



# Draka



UC Data Cable - a fast, reliable and ubiquitous part of the Draka Office Network Solution



## About Draka Communication

In a nutshell, we believe that connectivity helps make life at home, work and on the move better and more rewarding. That's why we are proud of the role we play in developing, manufacturing and building the network that brings people, data and systems together. All over the world, we provide the backbone for today's communication solutions.

And tomorrow's, too. How do we do this? On the one hand, we combine market insight with technological know-how, on the other we build strong, long-lasting relationships with our customers.

In this way, we can help you and your customers to stay ahead, enhancing connectivity with advanced office network solutions and services that are designed to last.



# Cable concepts with future prospects

For many decades, we have been designing, developing, manufacturing and selling a variety of high-quality copper and optical fibre cables in order to offer you cable solutions for present and future challenges – let it be standard products or tailor-made special cables.

In the communication infrastructure, our well proven products are always in use wherever it is a question of professional and undisturbed data, voice, audio and video transmission. The Draka UC range as described in this brochure has been designed for data transmission and offers a high-capacity and flexible cable concept with best future prospects to our customers from within the industry, trade and service sector.

## High speed

The demands on modern networks are very high. Speed and transmission reliability are of utmost priority. In this respect, Gigabit Ethernet offers an enormous potential for the future.

For many years, we have been a partner to companies from within the industry, trade and service sector. Thus we are well aware of our customers' needs. Planning reliability is an important factor for you and for us, as today's cable concepts must also meet the requirements of tomorrow's developments. The Draka UC range has the physical potential to support structured networking for future requirements.








Our product range (Cat.5e, Cat.6, Cat.7 and multimedia cables) has been adjusted to a variety of applications and allows highest transmission ratios. For high-end applications, our UC900 up to UC1500 series offer important reserve capacity. Our cable series have been designed to also allow cable sharing between all categories on the level of the lower category.

## Flexibility

Our high-quality UC cables are always in use wherever it is a question of high-speed data transmission in local networks (LAN). They are used for standardized and manufacturer-independent networks – e.g. Token Ring, Ethernet, ISDN, TPDDI, Fast Ethernet 1000BaseT or 10GbE. Aside from voice and data communication, our solutions are also applicable for video communication. Among others, our product range comprises installation and patch cables which have been tested as to their compatibility with common components. Thus, we can guarantee maximum transmission reliability.

## Free choice

The right equipment for all applications: Whether high transmission capacity, electromagnetic compatibility (EMC) or best fire retardancy characteristics: We can offer the optimum data cable for every application. All our products are certainly manufactured at the highest quality standards. And it is no question that we will be pleased to advise you as to the installation. Short delivery times and best service guaranteed.

	Types	Frequency MHz	EN 50173	ISO/IEC 11801 2 ed
	UC300	100	Cat 5e Class D	Cat 5e Class D
	UC400	250	Cat 6 Class E	Cat 6 Class E
	UC500	500	Cat 6A Class EA	Cat 6A Class EA
	UC900	600	Cat 7 Class F	Cat 7 Class F
	UC1200	1200	Cat 7A Class FA	Cat 7A Class FA
	UC1500	1200	Cat 7A Class FA	Cat 7A Class FA
	UC MULTIMEDIA	1500	MULTIMEDIA	MULTIMEDIA



# Cabling for future requirements

The data transmission according to Gigabit-Ethernet 1000BaseT is based on a "full-duplex principle" - i.e. via all cable pairs at the same time and parallel in both directions (bi-directional). This results in numerous closely tolerated transmission characteristics for cabling in future requirements. The most important characteristics for the future are: PS-NEXT, PS-ELFEXT and PS-ACR.

## Convincing PowerSum

The major reason for interference in local networks is the NEXT (Near End Crosstalk). This effect is caused by mutual influence (coupling) of pairs next to each other.

The higher the transmission performance the stronger the interference. In modern network applications being based on a bi-directional data transmission,

the interference increases. Power Sum (PS) values can be calculated for all relevant characteristics. In times of high data rates they allow indications of the performance and transmission capabilities of a data cable. For example, a high PS-NEXT is important for users. Due to the core stranding and the patented foil screening, the high-end cables of our UC1500 series reach values being nearly 30 dB better than required by the CAT 7 standard. These resources are also for your benefit.

## Standards

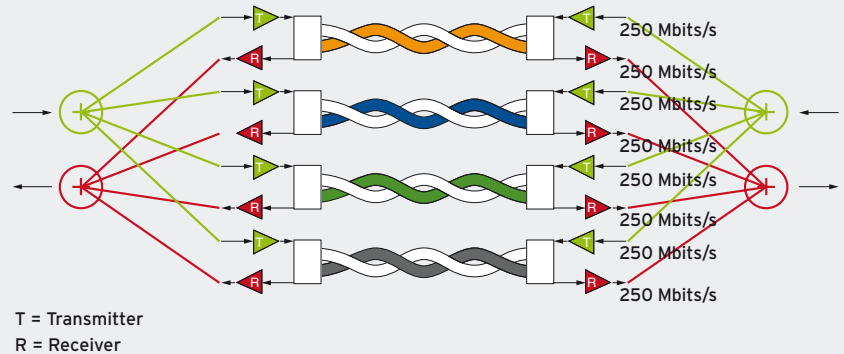
The received signal is decisive for all highspeed networks. Here, the FEXT (Far End Crosstalk) measures the crosstalk at the receiver. Due to the cable attenuation, the FEXT is substantially lower than the NEXT.

The more meaningful characteristics ELFEXT (Equal Level Far End Crosstalk) for the transmission performance can be obtained by deducting the insertion loss from the FEXT value. The resultant PowerSum then is PS-ELFEXT.



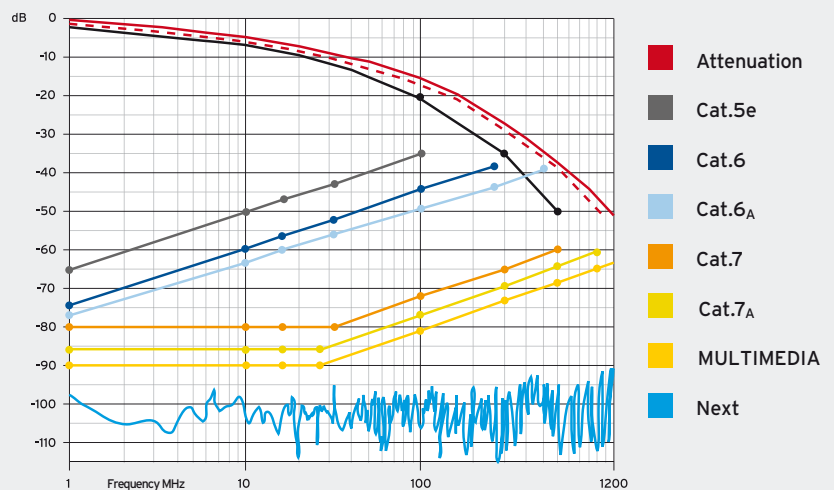
## Undisturbed signals

The chart shows the inference caused by NEXT and FEXT under realistic conditions and with full utilisation of Gigabit Ethernet. A transfer of information is only possible when the encoded data can be recognised, i.e. the attenuated signal at the receiver must be considerably stronger than the constant interference signal NEXT. Only the application of data cables with optimum channel separation protects against unintended inference and thus represents the condition for the full utilisation of the advantages of modern network application.



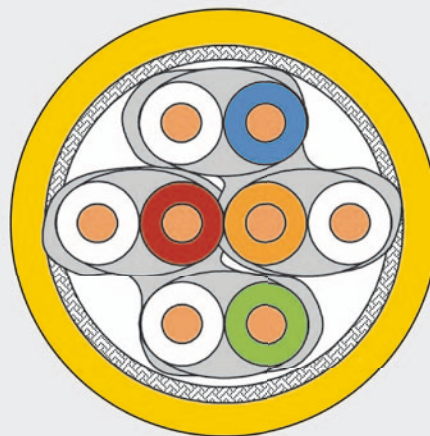
## Relevant characteristics

The central characteristics of a passive network is the ACR (Attenuation Crosstalk Ratio). The ACR shows the attenuation ratio in proportion to the crosstalk ratio. The quality of the transmission is determined by the signal-to-noise ratio (sum of all interferences). Thus, the PS-ACR (cable signal-to-noise ratio) is the relevant characteristics for the assessment of the transmission capacity.

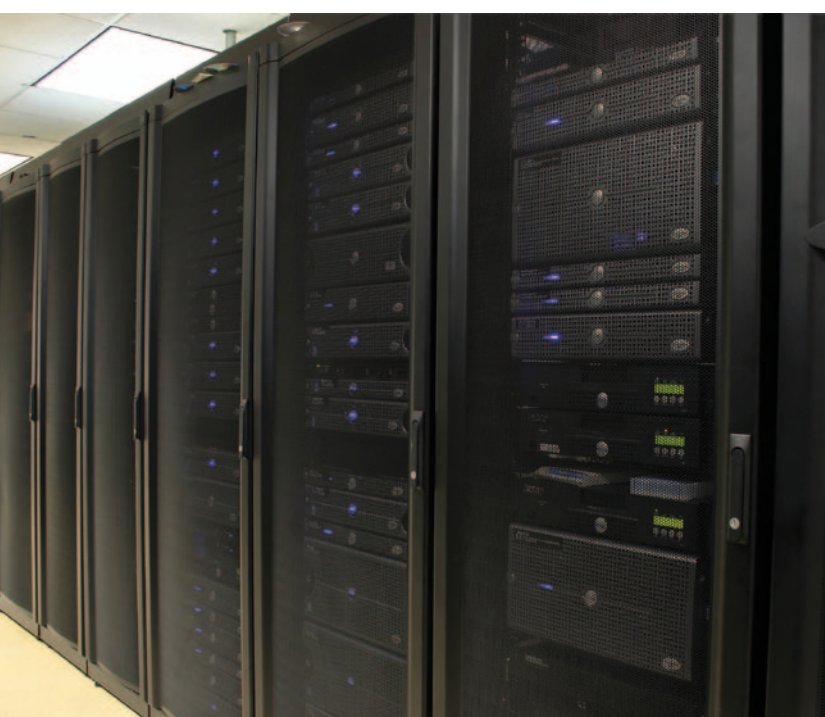


## Minimum ACR

A minimum ACR of 10 dB is required for highest signal frequencies. The higher the frequency the lower the ACR. Example: For our data cable UC1500, the measurement result shows that the near-end-crosstalk attenuation is on such a low level that it can hardly be traced.



# 10 GBASE-T Performance



10Giga bit Ethernet is simply the next protocol above 1000BaseT and is 10 times faster, 10 times more bandwidth, higher performance. Using the same full duplex systems copper cabling delivers bi-directional transmission rates at 250MHz per pair.

Transmission Parameters already laid out by 1000BaseT are enough for the increase with only one extra test required, Exogeneous (alien) Xtalk (electrical noise).

## Error detection

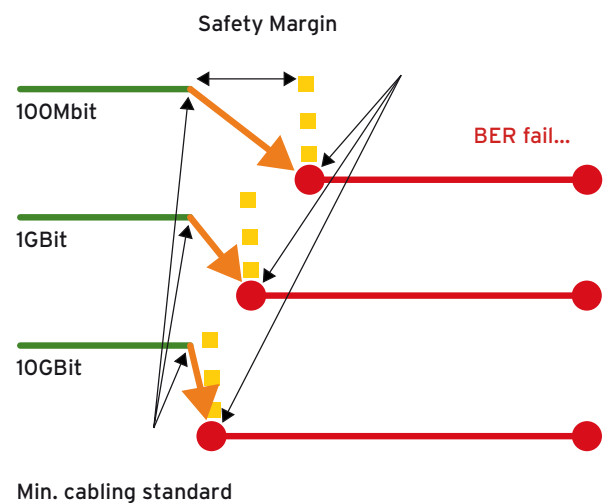
Ethernet works because of Error Detection Systems. The receiving end will poll until transmission is correct. If a system is noisy the error detection will re-transmit the same information many times, slowing every transmission: there is a point at which the system will fail. 10G has the smallest safety (fail) margin. The components have to be good.

## Margin

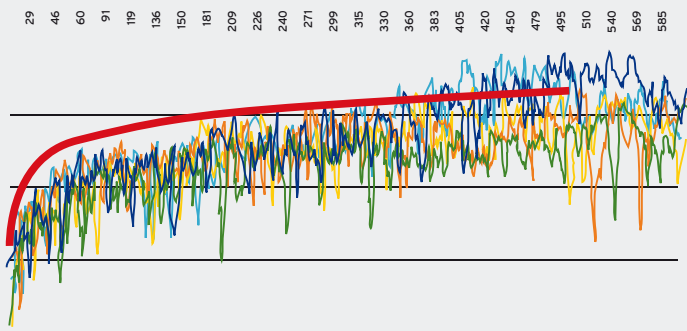
In standardisation the margin is built in to ensure plug and play works first time. 100m of cabling is guaranteed to work using components that are manufactured to the standard. The margin is steadily becoming smaller, 10G is almost non-existent, as the error detection systems cannot work above a certain noise level. As bandwidth increases so does noise, no matter how good components are. The min. cabling standard is the lowest minimum possible, the TIA being the lowest, and can always be improved which is Draka's intention.

## Exogenous (Alien) Xtalk

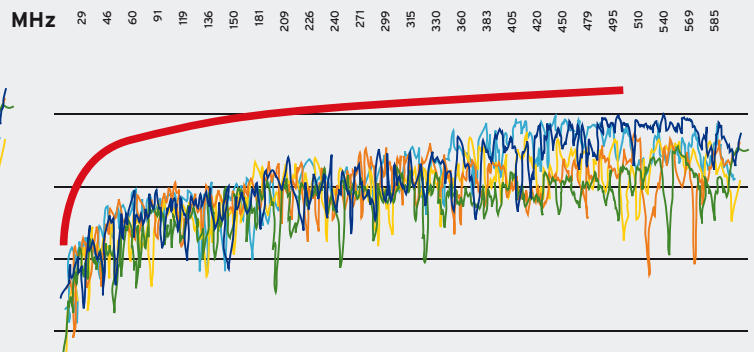
Alien Xtalk is the disturbance (noise) coupled onto a transmitting signal pair from all the other transmitting pairs (all other systems plus 10G). Space between the pairs does decrease the level of noise, and can be seen in the graph, that a U/UTP with help (distance increased) nearly passes the test.



# Performance



10G axtalk



Draka Comteq ZEBRA

## Screening

Methods to increase margin can involve screening. The exogenous Xtalk coupling devices can be fully deterred by earthing the mutual signal path. Patented foil systems already used by Draka deliver exactly the ultimate level of screening required. In this situation, and as written in the standards, the test for exogenous xtalk is unnecessary for screened cables with good screening attenuation performance.

## UTP

Space was mentioned earlier as a method of lessening effects from coupling signals. Using imaginative shaped jacket's are possible to decrease signal interference, however the interference is still being allowed. Decreasing the expected signal interference might be successful in the lab but what of the real situation of installed cable with limited safety margin?

## The patent Draka Technology: ZEBRA (Zero Earth-loop By Reflectorfoil Application)

We understand how screening functions and lead in this market area. The world market is however U/UTP. With our ZEBRA technology Draka combines for the first time advantages of screened protection in an unscreened cable.

- protected by closely placed foil segments
- short foil segments avoid antenna effect
- avoidance of loop currents by segmentation isolation



This combination keeps the cable comparably small and easy to install – just like a U/UTP should be.



# Perfection and Quality

Only a cable ensuring optimum ratios with all characteristics can offer the full performance spectrum. Our multimedia cables go through a constant manufacturing process with extremely close tolerances. With development and production, our emphasis lies on high-quality materials and the state-of-the-art manufacturing processes. Thus we are able to guarantee excellent performance and reliability.

## Patented solutions

A compact and solid cable construction guarantees low attenuation and minimum reflections for the whole frequency range. Due to the high requirements on attenuation, crosstalk and consistency of the impedance, we only use stranded wires or larger copper conductors for the production of our UC cables.

For Cable-Sharing, i.e. several applications on one cable, the pair and overall screening is the best cable construction. With its aluminium-laminated plastic foil and patented foil screening, our cables of series UC400, UC500 and UC1500 guarantee an optimum pair screening. With conductor diameters of 0.56 mm (AWG23) and 0.64 (AWG22), foam-skin core insulations enable us to achieve lowest core diameters. We are of course certified according to ISO 9001, additionally we practise environmental management in line with ISO EN 14001.

## Return Loss

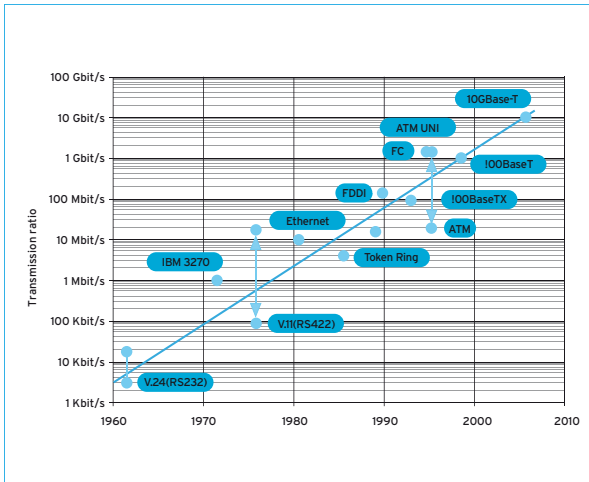
Modern network applications require highquality cables as manufactured here at Draka Comteq.

Slight deviations within the insulation material lead to irregularities on the transmission link and cause reflections. This 'return loss' arises when parts of the transmission signal at the deviation are returned to the transmitter due to reflection.

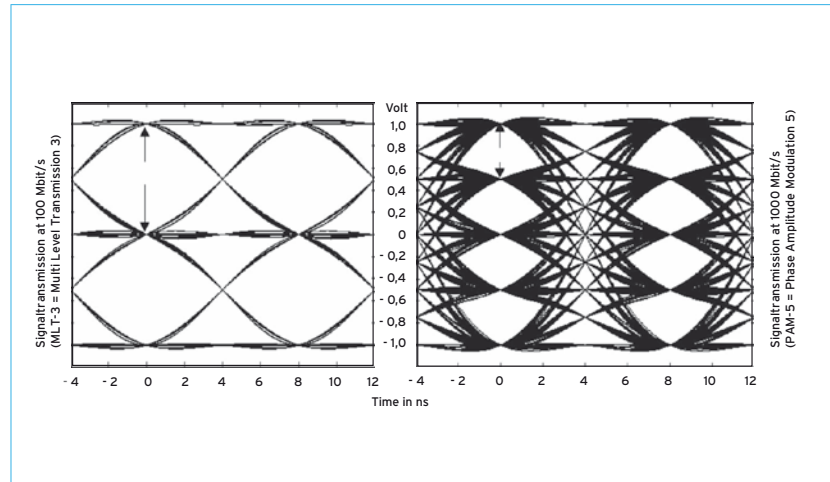




# Performance



„Standard Growth“ continues to be the trend



Signaltransmission at 100 Mbit/s and 1000 Mbit/s

## Propagation Delay and Delay Skew

Due to the increased requirements on Gigabit Ethernet the propagation delay and the delay skew become more important. The delay skew is the transmission time difference of two or more pairs.

With the twisted lengths designed by us, our UC data cables achieve a minimum propagation delay and delay skew of less than 12 ns/100m. Also with great application lengths, this means full capacity for high-speed applications with synchronous transmission over all 4 pairs.

## Transmission reliability

Due to the high data rates, data transmission is increasingly subject to interferences. Low quality cables generate additional interferences and the risk of transmission failure increases.

Despite high-speed applications, existing data rates and the network capacity are not fully used. Therefore, you can rely now on our highquality data cables with hardly any risk of interference. So – invest in the power of your network to meet future requirements.



# Reliability and Noise Immunity

For many years, “electromagnetic compatibility” (EMC) has been a must for electric equipment. So far the main problem was external interferences influencing system’s causing failure. With high-quality cabling a new problem arises: the Alien Crosstalk (crosstalk of one cable’s transmission on all pairs next to another cable’s receiving signal path on a single pair).

## Screening efficiency

EMC stands for the capability of a system to work without having a negative influence (emission of interference) on other systems.

With our Universal Cable series we offer a wide range of installation and connection cables with an optimum screening factor. This ensures the compliance with EMC regulations and the protection of your system.

## Noise Immunity

Our screened symmetric cables are known for their high noise immunity and low emission of interfer-

ence – as shown by the standards EN 55022 Class B and EN 50082-1. Moreover, leading manufacturers of LAN components certify that there is no emission of interference and a high network reliability with our Cat.5e to Cat.7 cables when applied at 100 Mbit/s.

## Screening factors

The application of high-quality materials and the screening factor are decisive for an optimum screening.

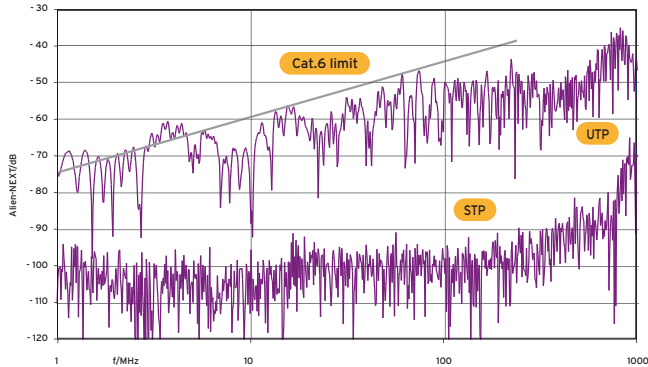
Complying with the respective EMC requirements, our screened UC cables are available in the following quality options:

- S (Screen): Overall screen of aluminium-laminated foil
- HS (High Screen): Highly screened with aluminium-laminated foil and tinned copper braid
- SS (Super Screen): Pair screen with aluminium-laminated foil and overall screen with tinned copper braid

The application of highly screened cables saves adjustments in case of further installations. This means for you a very cost effective cabling solution for now and the future.



## Alien crosstalk requires screening



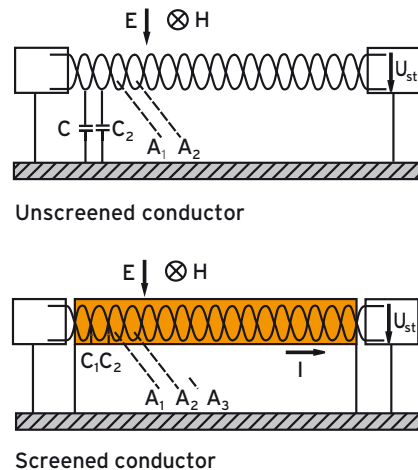
## Uninfluenced

More and more important in practice: The interference of reliable data transmission by mutual influence of unscreened and undefined communication cables. The degree of the mutual influence is called "Alien Crosstalk". Although this value is not recorded with link tests, it reduces the ACR like a normal NEXT.

At 100 MHz, the Alien Crosstalk of two unscreened Cat.6 cables laid in parallel amounts to 55 dB, whereas it reaches 95 dB with screened cables. This can be of relevance at the patch panel where a tight bundling of the cables is necessary.

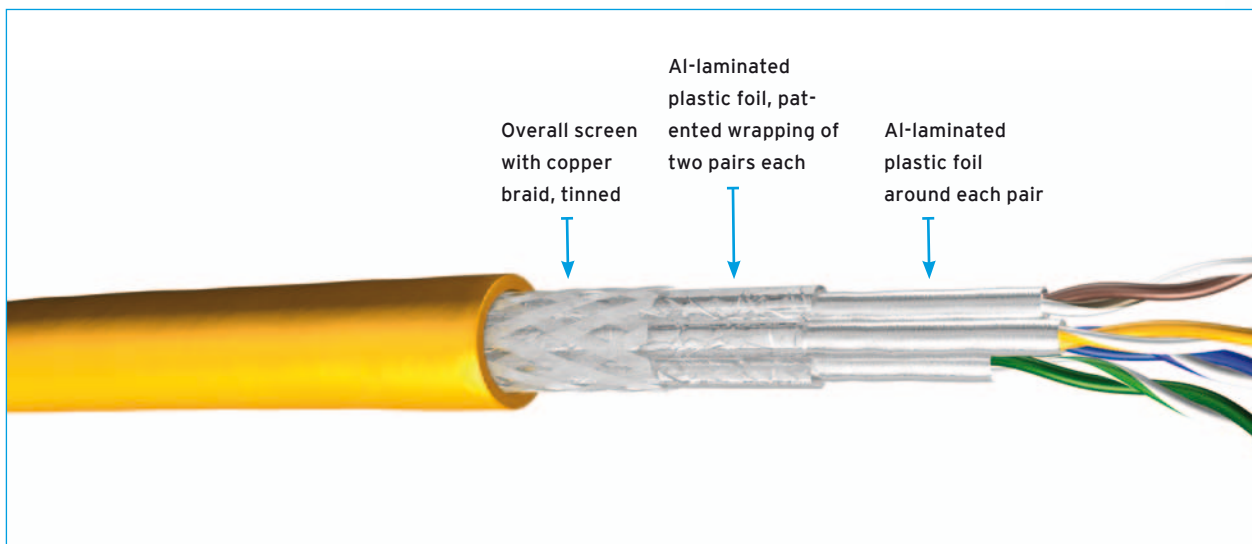
## Optimum transfer impedance

The transfer model of a screened (below) and unscreened (above) conductor clearly shows: In this case of an electromagnetic wave reaching the cable from outside leads to interference due to induction. With relatively low frequencies, this effect may be limited by symmetric transmission elements.



- E = Electrical field
- H = Magnetic field
- A = Field of conductor loop
- C = Grounding capacity
- $U_{st}$  = Interference
- I = Screen current

Transfer impedance shows screening factor





## Prevention with future prospects

For many years, flame retardance has been among the minimum requirements of indoor cables. Some PVC cables were often used in the past – PVC is less flammable than other materials, but they do not prevent a spread of fire. They release toxic and corrosive gases when burnt. The alternative: High-quality LSHF (Low-Smoke-Helogen-Free) materials with considerably improved properties in case of fire.

### Protecting LSHF sheath

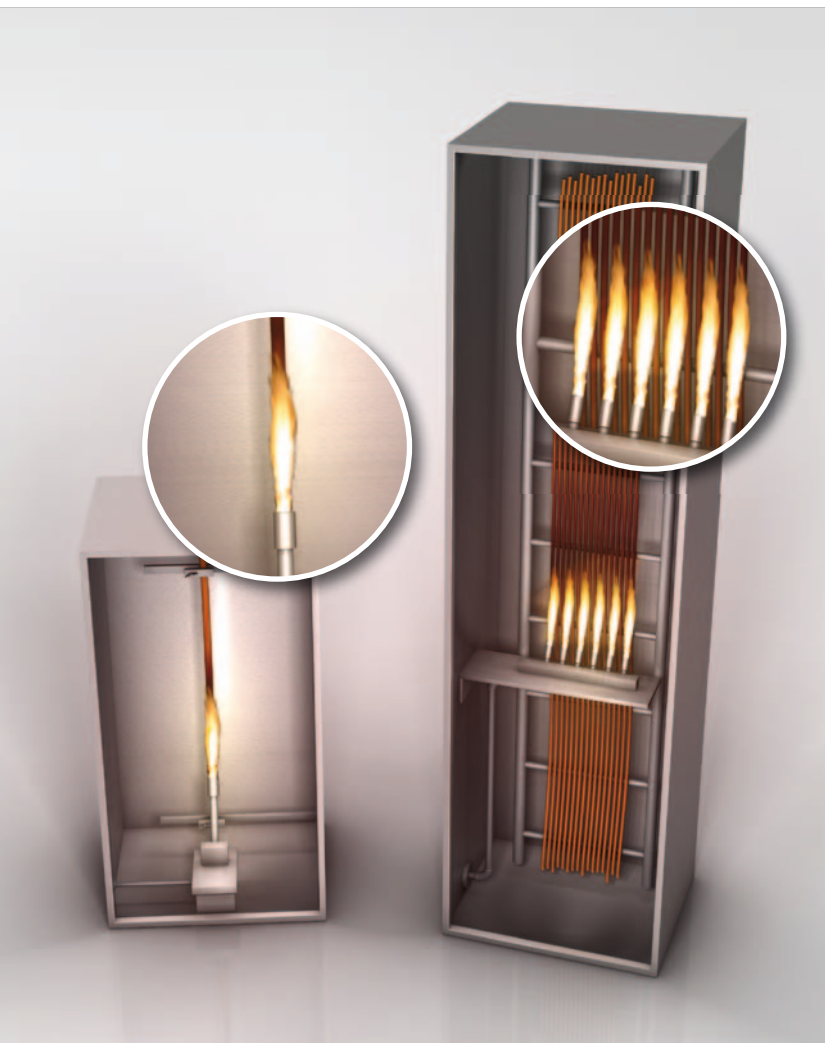
All UC cables are also available with halogenfree and flame retardant LSHF sheath. Excellent materials guarantee best electrical and mechanical properties of the cable.

The ability of our cables to avoid a spread of fire is documented by two standardized test methods: The fire characteristics of a single cable is determined according to IEC 60332-1. Test method C of IEC 60332-3-24 tests the characteristics of cable bundles. These tests are performed under realistic conditions in the field of structured cabling in buildings, e.g. in the distribution room or void. All our UC cables with LSHF-FR sheath fully comply with this significantly stricter standard (test method C).

It is dependent on the respective building or field of application whether to decide for a data transmission cable according to test method B or C. In case of any doubt, however, security ranks first and you should prefer the data cable with the flame retardant properties.

### Improved fire protection characteristics

- No spread of (fire propagation), e.g. transmission of the local fire alongside the cables
- No emission of corrosive gases, possibly creating acid with extinguishing water
- Very low smoke development
- No Dioxin in the fire remains
- Considerably low toxicology of fire gases



## Fire Protection

Fire characteristics	International standard	Data cable with PVC sheath	UC-Data cable with LSHF-FR sheath
Specific fire characteristics/fire propagation of a single piece of cable	IEC 60332-1	✓	✓
Fire propagation of a cable bundle	IEC 60332-3 Cat. C		✓
Corrosivity of fire gases	IEC 60754-2		✓
Measurement of smoke density	IEC 61034-1		✓

## Test method C passed

A cable bundle is exposed to a 20kW flame for 20 minutes in a 4 meter high cabinet. The cables burn within the range of the propane gas flame (up to 1 meter), however, the cable bundle extinguishes itself and the remaining cable length remains without damage: No fire propagation, no excessive smoke development which would, in case of emergency, obstruct chances to escape. For comparison: Under the same conditions, some PVC cables burn completely within 5 minutes over the entire length.

## Safety

Highest precautionary measures as to the cabling apply at crowded places (e.g. hospitals, airports, schools, department stores, hotels), in buildings with a high concentration of commodity values and wherever a breakdown would involve high expenses (e.g. industrial plants, power stations, EDP centres, banks) as well as in alarm, signal and control systems.

## Material of the future

Currently, the application of fluorinated polymers as insulation material is under discussion. It is known for its extremely high thermal stability and flame retardance. However, in case of emergency this material releases highly toxic and corrosive fire gases despite the considerably improved fire resistance compared to PVC. Also in future, only LSHF materials represent a responsible alternative.



UC MULTIMEDIA 1500  
SS22 6FOILS

## Electrical properties

Transmission performance	EMC properties	Mechanical properties
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### UC300 26 Cat.5e U/UTP

#### Patch Cable

	MHz	1	10	100	250	300	Impedance Ω	100 ± 5	Fire protection characteristics****			
Attenuation**	dB	0,3	0,9	3,0	4,4	4,8	Loop resistance Ω/km	≤ 260	Overall diameter mm	5,2		
NEXT	dB	71,0	56,0	41,0	35,0	34,0	NVP*** %	ca. 67	Weight kg/km	25		
PS-NEXT	dB	68,0	53,0	38,0	32,0	31,0	Capacitance	nF/km nom. 48	Fire load MJ/km	324		
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	13,0			Bending radius			
									with load	8xD		
									without load	4xD		
									Tensile force	N 55		

Transmission performance	EMC properties	Mechanical properties
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### UC300 24 Cat.5e U/UTP

#### Installation Cable

	MHz	1	10	100	250	300	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation*	dB	1,9	6,0	19,8	29,2	32,0	Loop resistance Ω/km	≤ 165	Overall diameter mm	5,0
NEXT	dB	71,0	56,0	41,0	35,0	34,0	NVP*** %	ca. 67	Weight kg/km	35
PS-NEXT	dB	68,0	53,0	38,0	32,0	31,0	Capacitance	nF/km nom. 48	Fire load MJ/km	336
ACR	dB	69,1	50,0	21,2	5,8	2,0			Bending radius	
PS-ACR	dB	63,1	47,0	18,2	2,8	-1,2			with load	8xD
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	13,0			without load	4xD
									Tensile force	N 100

Transmission performance	EMC properties	Mechanical properties
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### UC300 S24 Cat.5e F/UTP

#### Installation Cable

	MHz	1	10	100	250	300	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation*	dB	1,9	6,0	19,8	29,2	32,0	Loop resistance Ω/km	≤ 190	Overall diameter mm	5,9
NEXT	dB	71,0	56,0	41,0	35,0	34,0	NVP*** %	ca. 67	Weight kg/km	37
PS-NEXT	dB	68,0	53,0	38,0	32,0	31,0	Capacitance	nF/km nom. 48	Fire load MJ/km	396
ACR	dB	69,1	50,0	21,2	5,8	1,8	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	66,1	47,0	18,2	2,8	-1,2	bei 1 MHz	50	with load	8xD
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	13,0	bei 10 MHz	100	without load	4xD
							bei 30 MHz	200	Tensile force	N 80

Transmission performance	EMC properties	Mechanical properties
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### UC300 HS24 Cat.5e SF/UTP

#### Installation Cable

	MHz	1	10	100	250	300	Impedance Ω	100 ± 5	Fire protection characteristics****		
Attenuation*	dB	1,9	6,0	19,8	29,2	32,0	Loop resistance Ω/km	≤ 190	Overall diameter mm	6,4	
NEXT	dB	71,0	56,0	41,0	35,0	34,0	NVP*** %	ca. 67	Weight kg/km	47	
PS-NEXT	dB	68,0	53,0	38,0	32,0	31,0	Capacitance	nF/km nom. 48	Fire load MJ/km	433	
ACR	dB	69,1	50,0	21,2	5,8	2,0	Kopplungswiderstand	mΩ/m	Bending radius		
PS-ACR	dB	66,1	47,0	18,2	2,8	-1,0	bei 1 MHz	20	with load	8xD	
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	13,0	bei 10 MHz	20	without load	4xD	
Duplex Cable available on request.							bei 30 MHz	30	Tensile force		N 120
							bei 100 MHz	60			

Duplex Cable available on request.



Transmission performance	EMC properties	Mechanical properties
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#### UC400 26 Cat.6 U/UTP

#### Patch Cable

	MHz	1	10	100	250	300	400	Impedance Ω	100 ± 5	Fire protection characteristics****			
Attenuation**	dB	0,30	0,90	3,00	4,90	5,20	6,00	Loop resistance Ω/km	≤ 195	Overall diameter mm	5,6		
NEXT	dB	74,0	60,0	45,0	39,0	38,0	37,0	NVP*** %	ca. 67	Weight kg/km	34		
PS-NEXT	dB	71,0	56,0	42,0	36,0	35,0	34,0	Capacitance	nF/km nom. 52	Fire load MJ/km	342		
PS-ELFEXT	dB	66,0	46,0	26,0	19,0	18,0	17,0			Bending radius			
										with load	8xD		
										without load	4xD		
										Tensile force	N 70		

Transmission performance	EMC properties	Mechanical properties
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#### UC400 S27 Cat.6 U/FTP

#### Patch Cable

	MHz	1	10	100	250	300	400	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation*	dB	0,3	1,0	3,3	5,1	5,6	6,5	Loop resistance Ω/km	≤ 340	Overall diameter mm	5,7
NEXT	dB	87,0	72,0	57,0	51,0	50,0	48,0	NVP*** %	ca. 79	Weight kg/km	26
PS-NEXT	dB	84,0	69,0	54,0	48,0	47,0	45,0	Capacitance	nF/km nom. 43	Fire load MJ/km	342
PS-ELFEXT	dB	72,0	72,0	52,0	44,0	42,0	40,0	Kopplungswiderstand	mΩ/m	Bending radius	
								bei 1 MHz	50	with load	8xD
								bei 10 MHz	100	without load	4xD
								bei 30 MHz	200	Tensile force	N 70

Transmission performance	EMC properties	Mechanical properties
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#### UC400 23 Cat.6 U/UTP

#### Installation Cable

	MHz	1	10	100	250	300	400	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation*	dB	1,9	5,6	19,0	32,0	36,0	42,0	Loop resistance Ω/km	≤ 176	Overall diameter mm	6,2
NEXT	dB	81,0	74,0	48,0	44,0	41,0	39,0	NVP*** %	ca. 68	Weight kg/km	40
PS-NEXT	dB	78,0	71,0	45,0	41,0	38,0	36,0	Capacitance	nF/km nom. 48	Fire load MJ/km	329
ACR	dB	79,0	68,0	29,0	12,0	5,0	-3,0			Bending radius	
PS-ACR	dB	76,0	65,0	26,0	9,0	2,0	-6,0			with load	8xD
PS-ELFEXT	dB	79,0	59,0	39,0	31,0	29,0	27,0			without load	4xD
										Tensile force	N 100

Transmission performance	EMC properties	Mechanical properties
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#### UC400 S23 Cat.6 U/FTP

#### Installation Cable

	MHz	1	10	100	250	300	400	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation*	dB	1,8	5,4	17,4	28,8	30,9	38,3	Loop resistance Ω/km	≤ 145	Overall diameter mm	7,3
NEXT	dB	100	100	100	90	89	87	NVP*** %	ca. 75	Weight kg/km	45
PS-NEXT	dB	97	97	97	97	86	84	Capacitance	nF/km nom. 45	Fire load MJ/km	542
ACR	dB	98	95	83	62	58	48	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	95	92	80	59	55	45	bei 1 MHz	50	with load	8xD
PS-ELFEXT	dB	102	94	74	66	64	61	bei 10 MHz	100	without load	4xD
								bei 100 MHz	1000	Tensile force	N 100

## Electrical properties

Transmission performance	EMC properties	Mechanical properties
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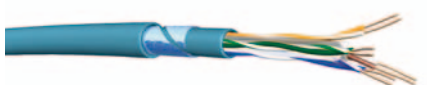


UC500 S27 Cat.6<sub>A</sub> U/FTP

Patch Cable

	MHz	1	10	100	250	300	400	500	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	0,3	1,0	3,3	5,1	5,6	6,5	7,3	Loop resistance Ω/km	≤ 340	Overall diameter mm	5,7
NEXT	dB	87,0	72,0	57,0	51,0	50,0	48,0	46,0	NVP*** %	ca. 79	Weight kg/km	26
PS-NEXT	dB	84,0	69,0	54,0	48,0	47,0	45,0	43,0	Capacitance	nF/km nom. 43	Fire load MJ/km	342
PS-ELFEXT	dB	72,0	72,0	52,0	44,0	42,0	40,0	37,0	Kopplungswiderstand	mΩ/m	Bending radius	
									bei 1 MHz	50	with load	8xD
									bei 10 MHz	100	without load	4xD
									bei 30 MHz	200	Tensile force	N 50

Transmission performance	EMC properties	Mechanical properties
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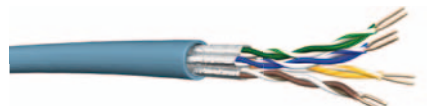


UC500 23 Cat.6<sub>A</sub> U/UTP

Installation Cable

	MHz	1	10	100	250	300	400	500	Impedance Ω	100 ± 5	Fire protection characteristics****		
Attenuation**	dB	2,0	5,9	19,0	31,1	34,2	40,0	45,3	Loop resistance Ω/km	≤ 145	Overall diameter mm	8,9	
NEXT	dB	75,3	60,3	45,3	39,3	38,1	36,3	34,8	NVP*** %	ca. 67	Weight kg/km	73	
PS-NEXT	dB	72,3	57,3	42,3	36,3	35,1	33,3	31,8	Capacitance	nF/km nom. 48	Fire load MJ/km	1075	
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	15,5	13,0	11,0			Bending radius		
												with load	8xD
												without load	4xD
												Tensile force	N 100

Transmission performance	EMC properties	Mechanical properties
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UC500 S23 Cat.6<sub>A</sub> U/FTP

Installation Cable

	MHz	1	10	100	250	300	400	500	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	1,8	5,4	17,4	28,1	30,9	38,3	44,8	Loop resistance Ω/km	≤ 176	Overall diameter mm	6,9
NEXT	dB	100,0	100,0	100,0	90,0	89,0	87,0	85,0	NVP*** %	ca. 79	Weight kg/km	45
PS-NEXT	dB	97,0	97,0	97,0	87,0	86,0	84,0	82,0	Capacitance	nF/km nom. 45	Fire load MJ/km	493
ACR	dB	98,0	95,0	83,0	62,0	58,0	48,0	40,0	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	95,0	92,0	80,0	59,0	55,0	45,0	37,0	bei 1 MHz	≤ 50	with load	8xD
PS-ELFEXT	dB	102,0	94,0	74,0	66,0	64,0	61,0	58,0	bei 10 MHz	≤ 100	without load	4xD
									bei 30 MHz	1000	Tensile force	N 100

Transmission performance	EMC properties	Mechanical properties
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UC500 AS23 Cat.6<sub>A</sub> F/FTP

Installation Cable

Insulation cable												
	MHz	1	10	100	250	300	400	500	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	1,8	5,4	17,4	28,1	30,9	38,3	44,8	Loop resistance Ω/km	≤ 176	Overall diameter mm	7,1
NEXT	dB	100,0	100,0	100,0	90,0	89,0	87,0	85,0	NVP*** %	ca. 79	Weight kg/km	47
PS-NEXT	dB	97,0	97,0	97,0	87,0	86,0	84,0	82,0	Capacitance	nF/km nom. 43	Fire load MJ/km	501
ACR	dB	98,0	95,0	83,0	62,0	58,0	48,0	40,0	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	95,0	92,0	80,0	59,0	55,0	45,0	37,0	bei 1 MHz	20	with load	8xD
PS-ELFEXT	dB	102,0	94,0	74,0	66,0	64,0	61,0	58,0	bei 10 MHz	50	without load	4xD
									bei 30 MHz	100	Tensile force	N 100

Transmission performance	EMC properties	Mechanical properties
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UC900 SS27 Cat.7 S/FTP

Patch Cable

	MHz	1	10	100	250	300	450	600	1000	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	0,3	1,0	3,2	5,1	5,6	6,9	7,9	10,2	Loop resistance Ω/km	≤ 340	Overall diameter mm	5,9
NEXT	dB	90,0	90,0	87,0	81,0	80,0	77,0	75,0	71,0	NVP*** %	ca. 79	Weight kg/km	39
PS-NEXT	dB	87,0	87,0	84,0	78,0	77,0	74,0	72,0	68,0	Capacitance	nF/km nom. 43	Fire load MJ/km	349
PS-ELFEXT	dB	77,0	77,0	57,0	49,0	47,0	44,0	41,0	37,0	Kopplungswiderstand	mΩ/m	Bending radius	
										bei 1 MHz	25	with load	8xD
										bei 10 MHz	15	without load	4xD
										bei 30 MHz	30	Tensile force	N 100

Transmission performance	EMC properties	Mechanical properties
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UC900 HS23 Cat.7 S/FTP

Installation Cable

	MHz	1	10	100	250	300	450	600	1000	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	1,8	5,4	17,4	28,1	30,9	38,3	44,8	63,1	Loop resistance Ω/km	≤165	Overall diameter mm	7,4
NEXT	dB	100,0	100,0	100,0	90,0	89,0	87,0	85,0	80,0	NVP*** %	ca. 79	Weight kg/km	54,5
PS-NEXT	dB	97,0	97,0	97,0	87,0	86,0	84,0	82,0	77,0	Capacitance	nF/km nom. 43	Fire load MJ/km	590
ACR	dB	98,0	95,0	83,0	62,0	58,0	48,0	40,0	17,0	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	95,0	92,0	80,0	59,0	55,0	45,0	37,0	14,0	bei 1 MHz	20	with load	8xD
PS-ELFEXT	dB	105,0	94,0	74,0	66,0	64,0	61,0	58,0	54,0	bei 10 MHz	30	without load	4xD
										bei 100 MHz	200	Tensile force	N 110

Transmission performance	EMC properties	Mechanical properties
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UC900 SS23 Cat.7 S/FTP

Installation Cable

	MHz	1	10	100	250	300	450	600	1000	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	1,8	5,4	17,4	28,1	30,9	38,3	44,8	63,1	Loop resistance Ω/km	≤ 150	Overall diameter mm	7,5
NEXT	dB	100,0	100,0	100,0	90,0	89,0	87,0	85,0	80,0	NVP*** %	ca. 79	Weight kg/km	75
PS-NEXT	dB	97,0	97,0	97,0	87,0	86,0	84,0	82,0	77,0	Capacitance	nF/km nom. 43	Fire load MJ/km	585
ACR	dB	98,0	95,0	83,0	62,0	58,0	48,0	40,0	17,0	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	95,0	92,0	80,0	59,0	55,0	45,0	37,0	14,0	bei 1 MHz	5	with load	8xD
PS-ELFEXT	dB	105,0	94,0	74,0	66,0	64,0	61,0	58,0	54,0	bei 10 MHz	5	without load	4xD
										bei 100 MHz	20	Tensile force	N 340



## Electrical properties

Transmission performance	EMC properties	Mechanical properties
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### UC1200 SS23 Cat.7<sub>A</sub> S/FTP

#### Installation Cable

	MHz	1	10	100	250	300	600	1000	1200	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	1,8	5,4	17,4	28,1	30,9	44,8	58,4	65,2	Loop resistance Ω/km	≤ 133	Overall diameter mm	7,8
NEXT	dB	100,0	100,0	100,0	90,0	87,0	85,0	82,0	82,0	NVP*** %	ca. 79	Weight kg/km	65
PS-NEXT	dB	97,0	97,0	97,0	87,0	86,0	82,0	79,0	79,0	Capacitance	nF/km nom. 44	Fire load MJ/km	589
ACR	dB	98,0	95,0	83,0	87,0	86,0	40,0	24,0	17,0	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	95,0	92,0	80,0	59,0	55,0	37,0	21,0	14,0	bei 1 MHz	5	with load	8xD
PS-ELFEXT	dB	105,0	94,0	74,0	66,0	64,0	58,0	54,0	40,0	bei 10 MHz	5	without load	4xD
										bei 100 MHz	20	Tensile force	N 100

Transmission performance	EMC properties	Mechanical properties
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### UC1500 SS22 Cat.7<sub>A</sub> S/FTP

#### Installation Cable

	MHz	1	10	100	250	600	1000	1200	1400	1500	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	1,7	5,1	16,3	25,8	40,2	52,1	57,1	61,3	64,1	Loop resistance Ω/km	≤ 128	Overall diameter mm	7,9
NEXT	dB	100	100	100	90	85	83	83	81	80	NVP*** %	ca. 79	Weight kg/km	81
ACR	dB	98	95	83	64	45	31	26	21	16	Capacitance	nF/km nom. 43	Fire load MJ/km	642
PS-NEXT	dB	97	97	97	87	82	80	80	78	77	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	95	92	80	61	42	28	23	18	13	bei 1 MHz	20	with load	8xD
PS-ELFEXT	dB	97	92	77	66	42	37	32	27	25	bei 10 MHz	30	without load	4xD
											bei 100 MHz	200	Tensile force	N 340

Transmission performance	EMC properties	Mechanical properties
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### UC1500 HS22 Cat.7<sub>A</sub> S/FTP

#### Installation Cable

	MHz	1	10	100	250	600	1000	1200	1400	1500	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	1,7	5,1	16,3	25,8	40,2	52,1	57,1	61,3	64,1	Loop resistance Ω/km	≤ 128	Overall diameter mm	7,9
NEXT	dB	100	100	100	90	85	83	83	81	80	NVP*** %	ca. 79	Weight kg/km	81
ACR	dB	98	95	83	64	45	31	26	21	16	Capacitance	nF/km nom. 43	Fire load MJ/km	642
PS-NEXT	dB	97	97	97	87	82	80	80	78	77	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	95	92	80	61	42	28	23	18	13	bei 1 MHz	20	with load	8xD
PS-ELFEXT	dB	97	92	77	66	42	37	32	27	25	bei 10 MHz	30	without load	4xD
											bei 100 MHz	200	Tensile force	N 340

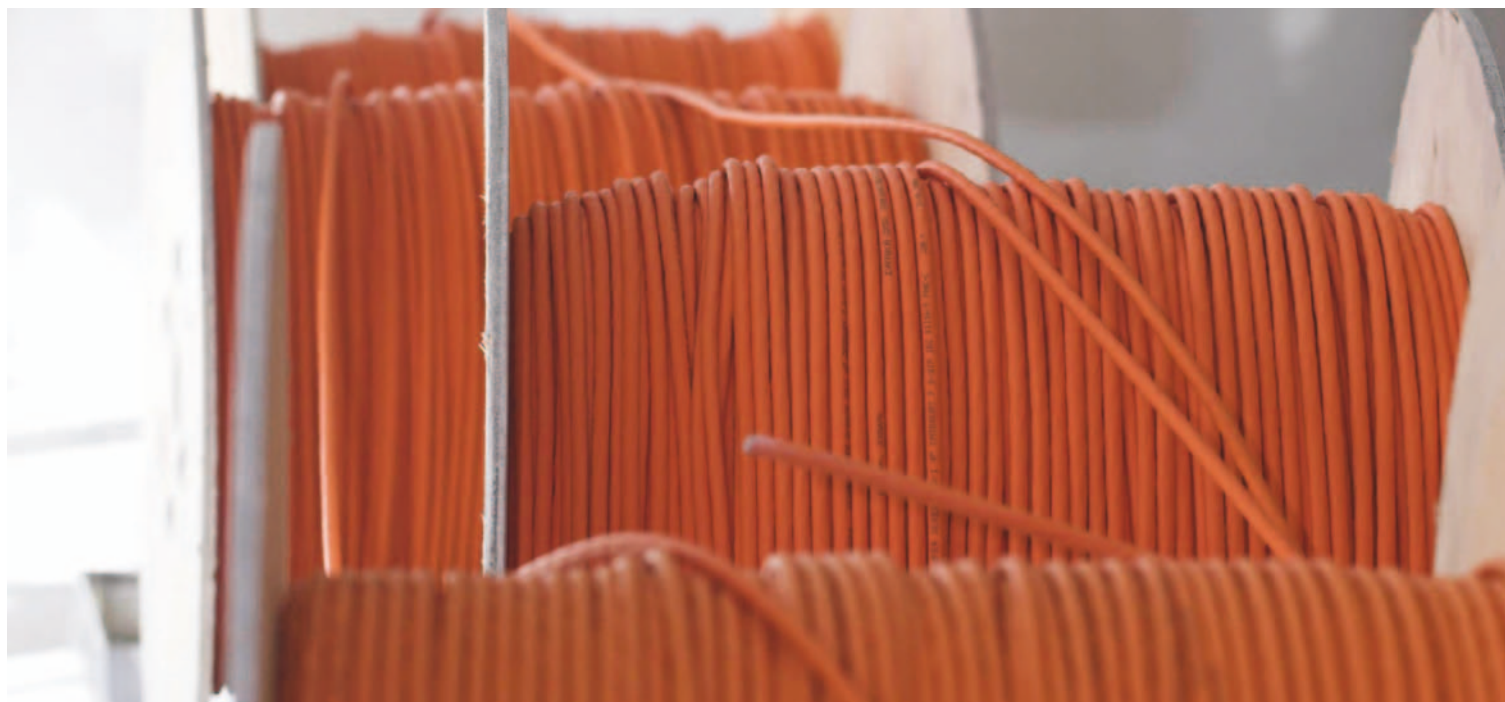
Transmission performance	EMC properties	Mechanical properties
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### UC MULTIMEDIA 1500 SS22 6 FOILS S/FTP

#### Installation Cable

	MHz	1	10	100	250	600	1000	1500	Impedance Ω	100 ± 15	Fire protection characteristics****	
Attenuation**	dB	1,7	5,1	16,3	25,8	40,2	52,1	64,1	Loop resistance Ω/km	≤ 110	Overall diameter mm	8,9
NEXT	dB	115,0	115,0	110,0	105,0	100,0	96,0	94,0	NVP*** %	ca. 79	Weight kg/km	86
PS-NEXT	dB	112,0	112,0	108,0	102,0	97,0	93,0	91,0	Capacitance	nF/km nom. 43	Fire load MJ/km	746
ACR	dB	113,0	110,0	95,0	80,0	60,0	44,0	30,0	Kopplungswiderstand	mΩ/m	Bending radius	
PS-ACR	dB	110,0	107,0	92,0	77,0	57,0	41,0	27,0	bei 1 MHz	5	with load	8xD
PS-ELFEXT	dB	102,0	94,0	74,0	66,0	58,0	54,0	50,0	bei 10 MHz	5	without load	4xD
									bei 100 MHz	20	Tensile force	N 380

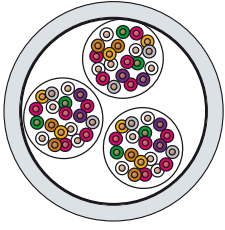


## Product scope UC Data Transmission Cable

Cable type	Screening	Category	Application
UC300 24 Cat.5e U/UTP	U/UTP	Cat.5e	Installation Cable
UC300 S24 Cat.5e F/UTP	F/UTP	Cat.5e	Installation Cable
UC300 HS24 Cat.5e SF/UTP	SF/UTP	Cat.5e	Installation Cable
UC300 26 Cat.5e U/UTP	U/UTP	Cat.5e	Patch Kabel
UC300 S26 Cat.5e F/UTP	F/UTP	Cat.5e	Patch Kabel
UC300 HS26 Cat.5e SF/UTP	SF/UTP	Cat.5e	Patch Kabel
UC400 23 Cat.6 U/UTP	U/UTP	Cat.6	Installation Cable
UC400 S23 Cat.6 U/FTP *	U/FTP	Cat.6	Installation Cable
UC400 HS23 Cat.6 S/FTP *	S/FTP	Cat.6	Installation Cable
UC400 26 Cat.6 U/UTP	U/UTP	Cat.6	Patch Kabel
UC400 S27 Cat.6 U/FTP *	U/FTP	Cat.6	Patch Kabel
UC500 23 Cat.6 <sub>A</sub> U/UTP *	U/UTP	Cat.6 <sub>A</sub>	Installation Cable
UC500 S23 Cat.6 <sub>A</sub> U/FTP *	U/FTP	Cat.6 <sub>A</sub>	Installation Cable
UC500 AS23 Cat.6 <sub>A</sub> F/FTP *	F/FTP	Cat.6 <sub>A</sub>	Installation Cable
UC500 27 Cat.6 <sub>A</sub> U/UTP *	U/UTP	Cat.6 <sub>A</sub>	Patch Kabel
UC500 S27 Cat.6 <sub>A</sub> U/FTP *	U/FTP	Cat.6 <sub>A</sub>	Patch Kabel
UC900 HS23 Cat.7 S/FTP	S/FTP	Cat.7	Installation Cable
UC900 SS23 Cat.7 S/FTP	S/FTP	Cat.7	Installation Cable
UC900 SS27 Cat.7 S/FTP	S/FTP	Cat.7	Patch Kabel
UC1200 SS23 Cat.7 <sub>A</sub> S/FTP	S/FTP	Cat.7 <sub>A</sub>	Installation Cable
UC1200 HS23 Cat.7 <sub>A</sub> S/FTP	S/FTP	Cat.7 <sub>A</sub>	Installation Cable
UC1500 SS22 Cat.7 <sub>A</sub> S/FTP	S/FTP	Cat.7 <sub>A</sub>	Installation Cable
UCUC1500 HS22 Cat.7 <sub>A</sub> S/FTP	S/FTP	Cat.7 <sub>A</sub>	Installation Cable
UC MULTIMEDIA 1500 SS23 6FOILS S/FTP *	S/FTP	MULTIMEDIA	Installation Cable
UC MULTIMEDIA 1500 SS22 6FOILS S/FTP *	S/FTP	MULTIMEDIA	Installation Cable

\* Draka patent designs

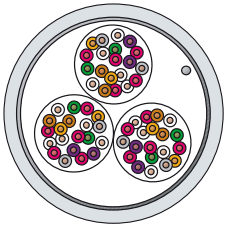
## Electrical properties



Transmission performance	EMC properties	Mechanical properties
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### Multipair Kabel according to Cat.3 U/UTP J-2YY/H 25/50/100x2x0,52 (AWG24)

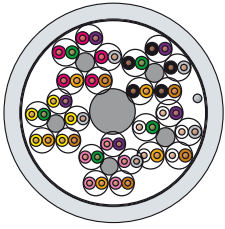
	MHz	1	4	10	16	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	26,0	56,0	98,0	131,0	Loop resistance Ω/km	≤ 186	Overall diameter mm	12,9
NEXT	dB	41,0	32,0	26,0	23,0	Capacitance	nF/km nom. 45	Weight kg/km	162
								Bending radius	
								with load	8xD
								without load	4xD
								Tensile force	N 500



Transmission performance	EMC properties	Mechanical properties
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### Multipair Kabel according to Cat.3 F/UTP J-2Y(St)Y/H 25/50/100x2x0,52 (AWG24)

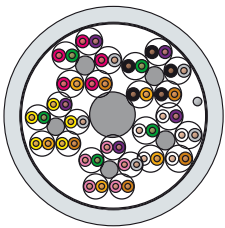
	MHz	1	4	10	16	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	26,0	56,0	98,0	131,0	Loop resistance Ω/km	≤ 186	Overall diameter mm	12,9
NEXT	dB	41,0	32,0	26,0	23,0	Capacitance	nF/km nom. 45	Weight kg/km	162
								Bending radius	
								with load	8xD
								without load	4xD
								Tensile force	N 500



Transmission performance	EMC properties	Mechanical properties
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### Multipair Kabel according to Cat.5e U/UTP S-2YY/H 25/50/100x2x0,52 (AWG24)

	MHz	1	10	100	125	Impedance Ω	100 ± 5	Fire protection characteristics****		
Attenuation**	dB	1,9	6,0	19,8	22,3	Loop resistance Ω/km	≤ 190	Overall diameter mm	15,5	
NEXT	dB	71,0	56,0	41,0	40,0	NVP*** %	ca. 67	Weight kg/km	190	
PS-NEXT	dB	68,0	53,0	38,0	37,0	Capacitance	nF/km nom. 48	Fire load MJ/km	2250	
PS-ELFEXT	dB	65,0	45,0	25,0	23,0			Bending radius		
								with load	8xD	
								without load	4xD	
								Tensile force	N 500	



Transmission performance	EMC properties	Mechanical properties
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### Multipair Kabel according to Cat.5e F/UTP S-2Y(St)Y/H 25/50/100x2x0,52 (AWG24)

	MHz	1	10	100	125	Impedance Ω	100 ± 5	Fire protection characteristics****	
Attenuation**	dB	1,9	6,0	19,8	22,3	Loop resistance Ω/km	≤ 190	Overall diameter mm	15,5
NEXT	dB	71,0	56,0	41,0	40,0	NVP*** %	ca. 67	Weight kg/km	190
PS-NEXT	dB	68,0	53,0	38,0	37,0	Capacitance	nF/km nom. 48	Fire load MJ/km	2250
PS-ELFEXT	dB	65,0	45,0	25,0	23,0			Bending radius	
								with load	8xD
								without load	4xD
								Tensile force	N 500



# Draka Communication gets the green light

On 1st July 2006, the final stage of "ElektroG" came into effect. The law which governs the marketing, return and environmentally compatible disposal of electrical and electronic equipment serves the implementation in Germany of the two EC directives RoHS and WEEE.

Two directives, one law and a great deal of uncertainty in the industry. For our customers, on principle, the question is: are cables from Draka Comteq classified as electrical and electronic equipment in the sense of ElektroG or the RoHS and WEEE directives? To cut a long story short: all cable solutions from Draka Comteq are not "equipment" in the sense of the directives and can thus be sold and used without hesitation. This conclusion is also reached by an independent expert who confirms the result with a certificate.

The Draka Comteq documentation provides further information on this theme, explains the background and shows the full wording of the certificate. The leaflet can be obtained free of charge, simply send an e-mail to: [koeln.info@draka.com](mailto:koeln.info@draka.com).



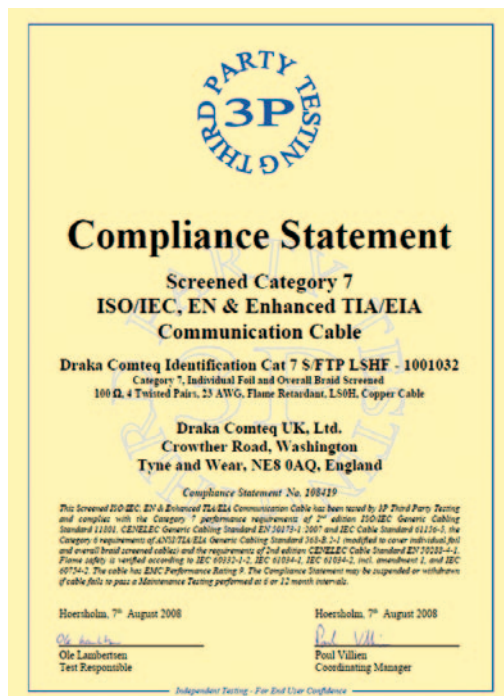
# Quality and Environment



Quality management  
DIN EN ISO 9001



Environmental management  
DIN EN ISO 14001

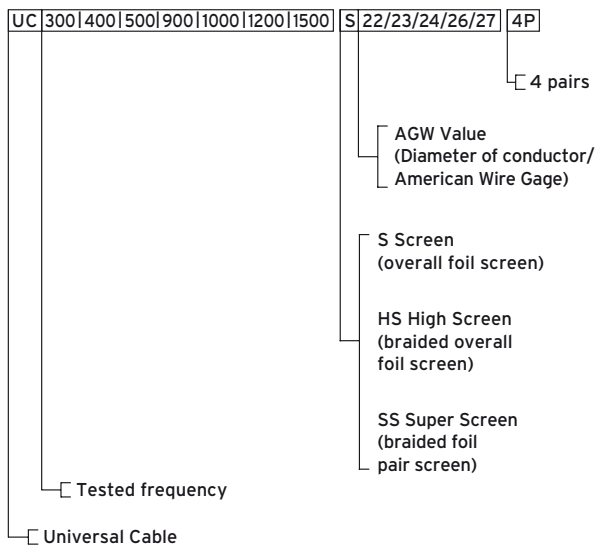


3P-Certificate



GL Certificate





100-Ω-data transmission cables according to:  
 ISO/IEC 11801 2nd ed. Cat.5e, Class D; Cat.6, Class E;  
 Cat.6A, Class EA; Cat.7, Class F; Cat.7A, Class G EIA/  
 TIA 568 A; B.2-1

EN 50173 Cat.5e, Class D; Cat.6, Class E; Cat.6A, Class  
 EA; Cat.7, Class F; Cat.7A, Class G EIA/TIA 568 A; B.2-1

IEEE 802.3 an Cat.6A, Class EA, Cat.7A, Class FA

**UC300** Universal Cable 100 MHz  
 according to ISO/IEC 11801 2nd ed./EN 50173

**UC400** Universal Cable 250 MHz  
 according to ISO/IEC 11801 2nd ed./EN 50173

**UC500** Universal Cable 500 MHz  
 according to IEEE 802.3 an

**UC900** Universal Cable 900 MHz  
 according to ISO/IEC 11801 2nd ed./EN 50173

**UC1200** Universal Cable 1200 MHz  
 according to ISO/IEC 11801 2nd ed./EN 50173

**UC1500** Universal Cable 1200 MHz  
 according to ISO/IEC 11801 2nd ed./EN 50173

**UC MULTIMEDIA**  
 Universal Cable 1500 MHz  
 according to ISO/IEC 11801 2nd ed./EN 50173



### Draka Communications - Cable in Copper and Optical Fibre Technology for:

- Office Communication
- Central Office Switching
- Home Networks
- Industry
- Studio
- CATV
- Long-distance networks
- Subscribers networks (FttX)
- Telecommunication networks
- Mobile telephone systems
- OPGW
- Signalling cables

## We make communication technology work, by serving you in every way to realize your leading edge network solution

Draka Communications has offices and production facilities all over the world. To get in touch with us and find out how we can help you build your network, visit our website at [www.draka.com/communications](http://www.draka.com/communications) or contact us.

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