

# MULTIMEDIA SPECIAL

## DATA CABLES FOR INDUSTRIAL AUTOMATION APPLICATION

ASEAN Ordering Guide 2023



## Industrial Automation

Be it for drives, control, sensor and communication application, Prysmian accelerates application development with dedicated industrial automation solutions. Furthermore, providing cables and connectivity from Prysmian pave the path to Industrial 4.0 and Industrial Internet of Things application.



Content	Page
About Prysmian Group	2
What is Industry 4.0?	5
Industrial Communication in the context of Industry 4.0	6
Prysmian's Industrial Communication Solutions	7
- Field Level	8
- Automation Level	10
- MES/ERP Level	11
Prysmian Cabling Solution in Industrial Communication	12
Prysmian Product Portfolio to fulfill different application in Industrial Automation	16
Industrial Automation Ordering Guide	17

Issue: December 2022

THE INFORMATION CONTAINED IN THIS ARTICLE IS INTENDED AS A GUIDE FOR USE BY PERSONS HAVING TECHNICAL SKILL AT THEIR OWN DISCRETION AND RISK. BEFORE USING ANY PRYSMIAN PRODUCT, THE BUYER MUST DETERMINE THE SUITABILITY OF THE PRODUCT FOR HIS/HER INTENDED USE AND BUYER ASSUMES ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH. PRYSMIAN DISCLAIMS ANY LIABILITY ARISING FROM ANY INFORMATION CONTAINED HEREIN OR FOR ABSENCE OF THE SAME.

All Prysmian products are subject to the terms, conditions, and limitations of its then current Limited Product Warranty, which can be found at [www.prysmiangroup.com](http://www.prysmiangroup.com)



## PRYSMIAN GROUP

### A GLOBAL CABLE MANUFACTURER & NETWORK CABLING PROVIDER

The diversification of its portfolio of businesses is one of the strengths of Prysmian Group, a unique global leader with a business model balanced between areas with various profiles, in which each segment plays a precise role in the overall strategy, from stability to growth potential and generation of opportunities. Following the acquisition of General Cable (2018), the structure of the Group, which has applications in over one hundred sectors, was organized according to a matrix scheme based on the markets of reference and business units.

## A HISTORY OF INNOVATION



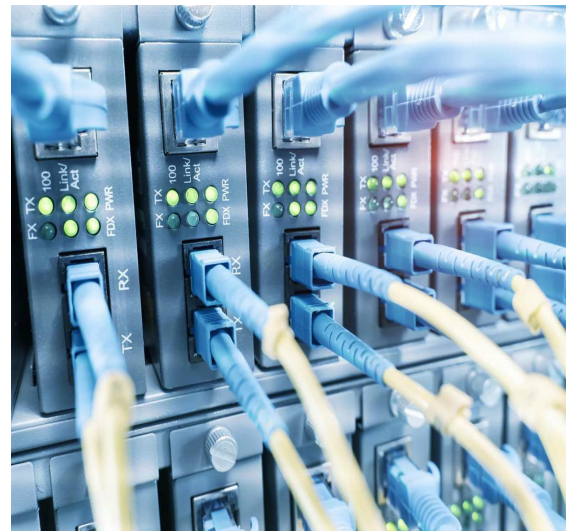
## Prysmian Group – Linking the future

As the worldwide leader in the cable industry, Prysmian Group believes in the effective, efficient, and sustainable supply of energy and information as a primary driver in the development of communities. With this in mind, we provide major global organizations in many industries with best-in-class cable solutions, based on state-of-the-art technology. Through two renowned commercial brands, Prysmian and Draka based in almost 100 countries and we're constantly close to our customers, enabling them to further develop the world's energy and telecom infrastructures, and achieve sustainable, profitable growth.

## What links communications to communities?

Cable solutions contributing to the expansion of the world's telecom infrastructure. Prysmian Group, the world's largest maker of telecom cables, supports the infrastructures of several of the world's leading telecom carriers with optical fiber and copper cabling solutions that help connect communications to communities throughout the world. We are the world leader in the production of optical fiber, including voice, video, and data transmission, and we offer unique and totally owned technology. Our portfolio is a global innovation benchmark, the result of ongoing multi-million Euro investment in R&D and production at more than 30 facilities across the world.

### How can we help you build your network?





## **ENERGY**

The Energy business area includes businesses characterized by the ability to offer a comprehensive and cutting-edge product portfolio that can meet the most diverse market demands. It is structured as Energy & Infrastructure, including the Trade & Installers, Power Distribution and Overhead Transmission Lines businesses. Industrial & Network Components which comprises the Oil & Gas, Downhole Technology, Elevators, Automotive, Network Components and Specialties & OEM businesses, to which the Crane, Mining, Railways, Rolling Stock, Marine and Renewables (cables for applications within the solar energy industry and for the functioning of wind turbines) sectors and Electronics that fully dedicated to innovative systems for monitoring the electrical systems.

## **PROJECTS**

Projects business area includes the high-tech, high value-added businesses specialized in the design, manufacturing, and installation of high and extra-high voltage underground and submarine cable systems. The Group develops the most advanced “turn-key” submarine cable systems, which entail installations down to a depth of 3,000 meters using its fleet of cable-laying vessels, which are among the largest and most technologically advanced ships in the world, namely Giulio Verne, Cable Enterprise, Ulises and Leonardo da Vinci. Prysmian also offers cutting-edge services for developing submarine interconnections between different countries and between offshore wind farms and the mainland, designed for energy production and distribution.

## **TELECOM**

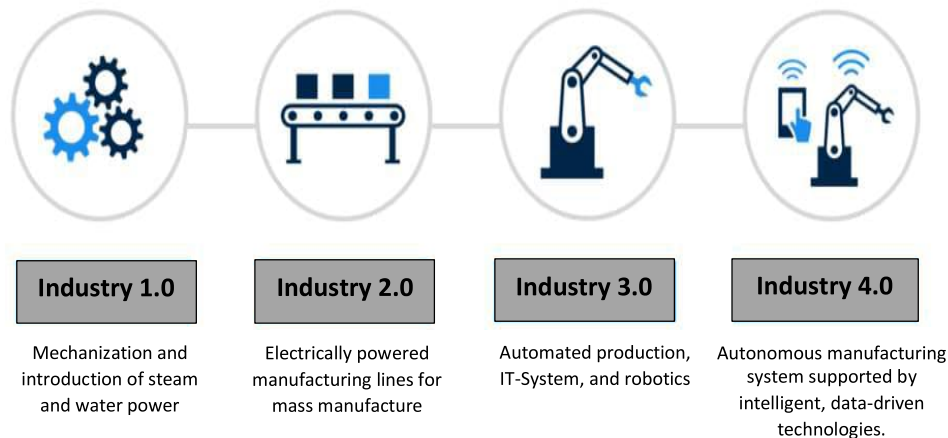
Telecom business area includes the manufacturing of cable systems and connectivity products used for telecom networks. The product range includes optical fibers, optical cables, connectivity components and accessories, OPGW (Optical Ground Wire) and copper cables. The Group is one of the leading producers of the core component for all types of optical cables, optical fiber. A broad range of optical fibers is designed using a proprietary technology to meet customers’ most diverse application needs, such as single-mode, multimode and specialty fibers. Regarding cables and connectivity, the Group is focusing on products able to ensure the highest fiber count in the smallest diameters, ease of use and improved fiber management.

## What is Industry 4.0?

We are in the midst of a substantial transition in the way we make products as a result of factory digitization. The fourth manufacturing revolution is represented by Industry 4.0. From the first industrial revolution (mechanization via water and steam power) to mass production and assembly lines via electricity in the second, the fourth industrial revolution will build on what was started in the third revolution with the adoption of computers and automation. We enhance it with smart and autonomous systems powered by machine learning. As Industry 4.0 takes shape, computers will be linked and speak with one another, eventually making choices without the assistance of humans. Industry 4.0 and smart factory are made possible by a combination of cyber-physical systems, the Internet of Things, and the Internet of Systems.

Our factories will become more efficient and productive, as well as less wasteful, because of the support of smart machines that continue to get wiser as they gain access to more data. Finally, it is the network of these digitally connected machines that create and share information that results in the ultimate power of Industry 4.0.

## Industrial Revolutions





## Industrial Communication in the context of Industry 4.0



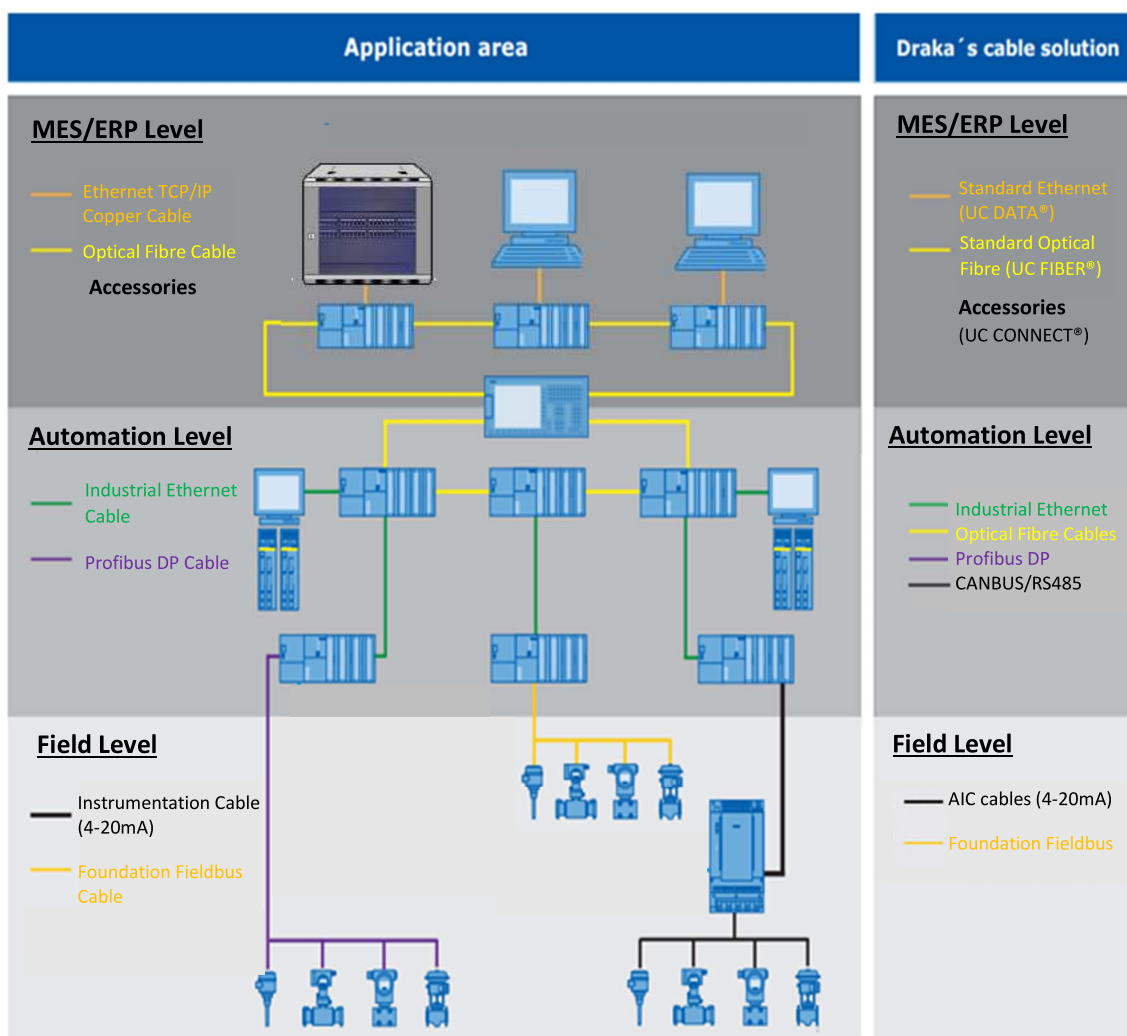
The Internet's integration of the digital and physical world signals the dawn of the intelligent factory era. Information and communication technology are critical in putting Industry 4.0 ideals into action. Cyber-physical systems, such as sensors, actuators, embedded computers, cellphones, and machines, are linked and exchange data both within and outside of the factory work floor.

Today's automation networks and fieldbus systems must therefore not only ensure that machines and facilities can perform production in a safe, precise, and efficient manner, but they must also contribute to the establishment of a universal solution for integrating different IT systems on different rungs of the organizational ladder within a factory. The fourth industrial revolution will cause tremendous upheavals in the industry, comparable to those seen in the private sector with the introduction of the Internet and mobile communication. When we take a deeper look at the current situation, we can see that an increasing number of manufacturers are implementing new machine concepts and connecting systems using Industrial Ethernet solutions. The benefits of this approach over typical fieldbus systems are evident. In addition to quick real-time data transmission, there is enough bandwidth available to transmit safety-critical data as well as IT protocols over a shared media.

## Prysmian's Industrial Communication Solutions

Prysmian Industrial Communication Solutions adopted the Industrial 4.0 approach. An interesting cabling concept for industrial automation has established itself under the keyword ICS (Industrial Communication Solutions). It concerns the structured cabling of industrial plants similar to the cabling used for office communication. Industrial Ethernet and bus systems are industry standards. More and more plants are fully outfitted with these systems and linked by specific cable, allowing them to operate in any environment.

Access to specific areas throughout the network makes adjustment and changes easily manageable. Prysmian Multimedia Specials cables are supplied to almost all the world's major industrial projects. These cables provide utmost protection and transmission capabilities in very harsh environment.





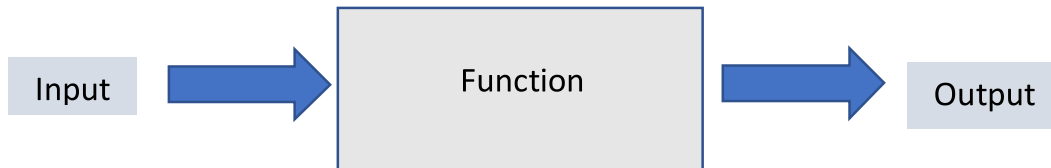
## Field Level

Field level consists of a wide variety of sensors and actuators involved in the basic industrial process. These devices perform the basic functions of the IACS, such as driving a motor, measuring variables, and setting an output. While network topologies can theoretically take on any form, each network topology has specific properties and limitations in terms of the potential network topologies used. At the field level, only a few bytes are transferred at a time, for example, to control an actuator or to receive a sensor signal. It is critical to have a low latency at the field level to control the process effectively. With the significant cost of downtime in industrial applications, it is critical to invest in dependable cables and connectivity to provide optimal protection and performance.



## The input-output model






The input-output model forms basic of every automation task, this consist of an input signal (input), a controlling unit (the function) and the output signal (output).



## Serial Bus System

A fieldbus is a serial bus system used in machines and systems to connect sensors and actuators (motors) to each other and to one or multiple masters (industrial PCs or Programmable Logic Controller (PLCs)). Fieldbuses make it possible to exchange data between different system components over long distances and under high external load. Serial Bus System operate in master-slave mode, where the master is responsible for controlling processes and the slave handles single subtasks.

## Overview of Individual Fieldbuses Protocol

Fieldbus	Supporting Company	User Organization	Typical Applications
	Siemens	PROFIBUS User Organization (PNO)	Factory Automation, Process Automation, Drive technology
	Emerson	Fieldbus Foundation	Process Automation & Petrochemical Industry
	Schneider Electric, originally Bosch	CAN in Automation (CiA)	Embedded field level Example Medical Engineering Vehicle
	Rockwell Automation	Open DeviceNet User Association (ODVA)	Factory Automation, Process Automation, Drive technology
	Mitsubishi	CC-Link Partner Association (CLPA)	Factory Automation

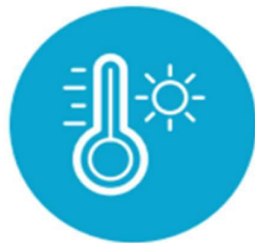


## Automation Level

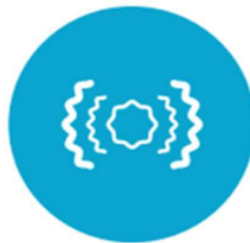
All automation computer systems that govern the process are in the automation level. Controllers are linked to the field level sensors/actuators and each controls a different element of the system. The controllers are also linked to one another and to a higher level. At this level, data is sent in increments ranging from a few bytes to a few kilobytes. The delay is measured in fractions of a second.

## Industrial Ethernet System

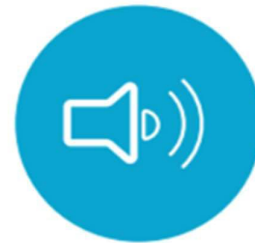
Ethernet is a technology originally developed for office communication. Ethernet allow much higher transfer rates upto 400Gbit/s. In order to achieve better determinism, industrial Ethernet uses specialized protocols in conjunction with Ethernet. The more popular Ethernet protocols are PROFINET®, EtherNet/IP®, and EtherCAT®. 100 Mbps is the most popular speed used in Industrial Ethernet applications. Several PLC manufacturers have extended basic Ethernet technology to meet various industrial environment. Industrial Ethernet requires additional considerations not seen in Ethernet Systems used in an office, where manufacturing equipment on plant floors is exposed to different temperature, vibrations, and disturbing noises.



**Temperatures**







**Vibrations**



**Disturbing Noises**

## Overview of Industrial Ethernet Protocol

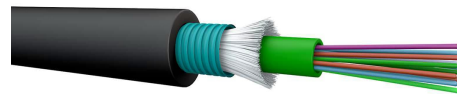
Ethernet Standard	Supporting Company	User Organization	Typical Applications
	Siemens, Phoenix Contact	PROFIBUS	Factory Automation, Process Automation, Drive technology
	Rockwell	ODVA	Factory Automation & Process Automation
	Beckoff	ETG	Building Management, Decentralized Drive Technology
	Schneider Electric	Modbus-IDA	Communication

## MES/ERP Level

The Manufacturing Execution System (MES) level is directly linked to the control level and may read current production data such as quantity produced and machine availability. Users can control and plan corporate resources such as material requirements at Enterprise Resource Planning (ERP) level. At this level, data ranging in size from a few megabytes to gigabytes is transported. Large data volumes can be transmitted simultaneously at high speeds via copper and fiber optic cables. This also applies to data communication over long distances. Distances of up to 80 km can be bridged using fiber optic cables. Networks can easily expand and segmented via switches and routers. The delay is measured in seconds.

## Prysmian Unitube Fiber Optic Cables

Prysmian offers a range of Unitube (single element) designs for cost effective solutions for low fibre counts applications. For application requiring 24 fibers or less, Prysmian offers many alternative designs of Unitube constructions, available as non-metallic design or with steel laminated (SPL).



Prysmian Unitube Fiber Optic Armour Cable

This product can find application in

- Traditional telecommunication links for both long haul backbone networks and distribution applications
- Campus Networks
- Industrial Complex
- Within buildings and inter-connecting buildings without the need for building-entry joints.

### Full Range of Applications



Outdoor



Indoor



Underground



Metro



# Prysmian Cabling Solutions in Industrial Communication

## Field Level



- **Production Cell Communications**

Production cell communication on the shop floor transfers all data and signals from the machines' sensors and actuators to Programmable Logic Controllers (PLCs). Signals travel via distribution switches on machines to the production cell's central switches.

- Prysmian Multimedia Solutions Portfolio offers wide range of BUS cables (Profibus DP, Foundation Fieldbus & etc.) RS-485 cables and electronic cables



CANBUS Cable



Profibus DP Cable



Profibus DP Armour Cable

- **Infrastructure Cabling**

Long distances on the manufacturing floor, as well as the necessity for higher data rates, influence the type of cable that should be used. Majority of customers want to link network devices from core network to the local control room through fiber connections. Copper cable is commonly utilized from the access level to the machine level or to connect active devices in the same area.

- Prysmian Multimedia Solutions Portfolio offers wide range of cost-efficient fiber optic cables and ethernet cables.



Fiber Optic Cable



Ethernet Cable

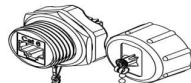
## Automation Level



- **Control Cabinet**

Control cabinet is made up of automation equipment such as PLCs and DCS systems, where it manipulates the automation process by connecting with the field level. Communication between PLC/DCS and devices at the field and supervisory levels is typically based on Ethernet or BUS technology.

- Prysmian Multimedia Solutions Portfolio offers wide range of BUS cables (Profibus DP, Profibus PA, RS-485 and etc.) and Industrial Ethernet cables.



IP67 Copper Connectivity



Profibus DP Cable



Industrial Ethernet Cable

- **Supervisory Control and Data Acquisition (SCADA)**

SCADA systems are systems that combine hardware and software to automate industrial processes by capturing Operating Technology (OT) data. SCADA will link sensors that monitor equipment such as motors, pumps, and valves to a local or remote server.

- Prysmian Multimedia Solutions Portfolio offers wide range of Industrial Ethernet & Indoor Ethernet cables (Cat.5e, Cat.6, Cat.6a & etc.), RS-232 cables, RS-485 cables, electronic cables and fiber optic cables.



Fiber Optic Cable



Ethernet Cable

## MES/ERP Level



- **CCTV Surveillance Systems**

CCTV Surveillance System is a video monitoring system used to monitor regions in industrial facilities as well as outside surveillance.

- Prysmian Multimedia Solutions Portfolio offers video cables, data cables, audio cables and hybrid cables to suit indoor or outdoor surveillance



Hybrid Cable



Coaxial Cable

- **Public Address & General Alarm Systems (PAGA)**

PAGA System refers to critical system with respect to personnel safety and during an emergency. It's an electronic sound amplification and distribution system that include microphone, amplifier, and loudspeakers.

- Prysmian Multimedia Solutions Portfolio offers cables that allows fire alarm and public address systems to broadcast information.



Fire Resistant Ethernet Cable



PAGA Shielded Cable



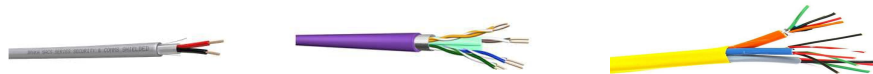
PAGA Unshielded Cable



## • Access Control Systems

Access Control System refers to the selective restriction of access to specific entrances and facilities within a plant/building depending on system parameters.

- Prysmian Multimedia Solutions Portfolio offers cabling infrastructure for traditional access control systems, to support the bandwidth and PoE (Power over Ethernet) requirement of smart security systems.



SACS Shielded Cable

Indoor Ethernet Cable

Composite Access Control Cable

## • Production Backbone & Server Room

Plant Control Room Communication consist of large size of communication network where the overlying network has the task to enable seamless and highly available communication from OT to IT Enterprise. Concurrently, server room is an area designed to accommodate small-scale computer servers and IT equipment racks in a plant or enterprise.

- Prysmian Multimedia Solutions Portfolio provides cutting-edge cabling infrastructure from the core to distribution and all the way down to the access level. Prysmian offers complete structured cabling systems that can meet high bandwidth and PoE (Power over Ethernet) requirements for the Internet of Things.

**UCCONNECT®**

- Full Structured Cabling Solutions
- Complete Fibre Optic Products Portfolio
- High Technology Premium Solutions
- Component Tested, 3rd Party Certified

**From the World's Largest Cable Manufacturer**

## Prysmian Product Portfolio to fulfill different application in Industrial Automation

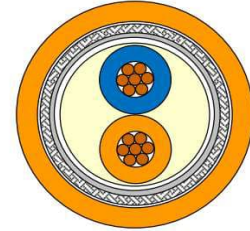
Product/ Cables	Product Family/ Part Number	Applications								
		Prod. Cell Comm.	Infra. Cabling	Automation Level	SCADA	CCTV	PAGA	Access Control	Prod. Backbone	Server Room
Foundation Fieldbus FF	ICS FF FC 1x2xAWG18/7 LSHF-FR	•								
	ICS FF FC 1x2xAWG16/7 PVC SWB	•								
Electronic	Draka Style 2464	•			•			•		
	Draka Style 2919	•			•			•		
Composite	MS1000AYL-5H							•		
RS-485	48124FGY-5H	•		•						
	48116FLBBK-5H	•		•						
Profibus DP	PDP122FLVVL-5H	•		•						
	PDP122FLMVBK-5H	•		•						
Fire Alarm	Draka FACU Series Fire Alarm						•			
	Draka FACS Series Fire Alarm						•			
PAGA	Draka MAX-FOH-SHIELDED PAGAS						•			
	Draka MAX-FOH PAGA						•			
Security Alarm	Draka SACU Series Security Alarm							•		
	Draka SACS Series Security Alarm							•		
Coaxial	RG-6, RG-11, RG-58, RG59, RG-213 & RG-214					•				
Fiber Optic	UC FIBRE® Solutions (Fiber Cables)				•				•	•
Ethernet	UC DATA® Solutions (LAN Category Cables)		•		•	•	•	•	•	•
Accessories	UC CONNECT® Solutions (Copper Connectivity & Fiber Connectivity)		•		•	•	•	•	•	•
Industry Ethernet	ICS 5e IND 4x2xAWG26/7 PUR		•	•	•				•	
	ICS 600IND 4x2xAWG23/1 PUR									
	85048FRBRTVBK-3H						•			

For every application there is an extended range of cables available. Please contact us via email: [mms.asia@prysmiangroup.com](mailto:mms.asia@prysmiangroup.com)

## Industrial Automation Ordering Guide

### Draka Foundation Fieldbus FF Cable

- Standard: Type A Foundation Fieldbus, IEC 61158 & IEC 61784
- Conductor: Stranded Bare Copper Wires
- Insulation: Foam-Skin-PE
- Overall Screen: AL-Mylar Wrap
- Braid Shield: Tinned Copper Braid
- Armour: Steel Wire Braid (Optional)
- Outer-Jacket: PVC/LSZH
- Optional: UV Resistance, Oil & Grease Resistance, Chemical Resistance & etc.

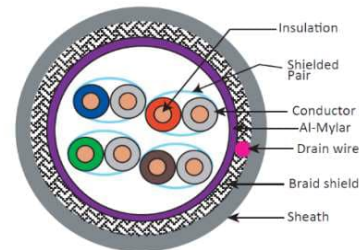


Description	Part Number
Foundation Fieldbus FC Flex Cable, 1PR x 18AWG, LSHF-FR	ICS FF FC 1x2xAWG18/7 LSHF-FR
Foundation Fieldbus Cable, 2PR x 1.5mm <sup>2</sup> , PVC, SWB	ICS FF 2Px 1.5mm <sup>2</sup> PVC SWB
Foundation Fieldbus FC Flex Cable, 1PR x 16AWG, PVC, SWB	ICS FF FC 1x2xAWG16/7 PVC SWB

\*Extended range available upon request

### Draka Electronic Cables UL2919

- Standard: UL2919
- Conductor: Stranded Tinned Copper Wires (24AWG ~ 18 AWG)
- No. of Pairs: 1 ~ 4 pairs
- Insulation: HD-PE/Foam-PE
- Individual Pair Screen: AL-Mylar Wrap
- Braid Shield: Tinned Copper Braid
- Outer-Jacket: PVC

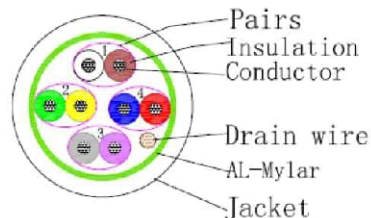


Description	Part Number
UL2919 CONTROL CABLE, 1PR x 18AWG, PVC	29118GY-5H
UL2919 CONTROL CABLE, 2PR x 22AWG, PVC	29222FGY-5H
UL2919 CONTROL CABLE, 1PR x 24AWG, PVC	29124FGY-5H

\*Extended range available upon request

### Draka Electronic Cables UL2464

- Standard: UL2464
- Conductor: Stranded Tinned Copper Wires (24AWG ~ 16 AWG)
- No. of Pairs: 1 ~ 4 pairs
- Insulation: SR-PVC
- Overall Screen: AL-Mylar Wrap
- Outer-Jacket: PVC



Description	Part Number
UL2464 CONTROL CABLE, 1PR x 22AWG, PVC	24122GY-5H
UL2464 CONTROL CABLE, 2PR x 16AWG, PVC	24216GY-5H
UL2464 CONTROL CABLE, 3PR x 24AWG, PVC	24324GY-5H

\*Extended range available upon request

## Draka Electronic Cables MP1100 & MP1000 Series

- Conductor: Stranded Tinned Copper Wires (16 AWG)
- No. of Pairs: 1 ~ 10 pairs
- Insulation: UL Rated PVC
- Overall Screen: AL-Mylar Wrap (MP1100 Series)
- Outer-Jacket: PVC CM/PVC CMG



Description	Part Number
Multi-Pair 1000 CABLE,1PR x 16AWG, PVC-CMG	MP10400CGY-3H
Multi-Pair 1000 CABLE,2PR x 16AWG, PVC-CMG	MP10410CGY-3H
Multi-Pair 1100 SHIELDED CABLE,1PR x 16AWG, PVC-CMG	MP11400CGY-3H
Multi-Pair 1100 SHIELDED CABLE,2PR x 16AWG, PVC-CMG	MP11410CGY-3H

\*Extended range available upon request

## Draka FACU & FACS Series Fire Alarm

- Conductor: Solid Bare Copper (24AWG ~ 12 AWG)
- No. of Pairs: 1 ~ 2 pairs
- Insulation: PVC
- Overall Screen: AL-Mylar Wrap (FACS Series)
- Outer-Jacket: PVC-CMR/LSZH/PE
- Voltage Rating: 300V

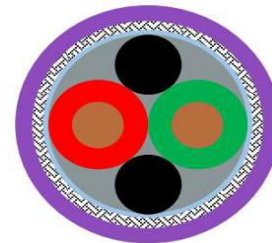


Description	Part Number
FIRE ALARM CABLE SHIELDED ,1PR x 12AWG, PVC-CMR	FACS1P12CRD-3H
FIRE ALARM CABLE SHIELDED ,1PR x 16AWG, PVC-CMR	FACS1P16CRD-3H
FIRE ALARM CABLE ,1PR x 16AWG, PVC-CMR	FACU1P16CRD-3H

\*Extended range available upon request

## Draka Profibus DP Cable

- Standard: IEC 61158-2
- Conductor: Stranded Bare Copper Wires
- Insulation: Foam-Skin-PE
- Overall Screen: AL-Mylar Wrap
- Braid Shield: Tinned Copper Braid
- Armour: Steel Wire Braid (Optional)
- Outer-Jacket: LSZH
- Optional: UV Resistance, Anti-Rodent, Anti-Termite & etc.



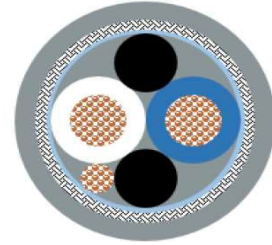
Description	Part Number
PROFIBUS DP DATA COMMUNICATION CABLE,1PR x 22AWG, LSZH, UV	PDP122FLVVL-5H
PROFIBUS DP DATA COMMUNICATION CABLE,1PR x 22AWG, LSZH (SHF1), UV	PDP122FLMBK-5H

\*Extended range available upon request



## Draka RS-485 Cable

- Standard: EIA/TIA RS-485
- Conductor: Stranded Tinned Copper Wires (24AWG ~ 16 AWG)
- No. of Pairs: 1 ~ 4 pairs
- Insulation: Foam-Skin-PE
- Overall Screen: AL-Mylar Wrap
- Braid Shield: Tinned Copper Braid
- Armour: Steel Wire Braid (Optional)
- Outer-Jacket: PVC/LSZH
- Optional: UV Resistance, Anti-Rodent, Anti-Termite & etc.



Description	Part Number
RS485 DATA COMMUNICATION CABLE, 1PR x 16AWG, PVC	48116FGY-5H
RS485 DATA COMMUNICATION CABLE, 1PR x 16AWG, LSZH, ATARUV	48116FLRTVBK-5H
RS485 DATA COMMUNICATION CABLE, 4PR x 24AWG, LSZH, SWB, ATARUV	48424FLBRTVBK-5H

\*Extended range available upon request

## Draka SACU & SACS Security Alarm Cable

- Conductor: Stranded Bare Copper (24AWG ~ 12 AWG)
- No. of Pairs: 1 ~ 2 pairs
- Insulation: PVC
- Overall Screen: AL-Mylar Wrap (SACS Series)
- Outer-Jacket: PVC-CMR/LSZH/PE



Description	Part Number
SECURITY ALARM CABLE SHIELDED, 1PR x 12AWG, PVC-CMR	SACS1P12CRD-3H
SECURITY ALARM CABLE SHIELDED, 1PR x 16AWG, PVC-CMR	SACS1P16CRD-3H
SECURITY ALARM CABLE, 1PR x 16AWG, PVC-CMR	SACU1P16CRD-3H

\*Extended range available upon request

## Draka MAX-FOH-SHIELD PAGAS Cable

- Standard: BS EN 50288-7, BS 6387 CWZ, IEC60331, EN 50200, IEC60332-3A
- Conductor: Stranded Bare Copper (1.0mm<sup>2</sup> ~ 4.0mm<sup>2</sup>)
- No. of Pairs: 1 ~ 4 pairs
- Insulation: XLPE
- Overall Screen: AL-Mylar Wrap
- Outer-Jacket: LSZH

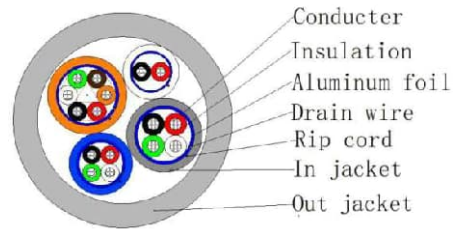


Description	Part Number
MAX-FOH- SHIELD FlexiTube, 1PR x 1.0mm <sup>2</sup> , PAGAS Fire Resistant, LSZH	PAGAS1P10
MAX-FOH- SHIELD FlexiTube, 1PR x 1.5mm <sup>2</sup> , PAGAS Fire Resistant, LSZH	PAGAS1P15
MAX-FOH- SHIELD FlexiTube, 1PR x 2.5mm <sup>2</sup> , PAGAS Fire Resistant, LSZH	PAGAS1P25

\*Extended range available upon request

## Draka Access Control Composite Cable

- Standard: IEC60754-1, IEC61034-2, IEC60332-3A
- Conductor: Stranded Bare Copper
- Card Reader (3PR x 22AWG)
- Door Contact (2C x 22AWG)
- REX/Spare (4C x 22AWG)
- Lock Power (4C x 18AWG)
- Insulation: PE
- Shield: AL-Mylar Wrap
- Outer-Jacket: LSZH



Description	Part Number
MMS Special Multi-Composite Access Control Cable 1000	MS1000AYL-5H

\*Extended range available upon request

## Draka MAX-FOH PAGA Cable

- Standard: BS EN 50288-7, BS 6387 CWZ, IEC60331, EN 50200, IEC60332-3A
- Conductor: Stranded Bare Copper (1.0mm<sup>2</sup> ~ 2.5mm<sup>2</sup>)
- No. of Pairs: 1 ~ 4 pairs
- Insulation: XLPE
- Outer-Jacket: LSZH
- Certification: TUV SUD certified



Description	Part Number
MAX-FOH FlexiTube, 1PR x 1.0mm <sup>2</sup> , PAGA Fire Resistant, LSZH	PAGA1P10
MAX-FOH FlexiTube, 1PR x 1.5mm <sup>2</sup> , PAGA Fire Resistant, LSZH	PAGA1P15
MAX-FOH FlexiTube, 1PR x 2.5mm <sup>2</sup> , PAGA Fire Resistant, LSZH	PAGA1P25

\*Extended range available upon request

## Draka Coaxial RG Cable

- Standard: RG-59, RG-6, RG-11, RG-213, RG-214
- Conductor: Bare Copper (BC) / Copper Clad Steel (CCS)
- Insulation: PE/Foam PE
- Screen: AL-Mylar-AL
- Braid Shield: Aluminium /Tinned Copper/ Silver-plated Copper Braid
- Armour: Steel Wire Braid (Optional)
- Outer-Jacket: PVC/PVC-CM/LSZH
- Optional: UV Resistance, Anti-Rodent, Anti-Termite & etc.



Description	Part Number
COAXIAL CABLE, RG59, CCS, APA, 90% Aluminium Braid, PVC, 75 Ohm	RG9174BK-5H
COAXIAL CABLE, RG11, CCS, APA, 60% Aluminium Braid, LSZH, 75 Ohm	RG1276BK-5H
COAXIAL CABLE, RG6, BC, APA, 60% Tinned Copper Braid, PVC, 75 Ohm	RG6179BK-5H
COAXIAL CABLE, RG6, BC, APA, 95% Tinned Copper Braid, LSZH, SWB 75 Ohm	RG6278BBK-5H
COAXIAL CABLE, RG59, BC, 95% Tinned Copper Braid, LSZH, SWB 75 Ohm	RG9271BBK-5H

\*Extended range available upon request

## Draka Industrial Ethernet & PROFINET Cable

- Standard: PROFINET, EN 50173-1, ISO/IEC 11801
- Conductor: Bare Copper (BC)
- Insulation: PE/Foam PE
- Screen: AL-Mylar
- Braid Shield: Tinned Copper Braid
- Outer-Jacket: PVC/LSZH/PUR



Description	Part Number
Industrial Ethernet Cat.5e SF/UTP 4PR x AWG26/7, PUR	ICS 5e IND 4x2xAWG26/7 PUR
Industrial Ethernet Cat.6a S/FTP 4PR x AWG23/1, PUR	ICS 600IND 4x2xAWG23/1 PUR
Industrial Ethernet Cat.5e SF/UTP 2PR x AWG22/1, PVC	ICS IE FC INST 2x2xAWG22/1 Cat 5e PVC
Industrial Ethernet Cat.5e SF/UTP 2PR x AWG22/1, PVC, SWB	ICS IE FC INST 2x2xAWG22/1 Cat 5e SWB PVC

\*Extended range available upon request

## Draka Industrial Connectivity

- Standard: IP67, Protected from immersion in water for 30 minutes at a depth of 1meter

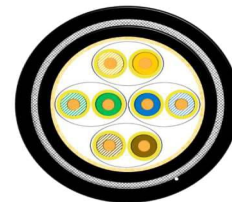


Description	Part Number
Draka IP67 Cat.6 RJ45 Shielded Keystone Jack	IPKJC6S
Draka IP67 Cat.6 S/FTP RJ45 PVC 2M Cordset (Black)	IPC6510BK-2
Draka IP67 Wall-Mount Box, Two Port, White	IPWMB

\*Extended range available upon request

## Draka Fire Resistance Industrial Ethernet Cable

- Standard: ISO/IEC 11801-1/2, ANSI/TIA 568.2-D, IEC60331-23, IEC60332-3C, IEC60754-1&2, IEC61034
- LAN Category: CAT.6A SFTP Shield
- Armour : Steel Wire Braid
- Outer-Jacket: LSZH
- Optional: UV Resistance, Anti-Rodent, Anti-Termite & etc.



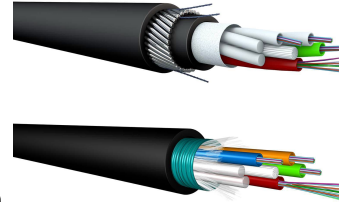
Description	Part Number
Draka UC500 CAT.6A SFTP 4PR x 23AWG, LSZH, SWB	85048FRBRTVBK-3H

\*Extended range available upon request

## UC FIBRE® - Fiber Optic Cable

### Loose Tube Fiber Optic Cable

- Standard: ISO/IEC 11801, IEC60794-3-10
- Number of fibers: 2 – 144 cores
- Fiber Type : Single-Mode (G.652D,G.657A1,G.657A.2)  
: Multi-Mode (OM1, OM2, OM3, OM4, OM5)
- Peripheral Strength Element: Aramid/Glass Yarns
- Central Strength Member (CSM): Steel Wire/ FRP
- Armour : Corrugated Steel Tape (CSTA) / Steel Wire Armour (SWA)
- Outer-Jacket: PVC/LSZH/PE
- Optional: UV Resistance, Anti-Rodent, Anti-Termite & etc.



Description	Part Number
UCFIBRE LIGHT ARMoured FIBRE OPTIC CABLE, LSZH, CSTA, 4C, SM G.652D	UTM004SM
UCFIBRE ARMoured FIBRE OPTIC CABLE, LSZH, SWA,144C, SM G.652D	LTZPWP144SM
UCFIBRE ARMoured FIBRE OPTIC CABLE, PE, CSTA,24C, SM G.652D	LTZP024SM
UCFIBRE ARMoured FIBRE OPTIC CABLE, LSZH, SWA,24C, SM G.652D	LTZMWM024SM

\*Extended range available upon request

### Indoor Tight Buffer Distribution Fiber Optic Cable

- Standard: ANSI/TIA-568-C.3, ISO/IEC 11801, IEC60794-2
- Number of fibers: 2 – 24 cores
- Fiber Type : Single-Mode (G.652D,G.657A1,G.657A.2)  
: Multi-Mode (OM1, OM2, OM3, OM4)
- Peripheral Strength Element: Aramid Yarns
- Outer-Jacket: LSZH

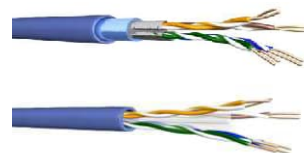


Description	Part Number
UCFIBRE INDOOR DISTRIBUTION FIBRE OPTIC CABLE 6C, LSZH, OM3	MT006M3
UCFIBRE INDOOR DISTRIBUTION FIBRE OPTIC CABLE 24C, LSZH, OM3	MT024M3
UCFIBRE INDOOR DISTRIBUTION FIBRE OPTIC CABLE 6C, LSZH, OM4	MT006M4

\*Extended range available upon request

## UC DATA® - LAN Category Cable

- Standard: ISO/IEC 11801, ANSI EIA/TIA 568-C.2, IEEE 802.3
- LAN Category: Cat.5e, Cat.6 & Cat.6a
- Types of Shielding: U/UTP , F/UTP , F/FTP , S/FTP
- Outer-Jacket: PVC/LSZH



Description	Part Number
UC400 CAT6 U/UTP Cable 4 pairs, 23AWG, LSZH, 305m	60075BL-3H
UC500 CAT6A U/UTP Cable 4 pairs, 23AWG, LSZH, 500m	80075BL-5H
UC500 CAT6A F/UTP Cable 4 pairs, 23AWG, LSZH, 500m	83075BL-5H

\*Extended range available upon request



## UC CONNECT® - Accessories

- 1RU 24 Port Standard Density, Unloaded
- RJ45 Modular jack IDC Contact Cat 6 and Cat 6A
- Cat6A stranded patch cord, LSZH
- 1RU Fiber Patch Panel
- Fiber Patch Cord
- Splice Tray, 24 Fiber



Description	Part Number
HD 1RU 24 Port Patch Panel Unloaded, Black	HDPPF0600BK
HD Modular Jack Cat 6 Shielded	HDMJTF1261MA
HD Modular Jack Cat 6A Shielded	HDMJTF1271MA
UC9500 Fiber Patch Panel 1RU	PP9510
6 Port LC Duplex Front Adaptor, Multi-Mode	PPA9514-6LCM4
Splice Tray, 24 Fiber	PPST9521-24
Fiber Patch Cord, Duplex LC-LC Patch Cord LSZH, 2M	PCDL03307-2

\*Extended range available upon request

# WE MAKE COMMUNICATION TECHNOLOGY WORK, BY SERVING YOU IN EVERY WAY TO REALIZE YOUR LEADING-EDGE NETWORK SOLUTION

## SINGAPORE (ASIA PACIFIC)

No 20, Jurong Port Road,  
Jurong Town, Singapore 619094

Tel : +65 6461 7800

## INDONESIA

Perkantoran Hijau Arkadia,  
Tower F, 7th Floor Suite 701 Jl.  
T.B. Simatupang Kav. 88, Jakarta  
12520 Indonesia

Tel : +62 21 7816515

## THAILAND

2170 Bangkok Tower, New  
Phetchaburi Rd, HuayKhwang,  
Bangkapi, Bangkok 10310  
Thailand

Tel : +662 3080 830

Fax : + 66 2608 0054

## MALAYSIA

Suite 1201-3, Tower 2, Wisma  
Amfirst, Jalan SS7/15 Off Jalan  
Stadium, Kelana Jaya, 47301  
Petaling Jaya, Malaysia

Tel : +603 7803 7171

Fax : +603 7803 7575

## VIETNAM

9<sup>th</sup> Floor, Central Park Building,  
208 Nguyen Trai Street, Dist. 1,  
Ho Chi Minh City, Vietnam

Tel : +84 8 392 60581

## CHINA

A47, 3<sup>rd</sup> Floor, Building #07,  
No.500, ZhengLi Road, Shanghai,  
P.R.China. A 200433

---

## UNITED KINGDOM

Chickenhall Lane  
Eastleigh, Hampshire, SO50 6YU,  
England

Tel : +44 23 8029 5555

Fax : +44 23 8060 8769

## TURKEY

Haktan Is Merkezi No: 39 Kat 2  
setustu Kabatas  
34427 Istanbul

Tel : +90 212 393 7700

Fax : +90 212 393 7752

Visit [www.drakauc.com](http://www.drakauc.com) for more information on our Multimedia Solutions products portfolio.  
Email : [mms.asia@prysmiangroup.com](mailto:mms.asia@prysmiangroup.com) for further enquiries, or contact our local offices.

# Draka

---

A Brand of Prysmian Group