Cable excellence engineered through quality

AS-Interface

Cables for Industrial Automation

Belcom

Descriptions are correct at time of publication, however these may be reviewed at any time and are subject to change without notice. E&OE (Errors and Omissions Excepted) which means that whilst every effort has been made to ensure that the information contained within this publication is accurate, specifications may vary or be subject to change at Belcom's discretion. As such, this publication should be used as a guide only. Exact details can be confirmed at point of enquiry.
All cable renders are indicative of the product specified.

There are two major differences that separate Belcom from any other source of Fieldbus cables.

The first is stock, available cut to length and with a next day delivery across the UK or standard 2 day delivery to EIRE. The second is an unswerving commitment to providing the best quality Fieldbus cables available, this has been achieved by joining forces with Leoni special cables GmbH whose modern manufacturing plant in Northern Germany bristles with the latest in cable manufacturing technology. 'In process' continual testing cumulating in one of the best final test facilities we have seen, ensure strict adherence to performance standards critical to the performance of today's high speed data transfer requirements in the industrial network.

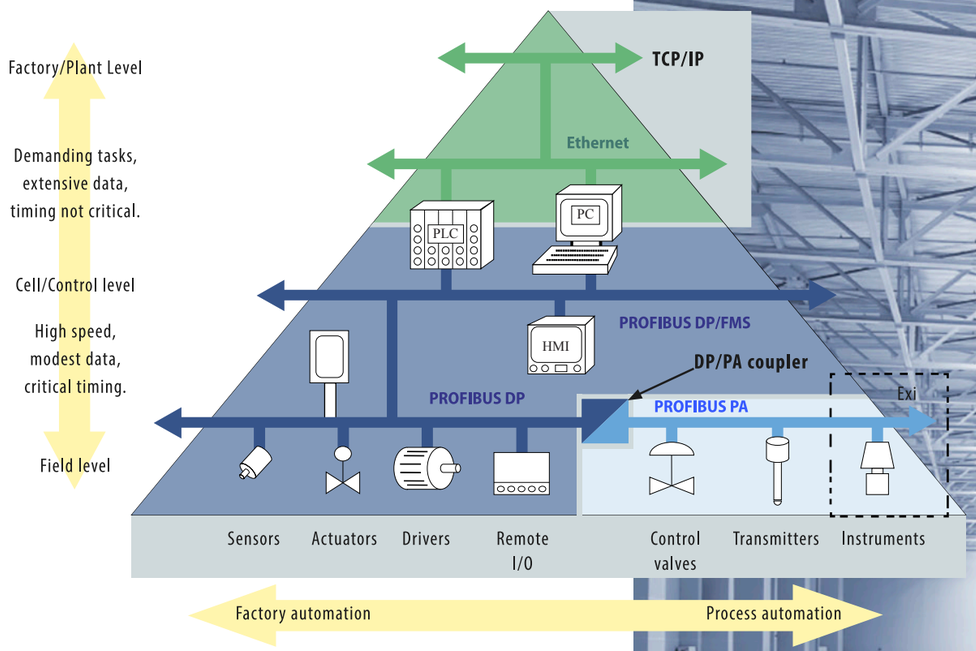
Many high tech intelligent process projects are functioning faultlessly over Leoni Fieldlink cables across the world, chemical, pharmaceutical, oil and gas, packaging, water treatment, food and beverage, automotive, you can name a process and there is already a strong presence or developing requirement for Fieldlink Fieldbus cables.

Cable is often an afterthought in the development of new technology process development, which often belies the time, research and testing that goes into producing specific cables for specific applications. With Belcom's range of Leoni Fieldlink cables you have the assurance and confidence that the best cable will be maintaining the itegrity of your industrial network.

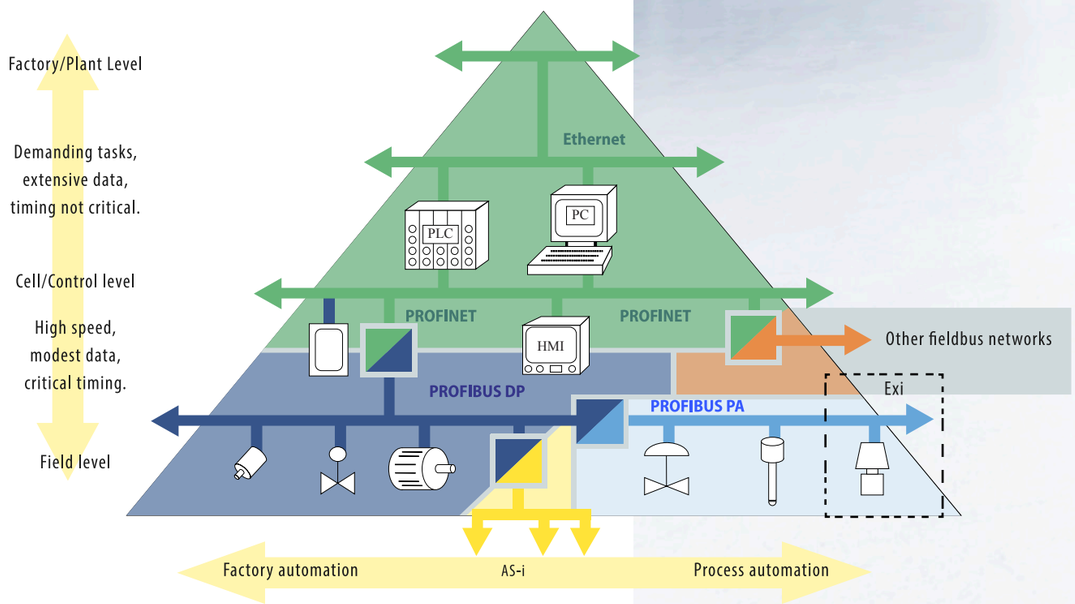
Belcom Cables Ltd is a member of the AS-International Association e.V.

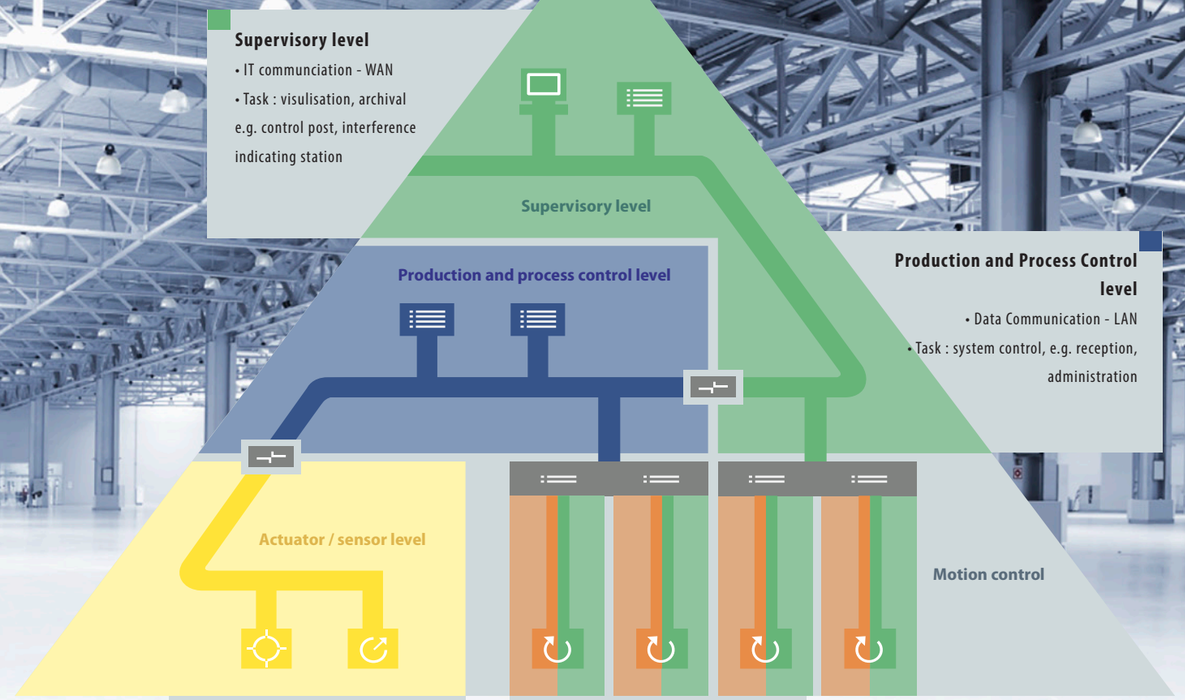
www.as-interface.net

Fields of Application



The Control system hierarchy and use of PROFIBUS and Ethernet technology





Supervisory level
- IT communciation - WAN
- Task : visulisation, archival e.g. control post, interference indicating station

Production and Process Control level
- Data Communication - LAN
- Task : system control, e.g. reception, administration

Actuator / sensor level
- Field communication (process signal)
- Task (Operation level) : processing, e.g. regulation/control of realtime functions
- Task (drive control) : Input and output, e.g, measure, regulate, move, switch.

Motion control
- Field communication and power supply
- Task: drive and control with input and output and additional power supply.

AS-Interface

Cable Finder

Click on the cable cross section
to view the product specification

The yellow cable is the AS Interface Trademark.

Due to its profiled design it is resistant to polarity reversal and can be connected to the slave interfaces at any place easily and safely.

AS-Interface systems are being implemented at a faster rate than any other competing system and now incorporate safety system protection. The AS Interface-cable is an unshielded flat cable with 2-cores. It transfers data and power for actuators and sensors. For particular applications additional red or black cables are used.

- Flame retardant
- Highly flexible
- Permanent installation
- Halogen free
- Silicon free
- Oil resistant
- Chemical resistant
- Cold resistant
- Trailing cable
- RoHS compliant

Belcom Cables Ltd is a member of the AS-International Association e.V.

www.as-interface.net

AS-Interface

AS-Interface

FieldLink®

Cable for the Chemical & Automotive Industry

Cable Design

Wire		
Conductor	Stranded tinned copper wire 84/0,15mm	Ø 1,50 mm
Insulation	Thermoplastic elastomer-compound (TPE)	Ø 2,50 mm
Outer Jacket	Thermoplastic elastomer compound (TPE) yellow	Ø 10,0 x 4,0 mm

Characteristics

- Flame retardant acc. to IEC 60332-1-2 and UL 1581 Sec. 1061 (cable-flame),
- Oil and cut oil resistant acc. to UL 758 Sec. 15 (60 °C),
- Cold bending resistant acc. to IEC 60811-1-4,
- UL-Style 2103, CSA-File LL55255-42

Specification

Part Number	Type
L45587-M21-Y139	AS-Interface TPE-cable for the chemical and automotive industry, 2x1.5mm², UL and CSA certified AWM

Electrical Data @ 20˚C

Conductor resistance	≤	13,7	Ohm/km
Insulation resistance	≥	1	MOhm*km
Operating voltage (peak)		300	V
Test Voltage (wire/wire rms 50Hz min.)	=	2000	V

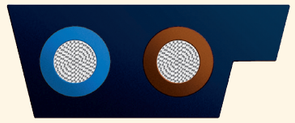
Mechanical Characteristics

Weight (approx.)		64	kg/km
Reversed bending strength (Horizontal on Broadside)	Bendings	10	million
	Max. Acceleration	4	m/s^2
	Max. Horizontal speed	4	m/s
	Min. Bending radius	75	mm
	Max. Length horizontal of cable	10	m
Torsional strength for > 10 million cycles (angle ± 180˚ on 0,5m)			

AS-Interface

FieldLink®

Cable for the Chemical & Automotive Industry for Additional Power (24V DC)



Cable Design

Wire		
Conductor	Stranded tinned copper wire 84/0,15mm	Ø 1,50 mm
Insulation	Thermoplastic elastomer-compound (TPE)	Ø 2,50 mm
Outer Jacket	Thermoplastic elastomer compound (TPE) black	Ø 10,0 x 4,0 mm

Characteristics

- Flame retardant acc. to IEC 60332-1-2 and UL 1581 Sec. 1061 (cable-flame),
- Oil and cut oil resistant acc. to UL 758 Sec. 15 (60 °C),
- Cold bending resistant acc. to IEC 60811-1-4,
- UL-Style 2103, CSA-File LL55255-42

Specification

Part Number	Type
L45587-M21-Y149	AS-Interface TPE-cable for the chemical and automotive industry for additional power (24V DC). 2x1.5 mm²

Electrical Data @ 20˚C

Conductor resistance	≤	13,7	Ohm/km
Insulation resistance	≥	1	MOhm*km
Operating voltage (peak)		300	V
Test Voltage (wire/wire rms 50Hz min.)	=	2000	V

Mechanical Characteristics

Weight (approx.)		64	kg/km
Reversed bending strength (Horizontal on Broadside)	Bendings	10	million
	Max. Acceleration	4	m/s²
	Max. Horizontal speed	4	m/s
	Min. Bending radius	75	mm
	Max. Length horizontal of cable	10	m
Torsional strength for > 10 million cycles (angle ± 180˚ on 0,5m)			

AS-Interface

FieldLink®

Trailing Cable

Cable Design

Wire		
Conductor	Stranded tinned copper wire 84/0,15mm	Ø 1,50 mm
Insulation	Thermoplastic elastomer-compound (TPE)	Ø 2,50 mm
Outer Jacket	Thermoplastic Polyurethane (TPU) yellow	Ø 10,0 x 4,0 mm

Characteristics

- Flame retardant acc. to IEC 60332-1-2,
- Oil and cut oil resistant acc. to UL 758 Sec. 15 (60 °C),
- Cold bending resistant acc. to IEC 60811-1-4,
- Halogen free acc. to IEC 60754

Specification

Part Number	Type
L45587-M21-B58	AS-Interface trailing cable, 2x1.5 mm²

Electrical Characteristics

Acc. to specification AS-I KO1-E, version 12.09.96 / speci_4E

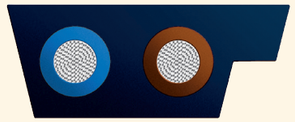
Mechanical & Thermal Characteristics

Use : Acc. to guide use AS-I AR 01-2 version 12.09.96, anwen_4e			
Weight (approx.)		67	kg/km
Temperature range	before and after laying	-40~+85	˚C
Temperature range	during laying	-30~+85	˚C
Reversed bending strength (Horizontal on Broadside)	Bendings	10	million
	Max. Acceleration	4	m/s²
	Max. Horizontal speed	4	m/s
	Min. Bending radius	50	mm
	Max. Length horizontal of cable	10	m
Torsional strength for > 10 million cycles (angle ± 180˚ on 0,5m)			

AS-Interface

FieldLink®

Trailing Cable for Additional Power (24V DC)



Cable Design

Wire		
Conductor	Stranded tinned copper wire 84/0,15mm	Ø 1,50 mm
Insulation	Thermoplastic elastomer-compound (TPE)	Ø 2,50 mm
Outer Jacket	Thermoplastic Polyurethane (TPU) black	Ø 10,0 x 4,0 mm

Characteristics

- Flame retardant acc. to IEC 60332-1-2,
- Oil and cut oil resistant acc. to UL 758 Sec. 15 (60 °C),
- Cold bending resistant acc. to IEC 60811-1-4,
- Halogen free acc. to IEC 60754

Specification

Part Number	Type
L45587-M21-B68	AS-Interface trailing cable for additional power (24V DC), 2x1.5 mm²

Electrical Characteristics

Acc. to specification AS-I KO1-E, version 12.09.96 / speci_4E

Mechanical & Thermal Characteristics

Use : Acc. to guide use AS-I AR 01-2 version 12.09.96, anwen_4e			
Weight (approx.)		67	kg/km
Temperature range	before and after laying	-40~+85	˚C
Temperature range	during laying	-30~+85	˚C
Reversed bending strength (Horizontal on Broadside)	Bendings	10	million
	Max. Acceleration	4	m/s^2
	Max. Horizontal speed	4	m/s
	Min. Bending radius	50	mm
	Max. Length horizontal of cable	10	m
Torsional strength for > 10 million cycles (angle ± 180˚ on 0,5m)			

AS-Interface

FieldLink®

For Marine Applications

Cable Design

Wire		
Conductor	Stranded tinned copper wire 84/0,15mm	Ø 1,50 mm
Insulation	Thermoplastic elastomer-compound (TPE)	Ø 2,50 mm
Outer Jacket	Thermoplastic Polyurethane (TPU) yellow	Ø 10,0 x 4,0 mm

Characteristics

- Flame retardant acc. to IEC 60332-1-2,
- Cold bending resistant,
- Halogen free acc. to IEC 60754,
- Oil resistant acc. to IEC 60811-2-1,
- **Maritime and offshore approvals: Germanischer Lloyd, Lloyds Register of Shipping, ABS Europe Ltd., Bureau Veritas, Det Norske Veritas**

Specification

Part Number	Type
L45587-M21-B38	AS-Interface for marine applications, 2x1.5 mm²

Germanischer Lloyd · Lloyd's Register · ABS · Bureau Veritas · DNV

Electrical Characteristics

Acc. to specification AS-I KO1-E, version 12.09.96 / speci_4E

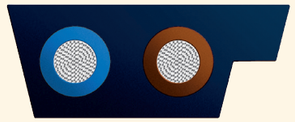
Mechanical & Thermal Characteristics

Use : Acc. to guide use AS-I AR 01-2 version 12.09.96, anwen_4e			
Weight (approx.)		67	kg/km
Temperature range	before and after laying	-40~+85	˚C
Temperature range	during laying	-30~+85	˚C
Reversed bending strength (Horizontal on Broadside)	Bendings	10	million
	Max. Acceleration	4	m/s^2
	Max. Horizontal speed	4	m/s
	Min. Bending radius	50	mm
	Max. Length horizontal of cable	10	m
Torsional strength for > 10 million cycles (angle ± 180˚ on 0,5m)			

AS-Interface

FieldLink®

For Marine Applications for Additional Power (24V DC)



Cable Design

Wire		
Conductor	Stranded tinned copper wire 84/0,15mm	Ø 1,50 mm
Insulation	Thermoplastic elastomer-compound (TPE)	Ø 2,50 mm
Outer Jacket	Thermoplastic Polyurethane (TPU) black	Ø 10,0 x 4,0 mm

Characteristics

- Flame retardant acc. to IEC 60332-1-2,
- Cold bending resistant,
- Halogen free acc. to IEC 60754,
- Oil resistant acc. to IEC 60811-2-1,
- **Maritime and offshore approvals: Germanischer Lloyd, Lloyds Register of Shipping, ABS Europe Ltd., Bureau Veritas, Det Norske Veritas**

Specification

Part Number	Type
L45587-M21-B48	AS-Interface cable for marine applications for additional power (24V DC), 2x1.5 mm²

Electrical Characteristics

Acc. to specification AS-I KO1-E, version 12.09.96 / speci_4E

Mechanical & Thermal Characteristics

Use : Acc. to guide use AS-I AR 01-2 version 12.09.96, anwen_4e			
Weight (approx.)		67	kg/km
Temperature range	before and after laying	-40~+85	˚C
Temperature range	during laying	-30~+85	˚C
Reversed bending strength (Horizontal on Broadside)	Bendings	10	million
	Max. Acceleration	4	m/s²
	Max. Horizontal speed	4	m/s
	Min. Bending radius	50	mm
	Max. Length horizontal of cable	10	m
Torsional strength for > 10 million cycles (angle ± 180˚ on 0,5m)			

AS-Interface

FieldLink®

Trailing Cable for Less Voltage Drop

Cable Design

Wire		
Conductor	Stranded tinned copper wire 140/0,15mm (14awg)	Ø 2,00 mm
Insulation	Thermoplastic elastomer-compound (TPE)	Ø 2,50 mm
Outer Jacket	Thermoplastic Polyurethane (TPU) yellow	Ø 10,0 x 4,0 mm

Characteristics

- Flame retardant acc. to IEC 60332-1-2
- UL-Style 21815

Specification

Part Number	Type
L45587-M21-B198	AS-Interface trailing cable with thick wires for less voltage drop , 2x2.5 mm² UL certified AWM

Electrical Data @ 20˚C

Conductor resistance	≤	8,20	Ohm/km
Insulation resistance	≥	1	MOhm*km
Capacitance (1 kHz)	nom.	80	nF/km
Operating voltage (peak)	≤	300	V
Test Voltage (rms 50Hz min.)		2000	V

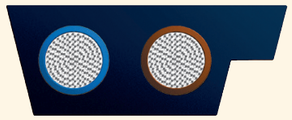
Mechanical Characteristics

Weight (approx.)		77	kg/km
Temperature range		-40~+85	˚C
Min. Bending radius	repeated	8	x Ø
Min. Bending radius	single	4	x Ø
Reversed bending strength (Horizontal on Broadside)	Bendings	8	million
	Max. Acceleration	4	m/s^2
	Max. Horizontal speed	4	m/s
	Min. Bending radius	75	mm
	Max. Length horizontal of cable	10	m

AS-Interface

FieldLink®

Trailing Cable for Less Voltage Drop



Cable Design

Wire		
Conductor	Stranded tinned copper wire 140/0,15mm (14awg)	Ø 2,00 mm
Insulation	Thermoplastic elastomer-compound (TPE)	Ø 2,50 mm
Outer Jacket	Thermoplastic Polyurethane (TPU) black	Ø 10,0 x 4,0 mm

Characteristics

- Flame retardant acc. to IEC 60332-1-2
- UL-Style 21815

Specification

Part Number	Type
L45587-M21-B198	AS-Interface trailing cable with thick wires for less voltage drop , 2x2.5 mm² UL certified AWM

| Cable excellence engineered through quality

Electrical Data @ 20˚C

Conductor resistance	≤	8,20	Ohm/km
Insulation resistance	≥	1	MOhm*km
Capacitance (1 kHz)	nom.	80	nF/km
Operating voltage (peak)	≤	300	V
Test Voltage (rms 50Hz min.)		2000	V

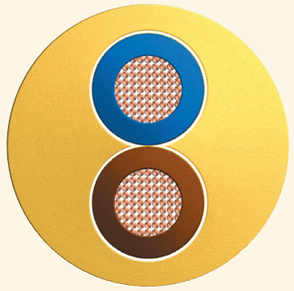
Mechanical Characteristics

Weight (approx.)		77	kg/km
Temperature range		-40~+85	˚C
Min. Bending radius	repeated	8	x Ø
Min. Bending radius	single	4	x Ø
Reversed bending strength (Horizontal on Broadside)	Bendings	8	million
	Max. Acceleration	4	m/s^2
	Max. Horizontal speed	4	m/s
	Min. Bending radius	75	mm
	Max. Length horizontal of cable	10	m

AS-Interface

FieldLink®

Round Cable LSZH FireFighter®



Cable Design

Wire		
Conductor	Stranded bare copper wire 30/0,25mm (1,50mm²)	
Insulation	LSZH FireFighter®	
Core		
Pair	2 wires twisted (Brown/Blue)	
Outer Jacket	LSZH FireFighter®	Ø 7,60 mm

Characteristics

- Flame retardant acc. to IEC 60332-2-1,
- Halogen free acc. to IEC 60754,
- Smoke density acc. to IEC 61034,

Electrical Data @ 20˚C

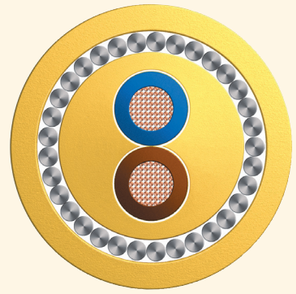
DC Conductor resistance @ 20˚C	13,3	Ohm/km
Insulation resistance @ 20˚C	200	MOhm*km
Test voltage	6	kV
Rated operating voltage (core/core)	300/500	V

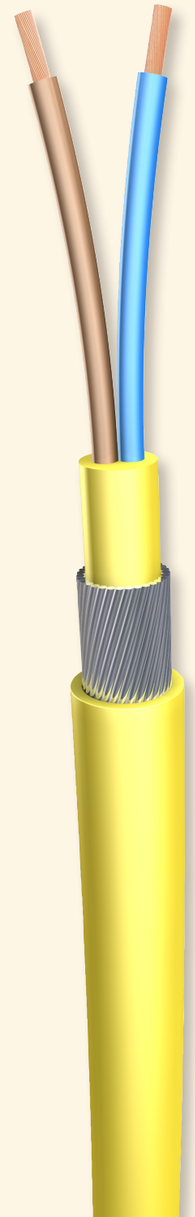
Specification

Part Number	Type
202C1544-6	AS-Interface round cable 2x1.5 mm² LSZH FireFighter®

| Cable excellence engineered through quality

Round Cable DataGuard® (SWA) LSZH FireFighter®



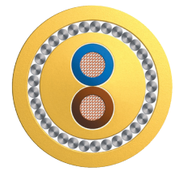


Cable Design

Wire		
Conductor	Stranded bare copper wire 30/0,25mm (1,50mm²)	
Insulation	LSZH FireFighter®	
Core		
Pair	2 wires twisted (Brown/Blue)	
Inner Jacket	LSZH FireFighter® Yellow	Ø 7,60 mm
Armour	DataGuard® Steel Wire Armour (SWA)	
Outer Jacket	LSZH FireFighter®	Ø 11,50 mm

Characteristics

- Flame retardant acc. to IEC 60332-2-1,
- Halogen free acc. to IEC 60754,
- Smoke density acc. to IEC 61034,



Electrical Data @ 20˚C

DC Conductor resistance @ 20˚C	13,3	Ohm/km
Insulation resistance @ 20˚C	200	MOhm*km
Test voltage	6	kV
Rated operating voltage (core/core)	300/500	V

Specification

Part Number	Type
14202C1544-66	Yellow AS-Interface round cable 2x1.5 mm² DataGuard® (SWA) LSZH FireFighter®
14202C1544-61	Black AS-Interface round cable 2x1.5 mm² DataGuard® (SWA) LSZH FireFighter®

Stripping Tool

Rugged design:

- High endurance through tempered and grinded tool-steel blade
- Cost efficient through exchangeable blade set (can be ordered separately)
- Longevity through metal body

Multi-purpose use:

- The tool can be used with AS-Interface variants TPE, PUR and CL2
- Outer jacket and core insulation can be stripped with one tool (see picture)

Index

Quality Management

DNV BUSINESS ASSURANCE

MANAGEMENT SYSTEM CERTIFICATE

Certificate No. 136879-2013-AQ-GBR-UKAS

This is to certify that

Belcom Cables Limited

Warish Hall Road
Takeley
Bishop's Stortford
CM22 6NZ
United Kingdom

has been found to conform to the Management System Standard:

BS-EN-ISO 9001:2008

This Certificate is valid for the following product or service ranges:

Stocking and distribution of industrial electrical and optical insulated wire and cable.

Initial Certification date: 17 May 2013

This Certificate is valid until: 29 May 2016

The audit has been performed under the supervision of: Steve Hansen, *Lead Auditor*

Place and date: London, 30 May 2013

for the Accredited Unit: DNV CERTIFICATION LIMITED, UNITED KINGDOM

Niraj Thawani, *Management Representative*

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

ACCREDITED UNIT: DNV CERTIFICATION LIMITED, PALACE HOUSE, 3, SE1 9DE, CATHEDRAL STREET, LONDON, UNITED KINGDOM, TEL: +44 (0) 2073576080, www.dnvba.co.uk

Belcom recognise the importance of quality control and constantly monitor our quality performance to ensure compliance with relevant standards whether they are self imposed, satutory or regulatory.

Our management system is approved by DNV to BS-EN-ISO 9001:2008 standard and is an imperative part of our organisation.

Environmental documentation is available at www.belcom.co.uk/qa-environmental

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