housing without connector*: 40 mm x 40 mm x 57.4 mm (±0.35mm) Gehäuse einschließlich Stecker / *Housing including connector*: 40 mm x 40 mm x 70.3 mm (±0.35mm)
Gewicht / *Weight*	137 g
Lagerungstemperatur / *Storage Temperature*	-10°C…+70°C
Betriebstemperatur / *Operating temperature*	+0°C…+65°C @ T = Messpunkt / *measurement point* +0°C…+70°C @ internem Temperatursensor / *internal temperature sensor* Bei einer Umgebungstemperatur oberhalb 45°C sind Kühlungsmaßnahmen erforderlich / *Ambient temperature above 45°C requires cooling measures*
Feuchtigkeit / *Humidity*	10%...90% nicht kondensierend / *non-condensing*
Konformität / *Conformity*	CE, RoHS, REACH
MTBF	*44 years @ T = 45°C | 29 years @ T = 60°C* *(T=Measurement Point)*

Device Temperature: T = Measurement Point



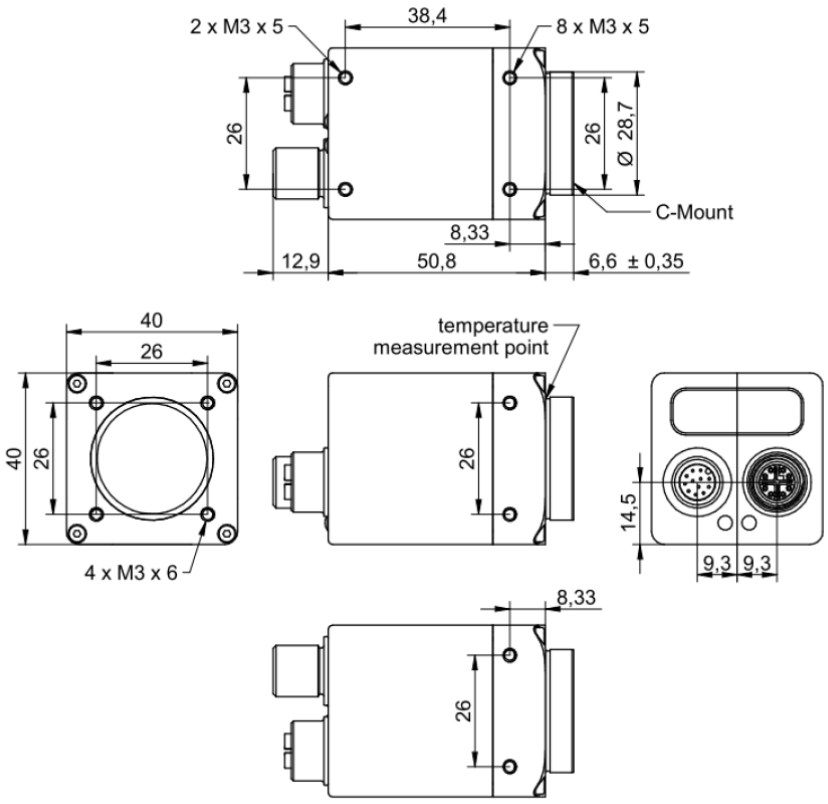
LED Signalling



Conformity

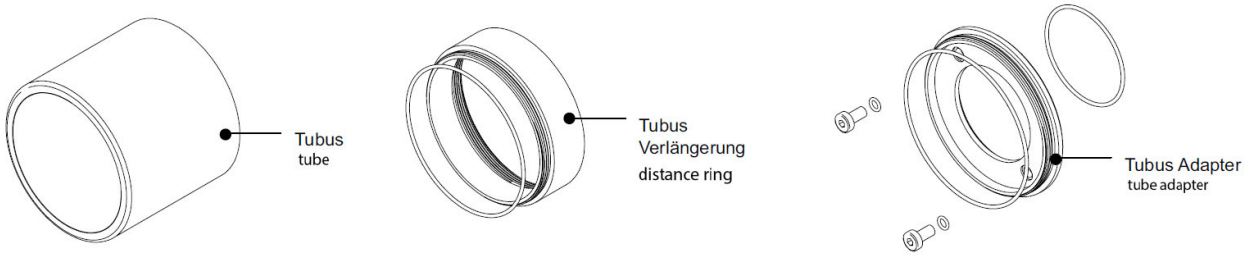
GiGE VISION
GEN<i>CAM
RoHS REACh compliant
CE

Technische Zeichnung / *Technical drawing*


2 x M3 x 5
38,4
8 x M3 x 5
26
26
Ø 28,7
C-Mount
8,33
12,9
50,8
6,6 ± 0,35
40
26
40
26
4 x M3 x 6
temperature
measurement point
26
14,5
9,3
9,3
8,33
26

Zubehör / *Optional Accessories*

Tubus, Verlängerung, Tubusadapter / *Tube, distance ring , tube adapter*



	Tubus / *Tube*		Verlängerung / *Distance ring*		Tubusadapter / *Tube adapter*
	Deckglas / *Cover glas*	Artikelnr. / *Article No.*	*Length*	Artikelnr. / *Article No.*	Artikelnr. / *Article No.*
M47	Acryl / *acrylic*	NCCG.I-Z-TUBE-M47/44	6 mm	NCCG.I-Z-TUBE-MV-M47/06	NCCG.I-Z-TUBE-AD-M47
		NCCG.I-Z-TUBE-M62/58	12 mm	NCCG.I-Z-TUBE-MV-M47/12	
			36 mm	NCCG.I-Z-TUBE-MV-M47/36	
M62	Verbundsicherheitsglas / *Tempered laminated safety glass*	NCCG.I-Z-TUBE-M47/44-VSG	6 mm	NCCG.I-Z-TUBE-MV-M62/06	NCCG.I-Z-TUBE-AD-M62
		NCCG.I-Z-TUBE-M62/58-VSG	12 mm	NCCG.I-Z-TUBE-MV-M62/12	
			36 mm	NCCG.I-Z-TUBE-MV-M62/36	

Zubehör / *Optional Accessories*

Adapterkabel für Anschluss von Beleuchtungen / *Adapter cable for lighting conection*

1 Beleuchtung / *Illumination*

KAB-NCCG.x.I-TypB1

2 Beleuchtungen / *Illuminations*

KAB-NCCG.x.I-TypB2

4 Beleuchtungen / *Illuminations*

KAB-NCCG.x.I-TypB4

Beschreibung / *Description*

- Splitkabel M12/12-pol Buchse auf 1x M8/3-pol Stecker (Stromversorgung von Kameras und I/Os sowie Hardware Triggerung über einen Input) und bis zu 4x M8/3-pol Buchsen zum Anschluss von bis zu 4 Beleuchtungen /
  Split cable M12/12-pin female connector to 1x M8/3-pin male connector (to power the camera and I/Os, enable hardware trigger via input) and up to 4x M8/3-pin female connectors for up to 4 illuminations
- Die I/O Spannung wird über die Kamera direkt zur Beleuchtung durchgeschaltet. /
  The I/O voltage is directly distributed to the illuminations.
- IP65/IP67 Schutzklasse / *Protection class*
- Länge 100 cm (M12/12-pol Kabel 80 cm, M8 Kabel 20 cm) /
  Length 100 cm (M12/12-pin cable 80 cm, M8 cables 20 cm)

Zusätzliche Abbildungen / *Additional images*