

Rosenberger

High-Speed, Hybrid, Multi-Protocol Ready

HySpeedVision: All-in-One Performance – Single-Cable Connectivity

MACHINE VISION SOLUTIONS





Your Partner for Reliable Camera Connectivity

When uncompromising signal integrity and maximum reliability are essential, Rosenberger is your trusted partner. As a global leader, we develop tailored connector and cable solutions for all common camera transmission protocols.

This flyer provides a concise overview of our specialized camera portfolio and demonstrates why leading OEMs and system integrators rely on Rosenberger.

Discover high-performance connectivity solutions for next-generation camera transmission. From coaxial to differential systems, we deliver the right components for demanding applications – scalable, future-proof, and reliable even under the most extreme conditions.

Robust Coaxial Solutions for Robotics and Drag Chain Applications

Compact camera systems in dynamic robotics and drag chain environments place extreme demands on connectivity.

Rosenberger stands out with a unique technological position, being one of the few manufacturers worldwide capable of offering specialized coaxial cables for highly flexible applications such as robotics and drag chains:

- Our highly flexible coaxial and differential solutions ensure long-term reliability across millions of bending and torsion cycles
- Connectors designed for high mechanical durability, secure locking, and outstanding signal integrity

Our solutions also support most of today's leading high-speed protocols, including GMSL, FPD-Link, A-PHY, Ethernet, and more.

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Benefits



Maximum System Reliability

Reliable signal and power transmission even under extreme conditions – ensuring maximum operational safety for camera applications



High Data Rates & Bandwidths

Ideally suited for modern high-speed protocols such as GMSL3, FPD-Link, and more – delivering razor-sharp images in real time



Robust in Motion and Under Stress

Cables with high torsional and bending strength ensure long-lasting performance in dynamic environments such as robotics or tracking systems



Extended Transmission Distances

Connectivity solutions for stable data transfer over long distances – without loss of quality



Versatile Connection Options

Coaxial and differential connectors – flexibly combinable and tailored to your requirements



Modularity and System Integration

Compatible with diverse system architectures – enabling fast and secure integration into existing infrastructures



Future-Proof & Scalable

A strong technology foundation for upcoming requirements in industrial image processing and automation

HySpeedVision Cable Assembly



Cable Assembly HySpeedVision

Cable type	Hybrid cable
Connector size	M12
Torsional capability	±180° over 1 m; durability: 5 million cycles
Drag chain suitability	Bending radius: 10 × outer diameter durability: 2 million cycles
Attenuation @ 3GHz	<0.96 dB /m
Outer diameter	8.5 mm
Single bend radius	42.5 mm
Shielding	Shielded

HySpeedVision PCB Connectors



Specification

Signal pins	2
Power pins	4
Frequency	up to 3,5 GHz
Data rate	up to 12 Gbps
Transmission length*)	12 Gbps up to 12 m (GMSL3)
Protocols	GMSL1 - 3, FPD Link, APIX®, ASA Motion Link, USB, further protocols on request
Power	1.5 A at 24 V on power pins
IP protection	IP67
Locking mechanism	Push-pull
Environmental temperature	Range -20 °C to +70 °C

* Depending on the cable type and protocol

HySpeedVision – Single-Cable Hybrid Connector

HySpeedVision is Rosenberger’s latest connectivity solution, enabling the combined transmission of data and power through a single cable, with dedicated contacts in a compact push-pull connector design.

By physically separating data and power transmission (no PoE / PoDL), camera manufacturers can significantly reduce system electronics costs while simplifying interfaces – from typically two separate connectors for power and data to one integrated hybrid solution. This not only enables more compact designs but also delivers measurable reductions in overall system costs.

Benefits

High Transmission Performance with GMSL3

Supports the GMSL3 protocol for high-resolution image data in real time – ideal for demanding machine vision applications

Single-Cable Technology for Data and Power

Reduces cabling effort and saves space – one cable is sufficient for both video signal and power supply

Designed for Dynamic Applications

Robust construction for moving systems such as robotic arms and drag chains – with high torsional and bending strength

Compact, Space-Saving Integration

Perfectly suited for confined installation spaces in modern production or testing environments

Industrial-Grade Reliability

Engineered for long-term use in harsh conditions – resistant to vibration, temperature fluctuations, and EMC influences



Further information

www.rosenberger.com/product/hyspeedvision-hyv

	HySpeedVision High-Speed Vision Hybrid	RosenbergerHSD® High-Speed Data Connector	Circular Connectors Data and power transmission in harsh environments
Signal pins	2	up to 4	4 - 12
Power pins	4	up to 8	2 - 4 (hybrid)
Frequency range	up to 3.5 GHz	up to 6 GHz	up to 600 MHz
Data rate	up to 12 Gbps	up to 8 Gbps	up to 10 Gbps (x-coded)
Transmission length*	12 Gbps up to 12 m (GMSL3)	12 Gbps up to 10 m (APIX 3)	
Protocols	GMSL1 - 3, FPD-Link, APIX®, ASA Motion Link, USB, further protocols on request	GMSL1 - 3, FPD-Link, APIX®, Ethernet, USB, etc.	EtherCAT, EtherNet/IP, Profibus DP, Profinet, etc.
Power	1.5 A at 24 V on power pins	5 A at 60 V on power pins	90 W (PoE, x-coded)
Shielding	Shielded	Shielded / unshielded	Shielded / unshielded
Protection class	IP67	IPX9K	IP67
Locking mechanism	Push-pull	Snap-in with locking	Screw, push-pull
Size	M12	Single, double, quad Comprehensive product portfolio available	M8 / M12

Further information





www.rosenberger.com/product/hyspeedvision-hyv

www.rosenberger.com/product/rosenberger-hsd

www.rosenberger.com/product/circular-connectors






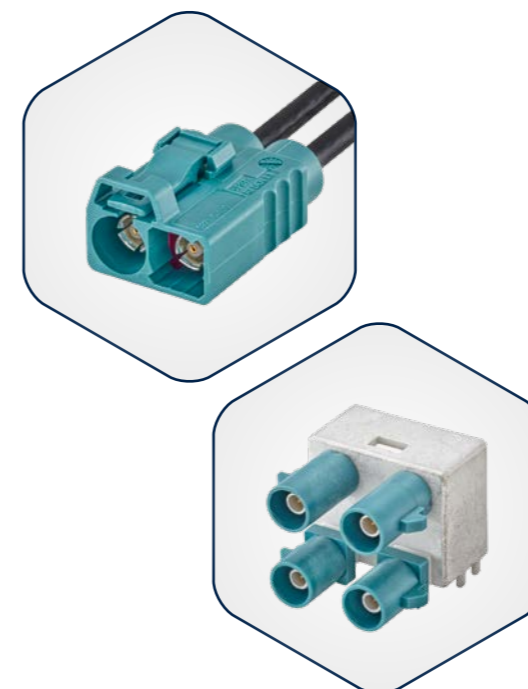
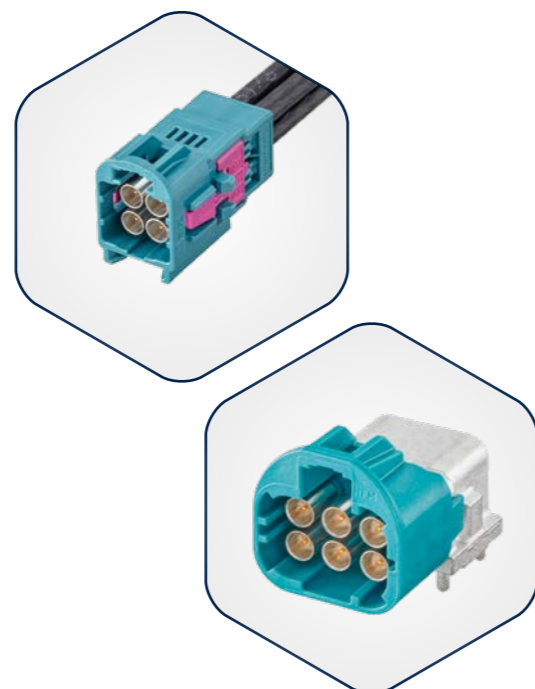
*Depending on cable type and protocol

	H-MTD® High-Speed Modular Twisted-Pair Data	Single Pair Ethernet (SPE) – IEC 63171-7 ED2 SPE Industrial – IP20	SPE Industrial – IP67	SPE Hybrid
Signal pins	up to 6 x 2	2	2	2
Power pins	up to 6 (MQS)	PoDL	PoDL	up to 4
Frequency range	up to 20 GHz	up to 4 GHz (IEC 63171 Class E)	up to 4 GHz (IEC 63171 Class E)	up to 4 GHz (IEC 63171 Class E)
Data rate	up to 56 Gbps	up to 1 Gbps (IEC 63171 Class C) up to 5 Gbps (IEC 63171 Class E)	up to 1 Gbps (IEC 63171 Class C) up to 5 Gbps (IEC 63171 Class E)	up to 1 Gbps (IEC 63171 Class C) up to 5 Gbps (IEC 63171 Class E)
Transmission length*	12 Gbps up to 6 m (GMSL3)	1 Gbps up to 40 m (1000BASE-T1) 10 Mbps up to 1000 m (10BASE-T1L)	1 Gbps up to 40 m (1000BASE-T1) 10 Mbps up to 1000 m (10BASE-T1L)	1 Gbps up to 40 m (1000BASE-T1) 10 Mbps up to 1000 m (10BASE-T1L)
Protocols	GMSL1 - 3, FPD-Link, APIX®, Ethernet, USB, etc.	10BASE-T1L, 10BASE-T1S, 100BASE-T1, 1000BASE-T1, etc.	10BASE-T1L, 10BASE-T1S, 100BASE-T1, 1000BASE-T1, etc.	10BASE-T1L, 10BASE-T1S, 100BASE-T1, 1000BASE-T1, etc.
Power	4 A at 60 V	52 W (PoDL)	52 W (PoDL)	8 - 16 A up to 600 V
Shielding	Shielded / unshielded	Shielded	Shielded	Shielded
Protection class	IPX9K	IP20	IP67	IP67
Locking mechanism	Snap-in with locking	Snap-in	Screw	Screw
Size	Single, double, quad, six Comprehensive product portfolio	Rectangular, single, six		M12
Further information	 www.rosenberger.com/ product/h-mtd	 www.rosenberger.com/ product/spe-industrial	 www.rosenberger.com/ product/spe-industrial	 www.rosenberger.com/ product/spe-industrial



*Depending on cable type and protocol

	HFM® High-Speed FAKRA mini	FAKRA FAchKReis Automobil	Standard Coaxial RF-Connectors for coaxial data / power transmission
Coaxial contacts	up to 6	up to 4	up to 4
Frequency range	up to 20 GHz	up to 6 GHz	up to 40 GHz
Data rate	up to 40 Gbps	up to 12 Gbps	Product range: > 20,000 connector variants (HD-BNC, BNC, SMP, P-SMP, SMA, etc.)
Transmission length*	13.5 Gbps up to 9 m (FPD-Link IV)	10.8 Gbps up to 9 m (FPD-Link IV)	
Protocols	GMSL3, FPD-Link III, MIPI® A-PHY SM , etc.	GMSL2, FPD-Link III, etc.	CoaXPress, etc.
Shielding	Shielded	Shielded	Shielded
Protection class	IPX9K	IPX9K	IP67 (pending on series)
Locking mechanism	Snap-in with locking	Snap-in with locking	Push-pull, screw (pending on series)
Size	Single, double, quad, six	Single, double, quad	typ. single
Drag-chain / robot cable version available	yes	yes	yes
Comprehensive product portfolio available	yes	yes	yes
Further information	 www.rosenberger.com/product/hfm-high-speed-fakra-mini	 www.rosenberger.com/product/fakra	 www.rosenberger.com/products/connectors-adaptors/rf-connectors



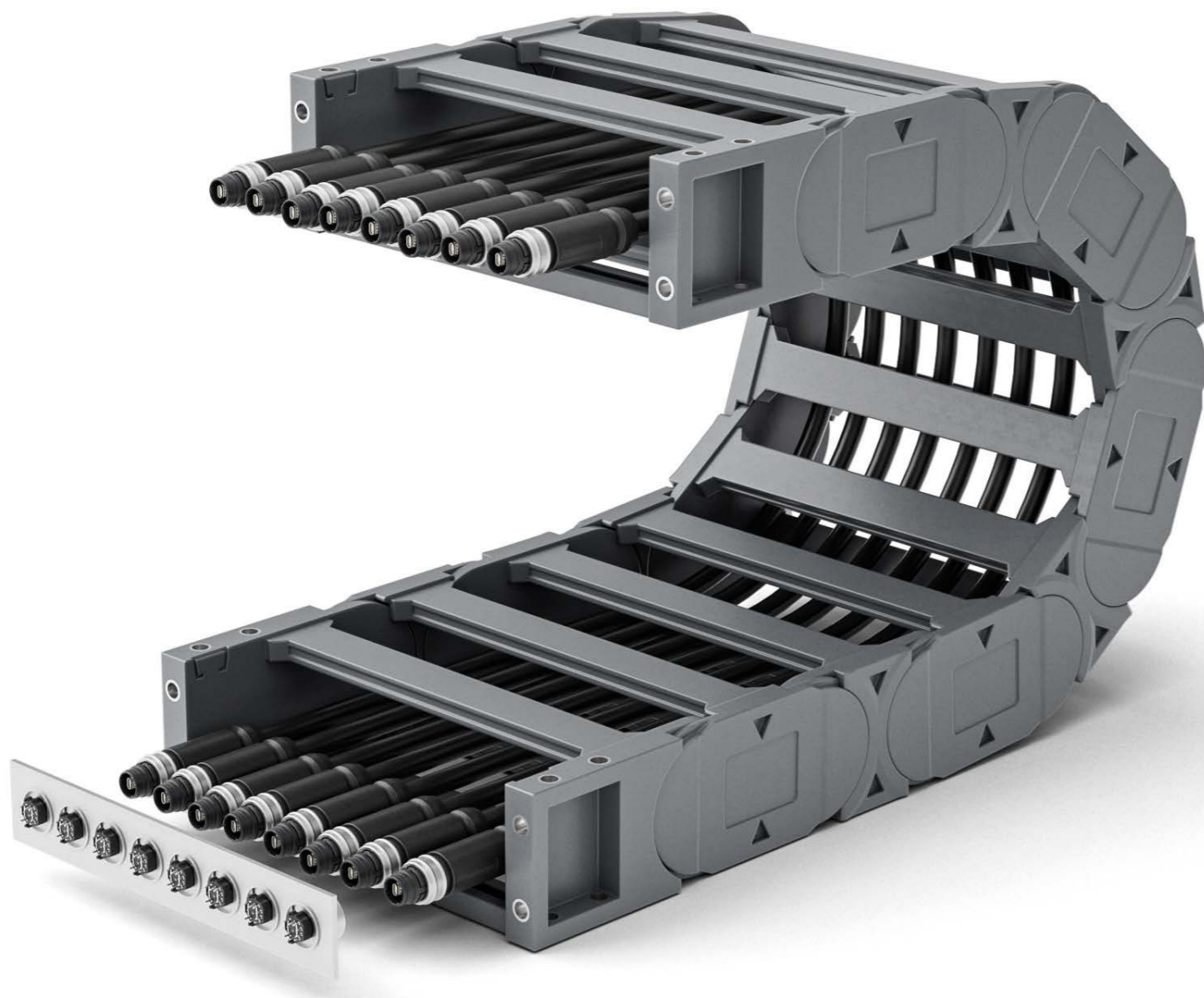
*Depending on cable type and protocol

Cable Variety for Every Application – from Dynamic to Static

Whether highly dynamic movements in robotics and drag chain applications, flexible machine cabling, or fixed installations – Rosenberger is among the very few global manufacturers providing the optimal RF cable solution for every industrial camera integration and robotic application.

Our three proven cable types – for torsion and drag chain applications, classic energy chain routing, or static installations – stand out with application-specific features such as high cycle resistance, low attenuation, and compact designs.

The overview provides a quick guide to identify which cable best meets your technical requirements – powerful, robust, and integration-friendly.



Rugged Cable Solutions for Robotics & Drag Chains Coaxial Cables

	Robot & Drag Chain	Drag Chain	Static
Cable type / designation	Similar RG316-d (CG: 03)	Similar RG58 (CG: 06)	RTK031 (CG: M4)
Torsional capability	Durability: 5 million cycles ±180° over 1 m		
Drag chain suitability	Durability: 3 million cycles minimum bending radius: 75 mm	Durability: 5 million cycles minimum bending radius: 75 mm	
Attenuation @ 3 GHz	<1.89 dB /m	<1.28 dB /m	<1.15 dB /m
Outer diameter	3.1 mm	5.6 mm	3.3 mm
Single bend radius	15 mm	22 mm	16 mm
Connector interface compatibility	FAKRA, HFM®, RMC®, standard Coax (BNC, SMA, SMB, SMP, MCX, ..)	FAKRA, standard coax (BNC, SMA, SMB)	FAKRA, HFM®, RMC®, standard coax (BNC, SMA, SMB) A wide range of additional variants is available

Differential Cables

Rosenberger offers a comprehensive portfolio of high-quality differential cables for a wide range of connector types and applications; for example: 4-pin M12 / HSD, SPE cables. Our cable solutions ensure optimal electrical performance, signal integrity, and reliability – even under demanding conditions.


For customized solutions or further information, please feel free to contact us.

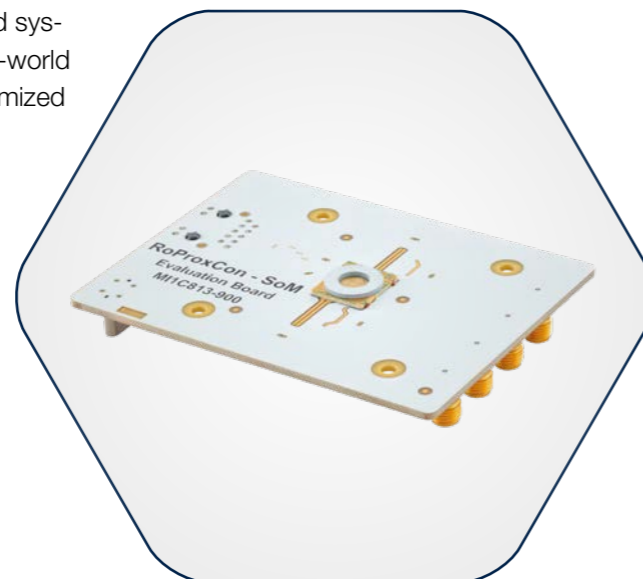
 **Further information**
www.rosenberger.com/products/cable-assemblies

RoProxCon® Contactless Data and Power Transmission

Contactless power and data transmission ensures wear-free operation and exceptional reliability. With unlimited 360° rotation, the solution is perfectly suited for continuous motion in demanding applications.

- Power transmission up to 30 W
- Gigabit-Ethernet transmission
- High data rates up to 3.125 Gbps
- Evaluation Board: Allows developers, OEMs, and system integrators to validate the technology in real-world conditions and seamlessly integrate it into customized applications.

 **Further information**
www.rosenberger.com/product/roproxcon-contactless




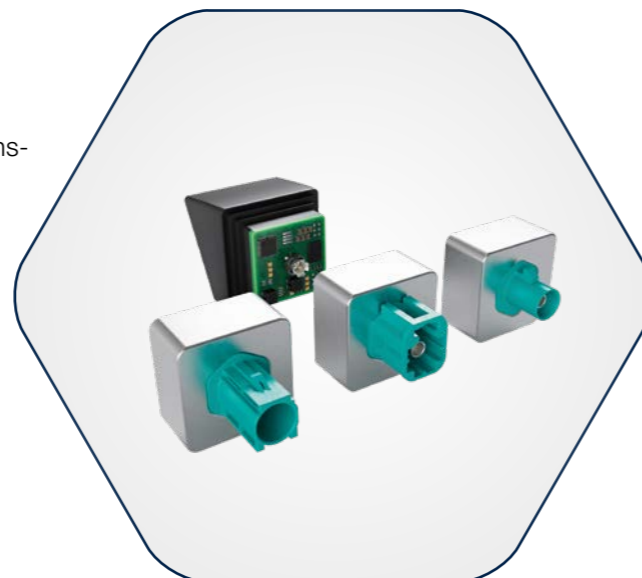
Modular Camera Connectivity System for Data and Power Transmission

A highly flexible modular system designed for reliable data transmission, with the option to integrate MQS contacts for power delivery. The system offers configurable housings in either metal or plastic, which can be customized with PCB contacts (bullets), with or without tolerance compensation.

Interfaces to the wiring harness:

- HFM® Frequency range up to 15 GHz (up to 20 Gbps)
- RMC® Frequency range up to 9 GHz
- FAKRA Frequency range up to 6 GHz (up to 8 Gbps)


 **Further information**
www.rosenberger.com/product/camera-solutions-for-automotive-applications



Fiber Optic Connectors and Cable Assemblies for High-Speed Streaming Cameras

Multifiber connectors featuring EBO (Expanded Beam Optics) technology, designed for reliable performance in harsh environments.

- Protocol: CLHS FOL
- 4 to 72 fibers
- MT ferrule
- IP67/ IP68 protection
- FO-Series: EBO-MPE, MTP®/MPO

 **Further information**
osi.rosenberger.com/products-services/fibre-optic-components



Website

For more information refer to our website:
www.rosenberger.com/machinevision

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