

Bus cable | TPE | chainflex® CFBUS



**36**  
10 million  
Double strokes guaranteed



**10 x d**  
Bend radius, e-chain®



**400m**  
Travel distance, e-chain®

- For extremely heavy duty applications
- TPE outer jacket
- Shielded
- Oil and bio-oil-resistant
- Flame-retardant
- Hydrolysis and microbe-resistant

Dynamic information

 <b>Bend radius</b>	<b>e-chain® linear</b>	minimum 10 x d (CFBUS.001-.049 and CFBUS.060)
	<b>flexible</b>	minimum 8 x d
	<b>fixed</b>	minimum 5 x d
 <b>Temperature</b>	<b>e-chain® linear</b>	-35°C up to +70°C
	<b>flexible</b>	-45°C up to +70°C (following DIN EN 60811-504)
	<b>fixed</b>	-50°C up to +70°C (following DIN EN 50305)
 <b>v max.</b>	<b>unsupported</b>	10m/s
 <b>a max.</b>	<b>gliding</b>	6m/s
		100m/s²
 <b>Travel distance</b>	Unsupported travels and up to 400m and more for gliding applications, Class 6	

Cable structure

 <b>Conductor</b>	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).	
 <b>Core insulation</b>	According to bus specification.	
 <b>Core structure</b>	According to bus specification.	
 <b>Core identification</b>	According to bus specification. ► <b>Product range table</b>	
 <b>Inner jacket</b>	TPE mixture adapted to suit the requirements in e-chains®.	
 <b>Overall shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%	
 <b>Outer jacket</b>	Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®. Colour: Red lilac (similar to RAL 4001) Variants ► <b>Product range table</b>	

Electrical information

 <b>Nominal voltage</b>	50V 600V (following UL), except <b>CFBUS.065/.066</b> : 30V (following UL)
 <b>Testing voltage</b>	500V (following DIN EN 50289-1-3)

Properties and approvals

 <b>UV resistance</b>	Medium
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Class 6.6.4.1

**Oil resistance**

**Flame-retardant**

**Silicone-free**

**UL verified**

**UL/CSA AWM**

**NFPA**

**CLPA**

**DNV**

**EAC**

**REACH**

**Lead-free**

**Cleanroom**

**DESINA**

**CE**

**UKCA**

Basic requirements  
Travel distance  
Oil resistance  
Torsion

low	1	2	3	4	5	6	7	highest
unsupported	1	2	3	4	5	6	≥ 400m	
none	1	2	3	4	highest			
none	1	2	3	4	±360°			

Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4  
According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame  
**CFBUS.030/CFBUS.065/CFBUS.066**: According to IEC 60332-1-2, FT2  
Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)  
Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"  
See data sheet for details ► [www.igus.eu/CFBUS](http://www.igus.eu/CFBUS)

Following NFPA 79-2018, chapter 12.9

**CFBUS.045**: **CC-Link IE Field**, Reference no. 130  
**CFBUS.049**: **CC-Link IE Field**, Reference no. 137  
Type Approval Certificate TAE00003X5  
**CFBUS.040-.052**: Type Approval Certificate TAE00003X7  
Certificate No. RU C-DE.ME77.B.00295/19

In accordance with regulation (EC) No. 1907/2006 (REACH)

Following 2011/65/EC (RoHS-II/RoHS-III)

According to ISO Class 1. The outer jacket material of this series complies with CF34.UL.25.04.D - tested by IPA according to standard DIN EN ISO 14644-1  
According to VDW, DESINA standardisation

Following 2014/35/EU

In accordance with the valid regulations of the United Kingdom (as at 08/2021)

Guaranteed service life (details see page 28-29)

Double strokes*	5 million		7.5 million		10 million	
	CFBUS .001-.049	CFBUS .050-.070	CFBUS .001-.049	CFBUS .050-.070	CFBUS .001-.049	CFBUS .050-.070
	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
Temperature, from/to [°C]						
-35/-25	12.5	15	13.5	16	14.5	17
-25/+60	10	12.5	11	13.5	12	14.5
+60/+70	12.5	15	13.5	16	14.5	17

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

Typical application areas

- For heavy-duty applications, Class 6
- Unsupported travels and up to 400m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- No torsion, Class 1
- Indoor and outdoor applications without direct sun radiation
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, indoor cranes, low temperature applications

CFBUS  
TPE  
10 x d

36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges

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UL-verified chainflex® guarantee ... [www.igus.eu/ul-verified](http://www.igus.eu/ul-verified)

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igus® chainflex® CFBUS.049

Example image

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
Profibus (1x2x0.64mm)				
 CFBUS.001	(2x0.25)C	9.0	33	92
 CFBUS.002	(2x0.25)C+4x1.5	12.5	94	191
 CFBUS.003	(2x0.25)C+3G0.75	11.5	55	145
Interbus				
CFBUS.010	(3x(2x0.25))C	9.0	47	91
CFBUS.011	(3x(2x0.25)+(3G1.0))C	10.5	87	152
CAN-Bus				
CFBUS.020 <sup>2)</sup>	(4x0.25)C	6.5	28	58
CFBUS.021	(2x0.5)C	8.0	39	81
CFBUS.022 <sup>2)</sup>	(4x0.5)C	8.0	43	87
DeviceNet				
CFBUS.030 <sup>4)</sup>	((2xAWG24)C +2xAWG22)C	7.0	36	57
CFBUS.031 <sup>4)</sup>	((2xAWG18)C +2xAWG15)C	11.5	103	174
CC-Link				
 CFBUS.035	(3xAWG20)C	8.5	43	96

The chainflex® types marked with <sup>2)</sup> are cables designed as a star-quad.  
<sup>4)</sup> Manufactured without inner jacket

**Note:** The given outer diameters are maximum values and may tend toward lower tolerance limits.  
G = with green-yellow earth core x = without earth core



Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cf-case](http://www.igus.eu/cf-case)



Class 6.6.4.1

Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
Profibus (1x2x0.64mm)			
CFBUS.001	150	2x0.25	red, green
CFBUS.002	150	(2x0.25)C	red/green
		4x1.5	black with white numbers 1-4
CFBUS.003	150	(2x0.25)C	red/green
		3G0.75	black, blue, green-yellow
Interbus			
CFBUS.010	100	3x(3x0.25)	white/brown, green/yellow, grey/pink
CFBUS.011	100	3x(2x0.25)	white/brown, green/yellow, grey/pink
		(3G1.0)	red, blue, green-yellow
CAN-Bus			
CFBUS.020 <sup>2)</sup>	120	4x0.25	white, green, brown, yellow (star-quad)
CFBUS.021	120	2x0.5	white, brown
CFBUS.022 <sup>2)</sup>	120	4x0.5	white, green, brown, yellow (star-quad)
DeviceNet			
CFBUS.030 <sup>4)</sup>	120	(2xAWG24)C	white/blue
		2xAWG22	red, black
CFBUS.031 <sup>4)</sup>	120	(2xAWG18)C	white/blue
		2xAWG15	red, black
CC-Link			
CFBUS.035	110	3xAWG20	white, blue, yellow

Technical note on bus cables

chainflex® bus cables have been specially developed and tested for continuously moving use in e-chains®. Depending on the material used for the outer jacket and on the underlying construction principle, the bus cables are designed for different mechanical requirements and resistance to diverse media. The cables have been electrically designed in such a way that, on the one hand, the electrical requirements of the respective bus specification are reliably met and, on the other, that greater value is placed on a high degree of EMC reliability. It is also ensured that the electrical values remain stable over the long term in spite of permanent movement. The overall quality of transmission in a complete bus communication system, however, is not solely dependent on the cable used. What is also essential is that all components (electronic parts, connecting system and cable) are precisely matched to each other and that the maximum transmission lengths, which are dependent on the respective system, are adhered to with regard to the data transmission rates needed. A cable is thus not solely responsible for the reliable transmission of signals. igus® advises you when you are designing your bus system to take all these factors into account and, with extensive tests, helps you to ensure the process reliability of your system from the very beginning.

Guarantee  
igus chainflex  
**36**

igus 36-month  
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EPLAN download, configurators ► [www.igus.eu/CFBUS](http://www.igus.eu/CFBUS)

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UL-verified chainflex® guarantee ... [www.igus.eu/ul-verified](http://www.igus.eu/ul-verified)

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igus® chainflex® CFBUS.049

Example image

	Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
EtherCAT	Ethernet/CAT5I				
	CFBUS.040	(4x0.25)C	7.0	33	59
CC-Link IE Field	Ethernet/CAT5e				
	CFBUS.045	(4x(2x0.15))C	8.5	42	84
CC-Link IE Field	Ethernet/CAT6				
	CFBUS.049	(4x(2x0.15))C	8.5	42	84
	Ethernet/CAT6A				
	CFBUS.050 <sup>4)</sup>	(4x(2x0.15)C)C	10.5	83	134
	Ethernet/CAT7				
	CFBUS.052 <sup>4)</sup>	(4x(2x0.15)C)C	10.5	89	133
	FireWire 1394a				
	CFBUS.055	2x(2x0.15)C+2x(0.34)C	8.0	39	76
PROFINET	Profinet				
	CFBUS.060 <sup>2) 13)</sup>	(4x0.38)C	7.5	39	74
USB	USB				
	CFBUS.065	((2xAWG28)+2xAWG20)C	5.5	28	45
	CFBUS.066	((2xAWG24)+2xAWG20)C	6.5	32	51
DVI	DVI				
	CFBUS.070 <sup>4) 6)</sup>	(4x(2xAWG28)C +(2xAWG28)+3xAWG28)C	9.0	35	95

The chainflex® types marked with <sup>2)</sup> are cables designed as a star-quad.

<sup>4)</sup> Manufactured without inner jacket

<sup>6)</sup> without cULus

<sup>13)</sup> Colour outer jacket: Yellow-green (RAL 6018)

**Note:** The given outer diameters are maximum values and may tend toward lower tolerance limits.  
**G** = with green-yellow earth core **x** = without earth core

Class 6.6.4.1

Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
Ethernet/CAT5I			
CFBUS.040	100	4x0.25	white, green, brown, yellow (star-quad)
Ethernet/CAT5e			
CFBUS.045	100	4x(2x0.15)	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Ethernet/CAT6			
CFBUS.049	100	4x(2x0.15)	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Ethernet/CAT6A			
CFBUS.050 <sup>4)</sup>	100	4x(2x0.15)C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Ethernet/CAT7			
CFBUS.052 <sup>4)</sup>	100	4x(2x0.15)C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
FireWire 1394a			
CFBUS.055	100	2x(2x0.15)C 2x(0.34)C	orange/blue, green/red white, black
Profinet			
CFBUS.060 <sup>2) 13)</sup>	100	4x0.38	white, orange, blue, yellow (star-quad)
USB			
CFBUS.065	90	(2xAWG28) 2xAWG20	white/green red, black
CFBUS.066	90	(2xAWG24) 2xAWG20	white/green red, black
DVI			
CFBUS.070 <sup>4) 6)</sup>	100	4x(2xAWG28)C (2xAWG28) 3xAWG28)C	4 x white/yellow with element-shield in blue, black, red, white white/brown green, yellow, grey

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