

# Data sheet

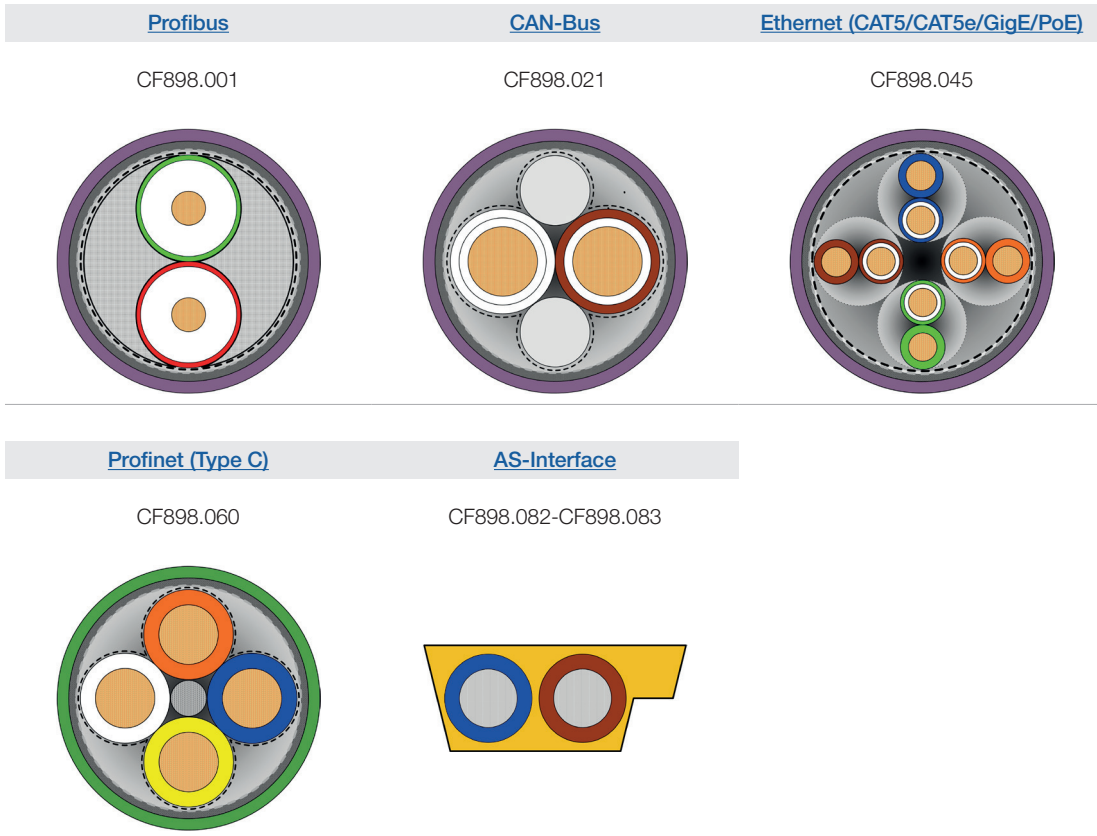
## chainflex® CF898



Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant



Example image



Guarantee  
igus chainflex  
**36**  
month guarantee

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



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Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant  
● Shielded ● Flame retardant



### Cable structure

-  **Conductor** Conductor consisting of bare copper wires (according to DIN EN 60228).
-  **Core insulation** According to bus specification.
-  **Core structure** According to bus specification.
-  **Core identification** According to bus specification.  
▶ Product range table
-  **Overall shield** Braiding made of tinned copper wires.  
Coverage approx. 60 % optical
-  **Outer jacket** Low-adhesion iguPUR mixture, adapted to suit the requirements in e-chains®.  
**Colour:** Red lilac (similar to RAL 4001), Variants ▶ Product range table  
**Printing:** black

„00000 m\*\* igus chainflex M CF898.---① ---② ---③ EAC/CTP CE ---④  
---⑤ conform RoHS-II conform  
www.igus.de +++ chainflex cable works +++

\* **Length printing:** Not calibrated. Only intended as an orientation aid.  
① / ② Cable identification according to Part No. (see technical table).  
③ Printing of the UL style (see related chapter).  
④ Printing: DESINA (only if DESINA is fulfilled).  
⑤ Printing according to bus specification (inclusive wave resistance).  
Example: ... chainflex **CF898.001 (2x0.25)C** ...

### Guaranteed service life according to guarantee conditions

Double strokes	1 million	3 million	5 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-20/-10	17.5	18.5	19.5
-10/+60	15	16	17
+60/+70	17.5	18.5	19.5

Minimum guaranteed service life of the cable under the specified conditions.  
The installation of the cable is recommended within the middle temperature range.



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Example image

igus® chainflex® CF898.045

### Properties and approvals

-  **UV resistance** Medium
-  **Oil resistance** Oil-resistant (following DIN EN 50363-10-2), Class 3
-  **Flame retardant** **CF898.001-CF898.060:** According to IEC 60332-1-2, FT1, VW-1  
**CF898.082-CF898.083:** According to IEC 60332-1-2, FT2
-  **Silicone-free** Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
-  **UL verified** Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
-  **UL/CSA AWM** See table UL/CSA AWM for details
-  **NFPA** **CF898.001-CF898.060:** Following NFPA 79-2018, chapter 12.9
-  **EAC** Certificate No. RU C-DE.ME77.B.00295/19 (TR ZU)
-  **REACH** In accordance with regulation (EC) No. 1907/2006 (REACH)
-  **Lead-free** Following 2011/65/EC (RoHS-II/RoHS-III)
-  **CE** Following 2014/35/EU

### Properties and approvals

#### UL/CSA AWM Details

Part No.	UL style core insulation	UL style outer jacket	UL Voltage Rating	UL Temperature Rating
			[V]	[°C]
CF898.001	1589	20236	30	80
CF898.021	10578	21161	300	80
CF898.045	11602	21161	300	80
CF898.060	11602	21161	300	80
CF898.082	-	21866	90	80
CF898.083	-	21866	90	80



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Example image

igus® chainflex® CF898.045

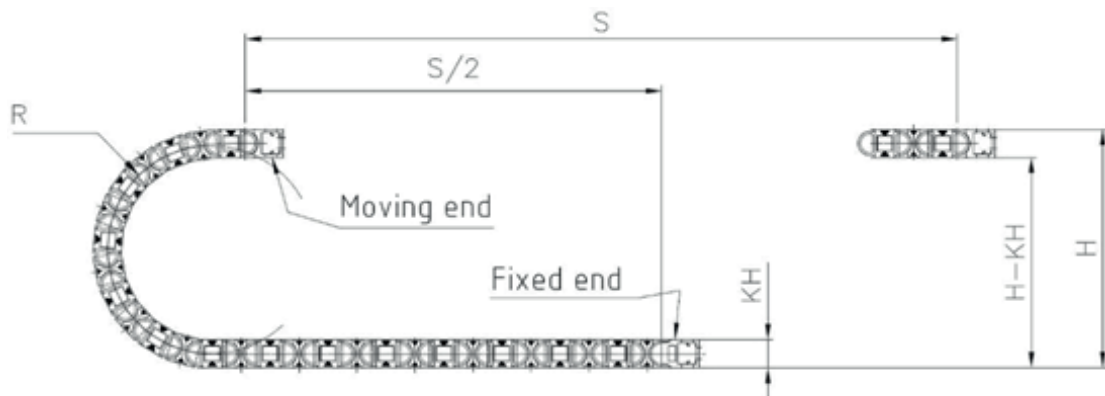
### Dynamic information

	<b>Bend radius</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	min. 15 x d min. 12 x d min. 8 x d
	<b>Temperature</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	-20 °C up to +70 °C -40 °C up to +70 °C (following DIN EN 60811-504) -50 °C up to +70 °C (following DIN EN 50305)
	<b>v max.</b>	<b>unsupported</b>	3 m/s
	<b>a max.</b>		20 m/s <sup>2</sup>
	<b>Travel distance</b>		Unsupported travel distances up to 10 m, Class 1

These values are based on specific applications or tests. They do not represent the limit of what is technically feasible.

### Typical lab test setup for this cable series

<b>Test bend radius R</b>	approx. 75 - 100 mm
<b>Test travel S/S<sub>2</sub></b>	approx. 1 - 15 m
<b>Test duration</b>	minimum 2 - 4 million double strokes
<b>Test speed</b>	approx. 0,5 - 2 m / s
<b>Test acceleration</b>	approx. 0.5 - 1.5 m / s <sup>2</sup>



### Typical application areas

- For flexing applications, Class 3
- Especially for unsupported travels, Class 1
- With influence of oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications without direct solar radiation
- Machining units/machine tools, low temperature applications



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Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant  
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### Technical tables:

#### Mechanical information

Part No.	Number of cores and conductor nominal cross section [mm <sup>2</sup> ]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
<b>Profibus (1x2x0,64 mm)</b>				
CF898.001	(2x0.25)C	8.0	18	56
<b>CAN-Bus</b>				
CF898.021	(2x0.5)C	8.5	24	80
<b>Ethernet/CAT5e</b>				
CF898.045	(4x(2x0.14))C	7.0	25	54
<b>Profinet</b>				
CF898.060 <sup>13)</sup>	 (4x0.34)C	7.0	25	58
<b>ASI BUS (flat cables)</b>				
CF898.082 <sup>14)</sup>	2x2.5		50	82
CF898.083 <sup>15)</sup>	2x2.5		50	79

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

<sup>14)</sup> Colour outer jacket: Yellow (RAL 1021)

<sup>15)</sup> Colour outer jacket: Jet black (RAL 9005)

G = with green-yellow earth core

x = without earth core

**Note:** The given outer diameters are maximum values and may tend toward lower tolerance limits.



Example image



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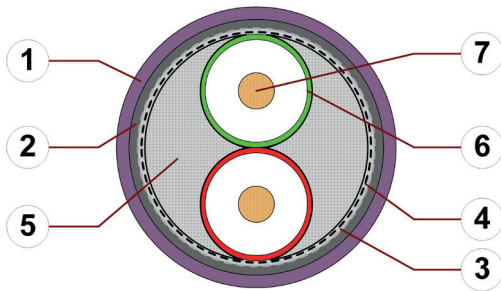


Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

**Profibus**  
CF898.001

### Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded iguPUR mixture
2. Overall shield: Braiding made of tinned copper wires
3. Shield foil: Aluminium clad plastic foil
4. Banding: Plastic band
5. Filler: Plastic yarns
6. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
7. Conductor: Stranded conductor consisting of bare copper wires

### Example image

For detailed overview please see design table

### Design table

Part No.	Core group	Colour code	Drawing
CF898.001	2x0.25	red, green	



Example image



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Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant



Example image

igus® chainflex® CF898.045

**Profibus**  
CF898.001

### Electrical information

(Cable structure please see previous page)

<b>Part No.</b>	<b>CF898.001</b>
<b>Nominal voltage</b>	50 V 30 V (following UL)
<b>Testing voltage</b> (following DIN EN 50289-1-3)	500 V
<b>Characteristic wave impedance</b> (following DIN EN 50289-1-11)	150 ± 15 Ω (at 3-16 MHz)

### Line attenuation approx. [dB/100m]

Part No.	0.01 MHz	0.04 MHz	4 MHz	16 MHz
CF898.001	0.3	0.4	2.5	5.2

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm²]	[Ω/km]	[A]
0.25	88	5

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.



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## chainflex® CF898

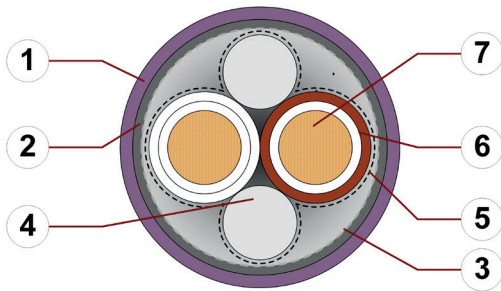


Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

**CAN-Bus**  
CF898.021

### Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded iguPUR mixture
2. Overall shield: Braiding made of tinned copper wires
3. Shield foil: Aluminium clad plastic foil
4. Filler: Plastic dummy
5. Banding: Plastic foil
6. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
7. Conductor: Stranded conductor consisting of bare copper wires

### Example image

For detailed overview please see design table

### Design table

Part No.	Core group	Colour code	Drawing
CF898.021	2x0.5	white, brown	



Example image



igus® chainflex® CF898.045



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Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant  
● Shielded ● Flame retardant



**CAN-Bus**  
CF898.021

### Electrical information

(Cable structure please see previous page)

<b>Part No.</b>	CF898.021
<b>Nominal voltage</b>	50 V 300 V (following UL)
<b>Testing voltage</b> (following DIN EN 50289-1-3)	500 V
<b>Characteristic wave impedance</b> (following DIN EN 50289-1-11)	120 ± 12 Ω (at 1 MHz)

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm <sup>2</sup> ]	[Ω/km]	[A]
0.5	39	10

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.



Example image  
igus® chainflex® CF898.021

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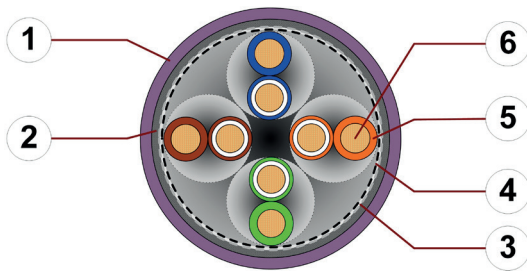
Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant



**Ethernet (CAT5/CAT5e/GigE/PoE)**  
CF898.045

### Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded iguPUR mixture
2. Overall shield: Braiding made of tinned copper wires
3. Shield foil: Aluminium clad plastic foil
4. Banding: Plastic foil
5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
6. Conductor: Stranded conductor consisting of bare copper wires

### Example image

For detailed overview please see design table

### Design table

Part No.	Core group	Colour code	Drawing
CF898.045	4x(2x0.14)	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown	



Example image

igus® chainflex® CF898.045

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Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant



Example image

igus® chainflex® CF898.045

### Ethernet (CAT5/CAT5e/GigE/PoE)

CF898.045

### Electrical information

(Cable structure please see previous page)

Part No.	CF898.045
Nominal voltage	50 V 300 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 25 Ω
Operating capacity	47 pF/m
Nominal Velocity of Propagation (NVP)	67 %

### Line attenuation approx. [dB/100m]

Part No.	1 MHz	4 MHz	10 MHz	16 MHz	20 MHz	31.25 MHz	62.5 MHz	100 MHz
CF898.045	3.2	6.0	9.5	12.1	13.6	17.1	14.8	32.0

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm²]	[Ω/km]	[A]
0.14	145	2.5

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.



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## chainflex® CF898

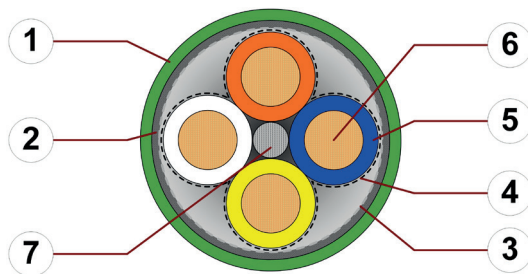


Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

### Profinet (Type C) CF898.060

#### Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded iguPUR mixture
2. Overall shield: Braiding made of tinned copper wires
3. Shield foil: Aluminium clad plastic foil
4. Banding: Plastic foil
5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
6. Conductor: Stranded conductor consisting of bare copper wires
7. Filler: Plastic yarns

#### Example image

For detailed overview please see design table

#### Design table

Part No.	Core group	Colour code	Drawing
CF898.060	4x0.34	white, orange, blue, yellow (Star-quad)	



Example image

igus® chainflex® CF898.060

# Data sheet

## chainflex® CF898



Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant



Example image

igus® chainflex® CF898.060

### Profinet (Type C)

CF898.060

### Electrical information

(Cable structure please see previous page)

Part No.	CF898.060
Nominal voltage	50 V 300 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 15 Ω
Operating capacity	53 pF/m
Nominal Velocity of Propagation (NVP)	67 %

#### Line attenuation approx. [dB/100m]

Part No.	1 MHz	4 MHz	10 MHz	16 MHz	20 MHz	31.25 MHz	62.5 MHz	100 MHz
CF898.060	3.2	6.0	9.5	12.1	13.6	17.1	14.8	32.0

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm <sup>2</sup> ]	[Ω/km]	[A]
0.34	59	7

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.



# Data sheet

## chainflex® CF898



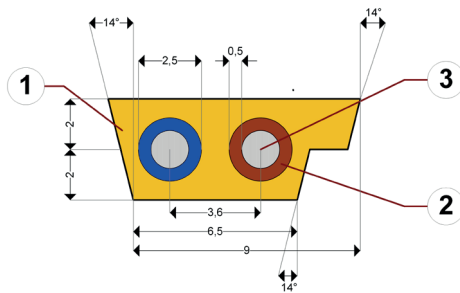
Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

### AS-Interface

CF898.082-CF898.083

### Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded PUR mixture
2. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
3. Conductor: Fine-wire strand made of tinned copper wires

### Example image

For detailed overview please see design table

### Design table

Part No.	Core group	Colour code	Drawing
CF898.082	2x2.5	blue, brown	
CF898.083	2x2.5	blue, brown	



Example image

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Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant



Example image

### AS-Interface

CF898.082-CF898.083

### Electrical information

(Cable structure please see previous page)

Part No.	CF898.082	CF898.083
Nominal voltage	50 V 90 V (in Anlehnung an UL)	
Testing voltage (following DIN EN 50289-1-3)	500 V	
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 15 Ω	
Operating capacity	<75 pF/m	

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm <sup>2</sup> ]	[Ω/km]	[A]
2.5	9.0	30

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.

