## Wiring and Accessories

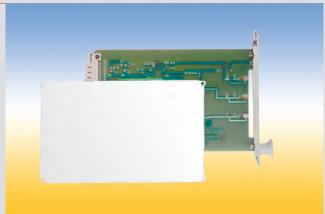
#### **Connectors and Accessories**

- √ In accordance with IEC 60 603-2 / DIN 41 612
- √ Designs supplementing the standards



#### Cover for Euroboards

- √ Self-extinguishing in accordance with UL 94-V0
- √ For use with or without a coding strip



## Interface Housings for IEC 60 603-2 / DIN 41 612 Connectors

- √ Plastic version
- ✓ Metal version
- √ Shielding concept
- √ Also for railway applications in accordance with BN 74 016



#### SE Bus Bars

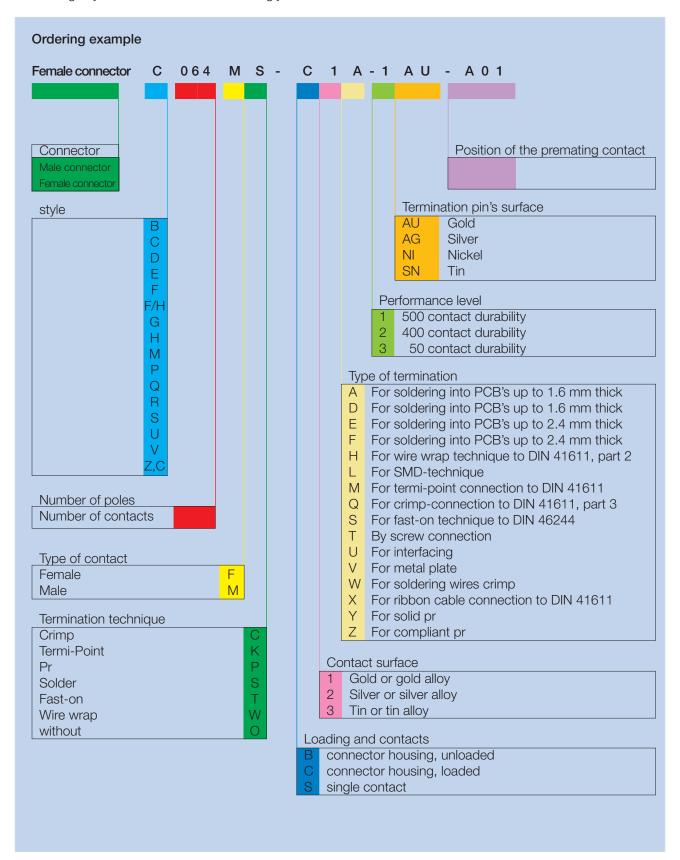
- √ High current capacity up to 120 A
- √ Two connection types
- √ 2 or 3-pole



#### Connectors

#### Coding key for IEC 60 603-2 / DIN 41 612 connectors

Since this catalog not only contains DIN 41612 connectors but also connectors which supplement the standard, the coding key has been extended accordingly.





## Connectors style B Ordering details

no.poles: assignment: 064 ab 1...32

terminations [mm]

order no. 409.

Male connector B MS - C1A - 2 SN Female connector B FS - C1D - 2 SN

0.6 x 0.6 x 2.9

0.25 x 0.7 x 2.5

043 586

105 380



## Connectors style C Ordering details

no.poles: assignment:

064 ac 2...32 ac 1...32

096 abc 1...32

terminations [mm]

order no. 409.

032

order no. 409.

068 108

045 894

order no. 409.

Male connector C MS - C1A - 2 SN Female connector C FS - C1E - 2 SN FW - C1H - 2 SN

0.6 x 0.6 x 2.9 0.25 x 0.7 x 4 0.6 x 0.6 x 13

043 598

045 891

043 606 043 610

068 089 045 897



## Connectors style D Ordering details

no.poles: assignment: 032

ac 2...32

terminations [mm]

order no. 409.

Male connector D MS - C1A - 2 SN Female connector D FW - C1H - 2 SN FC - B FC - B

 $0.6 \times 0.6 \times 2.9$ 1 x 1 x 20 f. male 0.6 x 0.6

f. male 0.6 x 1/1.5

043 622

070 323 031 022 031 031



## Connectors style E Ordering details

no.poles: assignment: 048 row separation 5,08 ace 2...32

order no.

409.

048 row separation 2.54 ace 2...32

order no.

045 235

409.

terminations [mm]

0.6 x 0.6 x 2.9

045 210 070 425

Male connector E MS - C1A - 2 SN Female connector E FW - C1H - 2 SN FW - C1H - 2 SN FC - B FC - B

1 x 1 x 20  $0.6 \times 0.6 \times 13$ 031 030 f. male 1 x 1 031 021 f. male 0.6x1/1.5

## Connectors Styles F, H and R



## Connectors style F Ordering details

Male connector F

MS - C1A - 2 SN Female connector F FW - C1E - 2 SN

FW - C1H - 2 SN

FC - B

no.poles: assignment:

terminations

0.6 x 0.6 x 2.9

1 x 1 x 4.5

x 1 x 22

f. male 0.6x1/1.5

[mm]

032 zb 2...32 048 zbd 2...32

order no. 409.

order no. 409.

022 622

041 660

070 969 042 219

024 567 042 218 031 015



## Connectors style H Ordering details

no.poles: assignment: 011 b 2.5,8...32 015 dz 4...32

terminations [mm]

order no. 409.

098 989

order no. 409.

Male connector H MS -C2A - 1 AG z32 at 3.5 mm premating MS - C2A - 1 SN z32 at 1.5 mm premating MT - C2S - 1 AG b32 at 3.5 mm premating MT - C2S - 1 AG z32 at 1.5 mm premating Female connector H

1.2 x 0.8 x 2.9 6.3 x 0.8 x 8

1.2 x 0.8 x 3.5

098 986

101 385

6.3 x 0.8 x 8

094 628

FT - C2S - 1 AG 6.3 x 0.8 x 8 FT - C2S - 2 AG 6.3 x 0.8 x 8 098 991

071 015



## Connectors style R Ordering details

no.poles: assignment: 032 ac 2...32

order no.

077 038

064 ac 1...32

409.

order no.

096 abc 1...32

order no.

409.

Male connector R C1E - 2 SN

C1H - 2 SN Female connector R C1A - 2 SN

terminations [mm]

 $0.6 \times 0.6 \times 4$ 

0.6 x 0.6 x 13

 $0.6 \times 0.6 \times 6$ 

409.

077 055 077 051 077 045

074 202

077 058 077 048

074 203

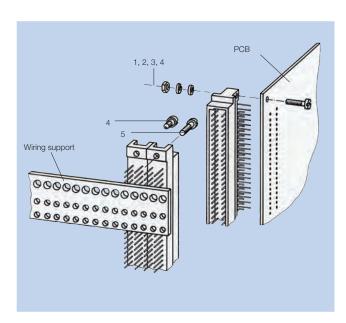
## Crimp-Snap-In-Contacts, Crimp-Pliers Accessories for Connectors



# Crimp-Snap-In-Contacts for Connectors style C, D, E, and F, Pliers and Unlocking Tool

#### Ordering details

	for	conductor		Pliers
	connector	cross sec-	order no.	order no.
	style	tion [AWG]	409.	409.
Crimp-snap-in-male MC - S1Q - 2 NI	F	16 - 18	077 112	035 630
MC - S1Q - 2 NI	F	20 - 24	077 111	035 630
Crimp-snap-in-female for male contact 0.6x1/0.6x1.5				
FC - S1Q - 1 SN	D, E, F	16 - 18	031 019	035 630
FC - S1Q - 1 SN	D, E, F	20 - 26	031 018	035 630
FC - S1Q - 1 SN	D, E, F	26 - 28	031 020	031 120
Crimp-snap-in-female for male contact 1 x 1				
MC - S3Q - 3 SN	D, E, F	16 - 18	031 024	035 630
MC - S3Q - 3 SN	D, E, F	20 - 26	031 023	035 630
unlocking tool			031 123	-



#### **Mounting of Connectors**

Connectors in accordance to DIN 41612 can be mounted with commercial DIN screws.

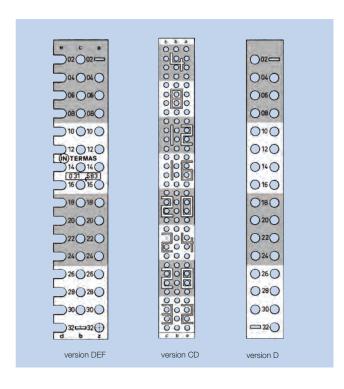
Using tapered screw, the connectors can be mounted in correct position without any adjustment or alignment.

#### Ordering details

Minimum order quantity each 100 pieces

	position	order no. <b>409.</b>
Hexagonal nut M 2.5 DIN439	1	013 938
Spring washer 2.5 DIN 127	2	013 910
Washer 2.7 DIN 433	3	018 028
Pan head screw M 2.5x12 DIN 84	4	013 904
Tapered screw M 2.5 x 6.5	5	032 708
Tapered screw M 2.5 x 9	5	070 476

## **Accessories for Connectors**



#### **Marking Strips**

IEC 60603-2 / DIN 41612 provides labeling for connectors on their wiring side.

Marking strips, made of thin plastic foil (Astralon), ensure the perfect designation of pin positions.

1. Type DEF for connectors styles D, E and F with pin cross section 1,0  $\times$  1,0 and 0.8  $\times$  1.6 and 0.8  $\times$  2.4 mm and for connectors with the type of termination V.

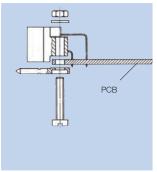
order no.: **409. 031 583** 

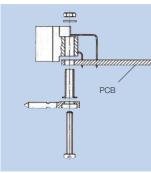
2. Type CD for connectors styles C and D with pin cross section  $0.6 \times 0.6$  u.1,0 x 1,0 mm and for connectors with the type of termination V.

order no.: 409. 022 714

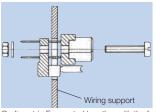
3. Typ *D* for connectors style D

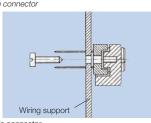
order no.: 409. 044 214





Coding strip M, mounted together with the male connector





Coding strip F, mounted together with the female connector

#### **Coding Strips**

The coding strip is designed for attachment to connectors in accordance with IEC 60 603-2 / DIN 41 612 and is to be mounted together with the connector to the PCB. Also the mating coding part is mounted together with the connector to the wiring support. Each coding strip has 16 coding teeth, that can be broken off as necessary

#### Ordering details

Ordoning dotailo	
	order no. 409.
Coding strip M 1)	033 188
Coding strip F 1)	033 189
Coding strip F-plate 1) 2)	070 617
Coding strip F-plate 2 1) 3)	064 740

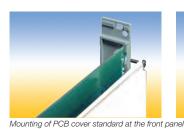
1) one functional unit comprises 1 coding strip M and one coding strip F 2) for attaching with self tapping screws 3) attaching at through hole

## Cover for Euroboards

#### Description

This PCB cover protect the soldered side against dirt and contact. Two versions are available: A standard PCB cover and a PCB cover for use with a coding strip.

The coding strip PCB cover can be used in connection with a coding strip on the connector.





Technical data

Material

Continous temperature

Fire protection class

Color

PBT (Polyester)	
-40 °C to <+60 °C	
III 94 V-0 at 0.8 mm	





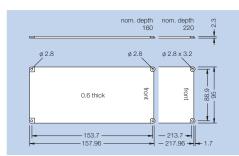


Mounting of PCB cover standard at side of the connector

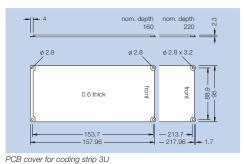


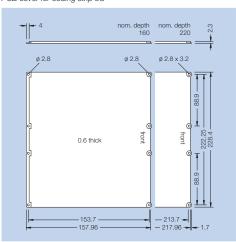


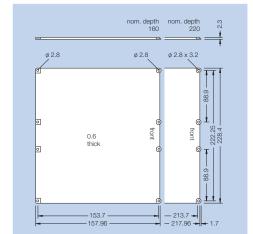
Mounting of PCB cover for coding strip jammed under the recess of the coding strip











PCB cover standard 6U

PCB cover for coding strip 6U

#### Ordering details

	height [mm]
Cover for Euroboards	
3-160	100
3-220	100
6-160	233.35
6-220	233.35

_	standard order no. 409.
	100 652
	100 662

102 110 102 113

coding strip
order no.
409.
100 650
100 660
102 109
102 112

Metallized PCB cover on request.

## **Plastic Interface Housings**



#### Description

This compact and insulating interface housing is designed to accommodate DIN 41 612 / IEC 60 603-2 connectors. It is physically clamped into position between guide elements. The interface housings have the following advantages:

- √ Accommodation of either female or male connectors of any type of connection technology.
- √ Protects the connector during insertion and operation.
- √ Lifting screws ease insertion and removal.
- √ Three cable feed apertures.
- √ Strain relief.
- √ Allows installation of display and operating elements.
- √ Codable.

Metallized plastic interface housing for RFI-shielding available.

#### Technical data

Dimensions	IEC 60297 / DIN 41494
Material	interface housing: PC, pebble gray guide components: PC, black
Fire characteristics:	UL 94 V-1
Utilization category:	-25 °C. 100 °C. 90% relative humidity

#### Delivery kit interface housing

	pieces per kit style B	pieces per kit style C, E, F1, F	pieces per kit style C1, F2
Interface housing shells	2	2	2
Cover strip	1	-	-
Cable clamp	2	2	-
Blind plug	2	2	-
Strain relief kit	1	1	-
Mounting parts	1	1	1

#### Delivery

Interface housings: As a kit of unassembled components, without guide components.

Guide components: As an assembled kit.

#### Delivery kit guide elements

	pieces per kit
Guide element top	1
Guide element bottom	1
Mounting parts	1

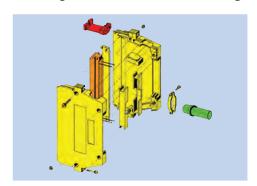
#### Color code:

yellow: interface housing orange: male connector blue: female connector red: guide components

green: accessories

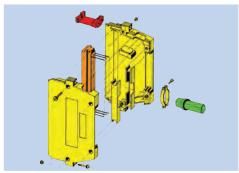
## Plastic Interface Housings

#### Ordering details for interface housing kits (yellow: interface housing kit)



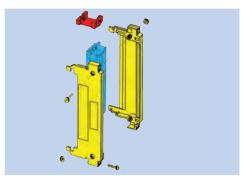
Interface Housing B

order no.: 409. 077 516



Interface Housing E

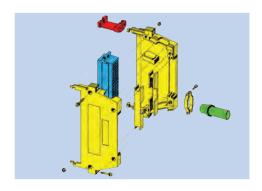
order no.: 409. 031 125



Interface Housing F2

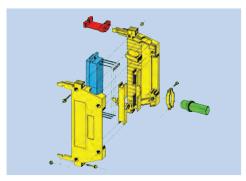
for termination technique with ribbon cable

order no.: 409. 073 659



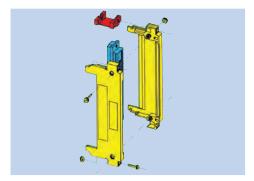
Interface Housing C

order no.: 409. 031 124



Interface Housing F

order no.: 409. 070 620



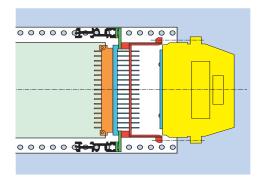
Interface Housing C1

for termination technique with ribbon cable

order no.: 409. 070 621



## **Plastic Guide Components**

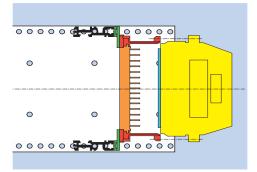


#### **Application**

For interface housings with female connector, to attach on the connecting pins of a female connector subrack.

#### Ordering details for kits

	length spacer	for interface housings	order no. <b>409.</b>
Guide component C-Huk 13	6	C, C1	032 563
Guide component C-Huk 17	9	C, C1	032 564
Guide component D-Huk 20	11	D	032 565
Guide component D-Huk 26	17.5	D	032 566
Guide component E-Huk 20	11	E	032 567
Guide component E-Huk 26	17.5	E	032 568
Guide component F-Huk 22	22	E	032 569

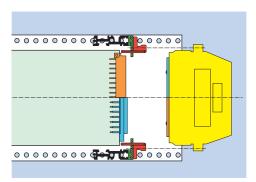


#### **Application**

For interface housings with female connector, to attach on the connecting pins of a *U-element* rack.

#### Ordering details for kits

	for interface housings	order no. 409.
Guide component U-element	F, F1, F2	035 207

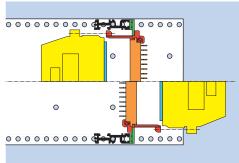


#### Application

For interface housings with female or male connector, for mating directly to the PCB (LP) connector subrack.

#### Ordering details for kits

Ordering details for kits		
	for interface housings and connectors	order no. 409.
Guide component CDFHR-LP	C, C1, D, M, F, F1, F2, H, R	032 553
Guide component E-LP	E	032 554

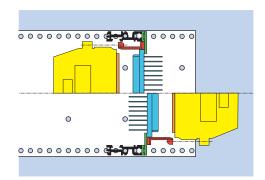


#### Application

For interface housings with female connector, for mating with a male connector, who is installed on the *connector attachment* (SB).

Ordering details for kits	for interface housings and connectors	order no.
Guide component CDR-M-SB/FP	B, Q, C, C1, R, D, M	032 520
Guide component E-M-SB/FP	E	032 551
Guide component F-M-SB/FP	F, F1, F2, U, H	032 575

## **Plastic Guide Components**



#### Application

For interface housings with male connector, for mating with a male connector, that is installed on the *connector attachment* (SB).

#### Ordering details for kits

Guide component CDHR-F-SB

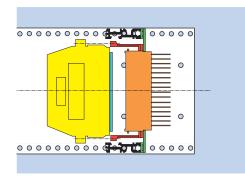
Guide component E-M-F-SB

for interface housings and connectors

C, C1, R, D, M, H, B, Q

order no.

032 555 032 556



#### Application

For interface housings with female connector, for mating with an *I-element*. Installation in the wiring field of the subrack.

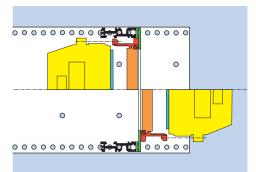
#### Ordering details for kits

Guide component I-unit

for interface housings and connectors

order no. **409.** 

F, F1, F2 **035 206** 

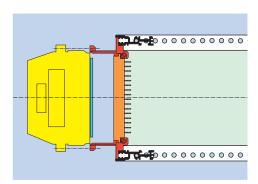


#### Application

For interface housings with female connector, for mating with a male connector, on *Backplane* (BP).

#### Ordering details for kits

Guide component
CDHR-M-BP
Guide component E-M-BP
O72 620
072 619



## Application

For interface housings with female connector, for mating with a male connector, serves as a handle (GL), mounted on the service side of the subracks.

#### Ordering details for kits

Guide component
CDR-M-GL
Guide component E-M-GL
Guide component F-M-GL

for interface housings and connectors

connectors

B, C, C1, R, Q, D, M

F, F1, F2, U, H

032 518 032 549

order no.

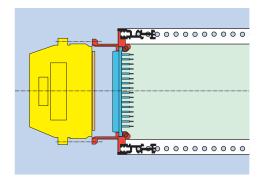
409.

032 574

#### Color code:

orange: male connector
blue: female connector
red: guide components
green: accessories

## **Plastic Guide Components**



#### Application

For interface housings with male connector, for mating with a female connector, serves as a handle (GL), mounted on the service side of the subracks.

#### Ordering details for kits

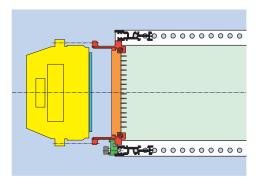
Guide component CDHR-F-GL Guide component E-F-GL

for interface housings and connectors

B, Q, C, C1, R, D, M

032 519 032 550

order no. 409.



#### **Application**

For interface housings with female connector, for mating with a male connector, serves as a handle (GL) the subrack.

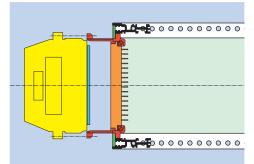
#### Ordering details for kits

Guide component F-M-GL

for interface housings and connectors

order no. 409.

035 316 F, H15, U



#### **Application**

For interface housings with female connector, for mating with a male connector, that is mounted on a front panel (FP).

#### Ordering details for kits

Guide component CDR-M-SB/FP Guide component E-M-SB/FP Guide component F-M-SB/FP for interface housings and connectors

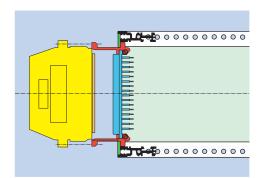
order no. 409.

B, Q, C, C1, R, D, M

F, F1, F2, H, U

032 520 032 551

032 575



#### **Application**

For interface housings with male connector, for mating with a female connector, that is mounted on a front panel (FP).

#### Ordering details for kits

Guide component CDFHR-FP Guide component E-FP

for interface housings and connectors

B, C, C1, D, M, H11, Q, R

order no. 409.

032 523 032 552

#### Color code:

blue: female connector guide components red: accessories

## **Accessories for Plastic Interface Housings**



#### Cable Sleeve

Material: black rubber

for housing styles C, F, B order no.: 409. 032 766

for housing style E

order no.: 409. 032 767



#### Cable Clamp Kit

consists of:

2 brackets and mounting parts

Material: metal

for housing styles C,D, F, H

order no.: 409. 034 532

for housing style E

order no.: 409. 034 533



#### **Coding Kit**

with 16 possibilities consists of:

4 coding elements and mounting parts

Material: plastic

order no.: 409. 069 755



#### **Coding Kit**

with 32 possibilities

consists of:

4 coding elements and mounting parts

Material: metal

order no.: 409. 034 724

## **Metal Interface Housings**



#### Description

The metal interface housing was developed on the basis of the plastic interface housing design as a totally metal housing with metal guide elements for heavy-duty use. It has the following advantages:

- ✓ Suitable for all 19" front panels in accordance with IEC 60 297-3 and IEEE fronts in accordance with P1101.10.
- √ For shielding between the interface housing and the front panel, in the E and F1 style RFI shielding panels can be added at the transfer side
- √ Coding already integrated or can be added, depending on the style
- √ Three cable feed apertures√ For cable diameters up to 17 mm
- √ For heavy-duty applications such as railway. engineering, power station engineering etc.

#### Technical data

Dimensions	IEC 60297 / DIN 41494
Material	housing shells: die-cast zinc guide components: die-cast zinc or metallized plastic other parts: stainless steel, steel, brass
Finish:	housing shells: drum-polished or galvanized and chromated or or nickel plated other parts: galvanized, nickel-plated

#### Delivery kit interface housings metal

	pieces per kit standard	pieces per kit shielded
Interface housing shells	2	2
Cable clamps	1	1
Blind plug	2	2
Shielding plate	-	1
RFI-spring	-	1
Mounting parts	1	1

#### Delivery

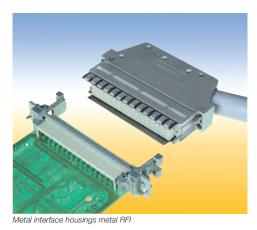
Interface housings: As a kit of unassembled components, without guide components.

Guide components: As an assembled kit.

#### Delivery kit guide element

	pieces per kit
Guide component top	1
Guide component bottom	1
Mounting parts	1

## Metal Interface Housings RFI



#### Metal Interface Housings RFI E

For connectors styles E 48 and E 160.

#### Ordering details for kits

Oracining actanic for fitte			
	width [HP]	drum- polished order no. 409.	galvanized+ chromated order no. 409.
Metal interface housings			
RFI E-standard	4	113 860	113 824
RFI E-shielded	4	-	113 849

#### Metal Interface Housings RFI F1

For connector styles F 48, C96, H11, H15, and F24/H7.

#### Ordering details for kits

	width [HP]	drum- polished order no. 409.	galvanized+ chromated order no. 409.
Metal interface housings			
RFI F1-standard	3	113 838	111 775
RFI F1-standard	4	113 840	111 245
RFI F1-shielded	4	-	113 841

Nickel plated metal interface housings RFI F1 on request.



## RFI 20 COD-standard, codable with marketables coding elements



RFI 20 COD-shielded, codable

#### Metal Interface Housings RFI 20 COD

With integrated coding, for connector styles F 48, H15 and F24/H7

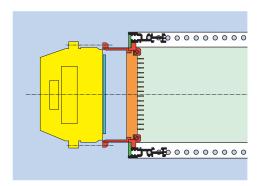
The Metal interface housings RFI 20 - standard are not supplied with RFI springs.

#### Ordering details for kits

	width [HP]	drum- polished order no. 409.	galvanized+ chromated order no. 409.
Metal interface housings			
HF20COD-standard	4	166 286	166 287
HF20COD-shielded	4	-	166 288

Nickel plated metal interface housings RFI 20 COD - standard on request.

## **Metallized Guide Components**



#### **Application**

**Guide component F** for mounting of a 3 HP metal interface housing in any position of the mounting area.

#### Ordering details for kits

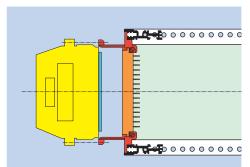
for metal interface housing RFI

order no. **409.** 

Guide component F metallized

F1-3 HP

114 122



#### **Application**

**Guide component F** with integrated front panel for mounting of a 3 HP metal interface housing RFI in a 3 U subrack..

#### Ordering details for kits

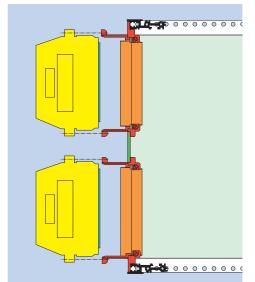
for metal interface housing RFI

order no. **409.** 

Guide component F metallized

F1-3 HP

114 121



#### **Application**

lized

**Guide component F** for mounting of a 3 HP metal interface housing RFI in the upper or lower area of 6 U subracks.gers.

#### Ordering details

Guide component F metal-

lized
Guide component F metal-

bottom - F1- 3 HP

order no. **409.** 

114 119

114 120

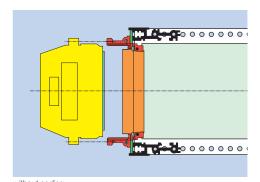
#### Color code:

yellow: interface housing orange: male connector blue: female connector red: guide components

green: accessories

# Viring and Accessories

## **Metal Guide Components**



#### Application

**Guide component F/E** for mounting of a 4 HP metal interface housing RFI in any position of the mounting area.

#### Ordering details for kits

Guide component F/E metal Guide component F/E metal with coding for metal interface housing RFI

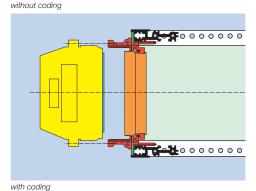
E, F1- 4 HP

E, F1- 4 HP

order no. **409.** 

114 933

114 007



#### Application

**Guide component F/E** with integrated front panel for mounting of a 4 HP metal interface housing RFI in a 3 U subrack.

### Ordering details for kits

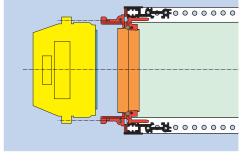
Guide component F/E metal

for metal interface housing RFI

F1- 4 HP

order no. **409.** 

113 826



## Application

**Guide component F/E** for mounting of a 4 HP metal interface housing RFI in the upper or lower area of 6 U subracks.

#### Ordering details for kits

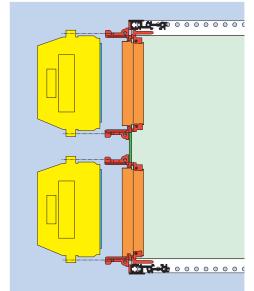
Guide component F/E metal Guide component F/E metal for metal interface housing RFI

top - F1- 4 HP

bottom - F1- 4 HP

order no.

113 830 113 828



# Accessories for Metal Interface Housings RFI E and F



#### Cable Clamp Kit

consists of:

2 brackets and mounting parts

Material: zink die-cast Finish: galvanized

#### Ordering details for kits

order no. **409.** 

Cable clamp 3 HP
Cable clamp 4 HP

113 788 112 279



#### Coding Kit

with 32 possibilities consists of:

4 coding elements and mounting parts

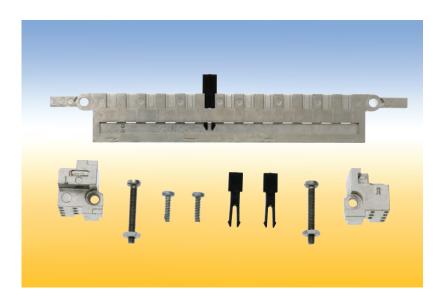
Material: metal

order no.: 409. 034 724

7.18

# Wiring and Accessories

## Accessories for Metal Interface Housings RFI 20 COD



#### **Retaining Parts Kit**

for mounting in subrack

Material: plastic Finish: metallized

order no.: 409. 114 983

## Coding Strip RFI 20

for the male connector

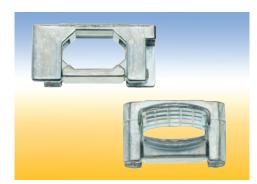
**Material:** plastic **Finish:** metallized

order no.: 409. 114 985

## Coding Pin RFI 20 Material: plastic

Packing unit: 100 pieces

order no.: 409. 115 095



#### Cable Clamp Kit 4 HP - RFI 20

consists of: 2 brackets and mounting parts

Material:zinc die-castFinish:metallized

#### Ordering details for kits

order no. **409.** 

Cable clamp smal Cable clamp wide 114 982 117 108

#### Insulated Bus Bar



Two connection versions are available:

1. Connection version A: Alternating terminal lugs for A 6.3 x 0.3 flat push-on connectors and screw attachment.

#### Description

Insulated bus bar kit for the power supply in housings and cabinets.

The features of the bus bars:

- √ High current capacity up to 120 A.
- √ Safe against accidental hand contact up to 500 V in accordance with VDE 0106.
- √ The protective profile makes the bus bar safe against accidental finger contact up to 220 V in accordance with VDE 0470.
- √ Deliverable in any desired length.
- With a width of 25 mm, 3-pole use is possible.
- √ Insulating materials in accordance with the stipulations of VDE 0606.

#### 2. Connection version B:

Alternating terminal lugs for A  $6.3 \times 0.3$  flat push-on connectors and double terminal lugs for A  $2.8 \times 0.8$  flat push-on connectors or one A  $6.3 \times 0.8$  flat push-on connector. Intermediate lengths can be produced by simply sawing.

Technical data				Delivery			
Number of poles	2- or 3-pole			assembled			
Connection version A	A 6.3 x 0.8 DIN 46244/connection Ø 4.2 mm			Kit consists of:			
Connection version B	A 6.3 x 0.8 / 2	2 x A 2.8 x 0.8 [	DIN 46244	Rails			
Utilization category	-25 °C, +70°C	C, no condensa	tion	1 Plastic bo	,		
Phase current		mbient tempera ; 70 A at 70 °C	ature of 20 °C;	2 End caps Mounting parts			
Max. operating voltage	500 V						
Insulation class	group C in ac	cordance with [	DIN/VDE 0110	Accessorie	es		
Test voltage	3.1 kV					order no.	
Amp capacity at 20°C	25 A per pin o	25 A per pin connection A 6.3 x 0.8				409.	
	bus bar: SE-C	bus bar: SE-Cu F37, hot-dip tinned			Mounting parts 401 (2 position points)		
Makadal	insulating bod	•		Mounting parts from 1600 mm (4 position points) 059		059 270	
Material	end cap: PC,	ыаск :s: steel, galvani	ized.			057 680	
	passivated		,	COHINECTION	lug 100 A	037 000	
Fire protection class	insulating UL	94 V-0					
	insulating UL	94 V-0					
Ordering details for kits	_		Α	Α	В	В	
			2poles	3poles	2poles	3poles	
	nom. length	for cabinet	order no.	order no.	order no.	order no.	
	[mm]	height	409.	409.	409.	409.	
Bus bar 100 A-	401	-	-	061 443	-	080 695	
Bus bar 100 A-	1600	1800	062 093	058 447	-	080 939	
Bus bar 100 A-	1800	2000	062 094	058 449	080 696	080 941	
Bus bar 100 A-	2000	2200	062 095	058 451	080 697	080 943	