

TE Connectivity DEUTSCH

Single Module EN4165 Connectors



HIGH RELIABILITY FOR CABIN INTERCONNECTIONS

The DMC-M has set the modular connector standard in the Aerospace & Military industries since the 1980's, and is now standardized by European Specification EN4165.

The DMC-M Single Module has a rectangular design perfect for both new design customs and retrofit applications thanks to its wide range of contact arrangements from sizes 24 to 8. Each mated half of the DMC-M connector can contain both male and female configuration modules, which allows you to mix input and output with signal and power supply. With a large number of insert layout possibilities, there are also many different keying possibilities between plugs and receptacles and a real EMI protection following most stringent Aerospace and Military specifications. Compliance with the most demanding avionic specifications in terms of sealing, vibrations, fire, smoke and toxicity compliance or mechanical endurance increases the reliability of the cabin interconnections. Designed with a lightweight composite material and metal plating, the Single Module DMC-M is ideal for weight and mass saving.

APPLICATIONS

- Cabin and avionic systems
- High-performance military aircraft
- Commercial airlines
- Communications equipment
- Missiles
- Military
- Railway
- Medical

FEATURES

- Light weight composite
- Modularity
- Color and mechanical coded
- Push-pull coupling
- Aluminum cable contact compliant

TECHNICAL SPECIFICATIONS

MATERIALS AND FINISHES

Housing	Composite
Plating	Nickel
Inserts	Thermoplastic and FSR
Contacts	Copper alloy with gold on nickel plating

ELECTRICAL DATAInsulation Resistance $\geq 5000 \text{ M}\Omega$

Maximum Current	Size 22 - 5 A
	Size 20 - 7.5 A
	Size 16 -13 A
	Size 12 - 23 A
	Size 8 - 46 A

EMI Shielding Performance

FREQUENCY (MHz)	ATTENUATION (dB)
100	50
200	45
300	45
400	40
800	35
1000	30

MECHANICAL DATATemperature Range -55°C to $+175^{\circ}\text{C}$

Vibrations 20 g

Shock 100g

Durability 500 mating cycles

Salt Spray 500 hours

Interfacial Sealing $1.1 \times 10^{-2} \text{ bar}$

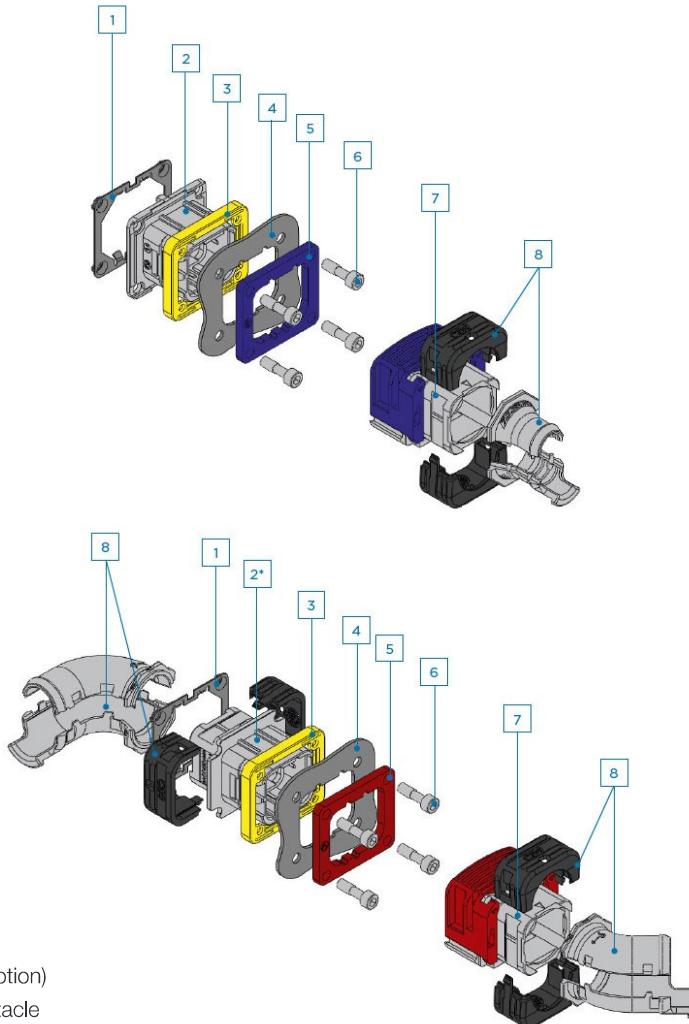
MECHANICAL DATA (CONT.)

Weight

EXTENDER RECEPTACLE	SHORT RECEPTACLE	PLUG	BACKSHELL
7 gr	6 gr	9 gr	4 - 7 gr
0.015 lbs	0.013 lbs	0.020 lbs	0.009 - 0.015 lbs

Recommended Mounting
for Receptacle Screw Torque

0.5 ± 0.1 N.m or 4.4 ± 0.9 In.LbF
When using TE DEUTSCH integrated nut plate
Ref. 787-0016-00 (see Accessories).

EXPLODED VIEW

- 1 - Nut plate (option)
- 2 - Short receptacle
- 2* - Extender receptacle
- 3 - Sealing gasket (option)
- 4 - Panel (up to 2 mm thick)
- 5 - Color coding plate (option)
- 6 - Screws (ordered separately)
- 7 - Plug
- 8 - Backshell

1	2	3*	4*	5*	
CONNECTOR TYPE	SHELL TYPE	SHELL KEYING	CODING PLATE	SEALING GASKET	NUT PLATE
DMC-MD	24	D	-K	-S	-T

*Note: Steps 3,4 and 5 are only for receptacles.

STEP 1: CHOOSE SHELL TYPE

20
Plug

24
Short Receptacle

26
Extender Receptacle

STEP 2: CHOOSE SHELL KEYING

N - A - B - C - D - E - F - G

STEP 3: CHOOSE CODING PLATE*

OMIT
Without

K
With

STEP 4: CHOOSE SEALING GASKET*

OMIT
Without

S
With

STEP 5: CHOOSE NUT PLATE*

OMIT
Without

T
With

Example: DMC-MD 24 A-K-S-T

HOW TO ORDER SINGLE MODULE EN4165

1 EN4165	2 M	3 0	4 1	5 A	6* D	7* 1	8* G	
NUMBER OF THE BASIC STANDARD	FINISH	SHELL TYPE	SHELL TYPE	SERIES	SHELL KEYING	CODING PLATE	SEALING GASKET	NUT PLATE

Note: Steps 6, 7, and 8 are only for receptacles.

STEP 1: CHOOSE FINISH**M**

Composite Nickel Plated

STEP 2: CHOOSE SHELL TYPE**6**

Plug

0

Short Receptacle

7

Extender Receptacle

STEP 3: CHOOSE SHELL TYPE**1**

Monomodule

STEP 4: CHOOSE SERIES**A**

Series 2

STEP 5: CHOOSE SHELL KEYING**N - A - B - C - D - E - F - G****STEP 6: CHOOSE CODING PLATE*****0**

Without

1

With

STEP 7: CHOOSE SEALING GASKET***U**

Without

G

With

STEP 8: CHOOSE NUT PLATE***0**

Without

1

With

HOW TO ORDER SINGLE MODULE EN4165 - ACCESSORIES (COMMERCIAL)

1	2	
CONNECTOR TYPE	ACCESSORIES TYPE	PLATING
787	-8055	-20

STEP 1: CHOOSE ACCESSORIES TYPE

10 Straight Chimney	11 Clampshell	12 Straight Tie Wrap Ø 7mm	13 Straight Tie Wrap Ø 10mm
20 45° Indexable Chimney	21 45° Indexable Chimney Tie Wrap	30 90° Indexable Chimney	31 90° Indexable Chimney Tie Wrap

STEP 2: CHOOSE PLATING

M
Nickel

HOW TO ORDER SINGLE MODULE EN4165 - ACCESSORIES

1	2		
NUMBER OF THE BASIC STANDARD	CHAPTER	FINISH	ACCESSORIES TYPE
EN4165	-026	M	20 A

STEP 1: CHOOSE FINISH

M
Composite Nickel Plated

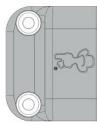
STEP 2: CHOOSE ACCESSORIES TYPE

10 Straight Chimney	20 45° Indexable Chimney	30 90° Indexable Chimney
10 A Straight Tie Wrap Ø 10mm	20 A 45° Indexable Chimney Tie Wrap	30 A 90° Indexable Chimney Tie Wrap

BACKSHELLS & PLUGS

Backshells

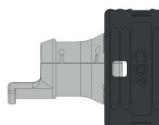
Straight Clampshell
787-8055-11M
Screws Delivered



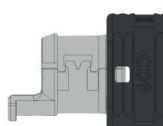
Straight Chimney
787-8055-10M
EN4165-026M10



Straight Chimney
Tie Wrap Ø 7mm
787-8055-12M



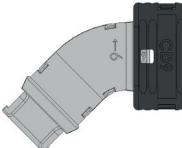
Straight Chimney
Tie Wrap Ø 10mm
787-8055-13M
EN4165-026M10A



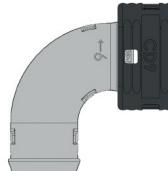
45° Indexable Chimney
787-8055-20M
EN4165-026M20



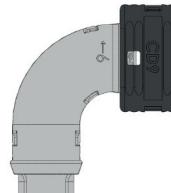
45° Indexable Chimney
Tie Wrap
787-8055-21M
EN4165-026M20A



90° Indexable Chimney
787-8055-30M
EN4165-026M30

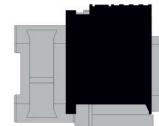


90° Indexable Chimney
Tie Wrap
787-8055-31M
EN4165-026M30A

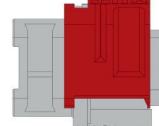


Plugs

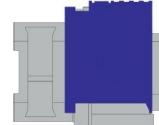
DMC-MD 20 N
BACC65BUMN
EN4165M61AN



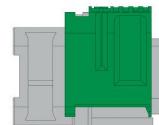
DMC-MD 20 A
BACC65BUMA
EN4165M61AA



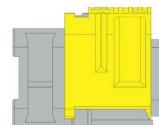
DMC-MD 20 B
BACC65BUMB
EN4165M61AB



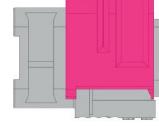
DMC-MD 20 C
BACC65BUMC
EN4165M61AC



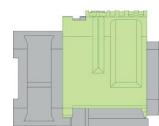
DMC-MD 20 D
BACC65BUMD
EN4165M61AD



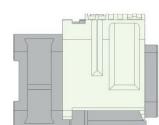
DMC-MD 20 E
EN4165M61AE



DMC-MD 20 F
EN4165M61AF



DMC-MD 20 G
EN4165M61AG



TE/DEUTSCH Part Numbers (DMC-M / 787)
BOEING Part Numbers (BACC)
STANDARD Part Numbers (EN4165)

Mates with

BACKSHELLS & RECEPTACLES

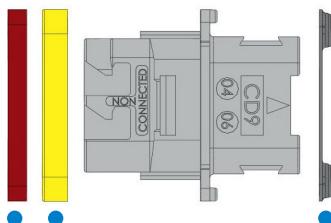
RECEPTACLES

Extender Receptacle

DMC-MD 26 *X

BACC65CAM*X

EN4165M71A*X



● = To be ordered separately (no BACC65 references)

SHELL KEYING

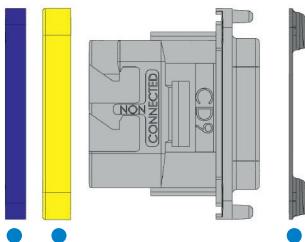
*X							
N	A	B	C	D	E	F	G

Short Receptacle

DMC-MD 24 *X

BACC65BVM*X

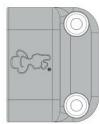
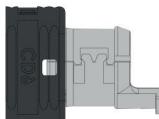
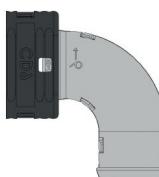
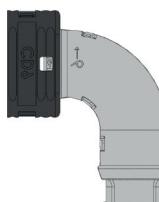
EN4165M01A*X



● = To be ordered separately (no BACC65 references)

NOTE: No accessory can be fixed on this receptacle.

BACKSHELLS

Straight Clampshell
787-8055-11M
Screws DeliveredStraight Chimney
787-8055-10M
EN4165-026M10Straight Chimney
Tie Wrap Ø 7mm
787-8055-12MStraight Chimney
Tie Wrap Ø 10mm
787-8055-13M
EN4165-026M10A45° Indexable Chimney
787-8055-20M
EN4165-026M2045° Indexable Chimney
Tie Wrap
787-8055-21M
EN4165-026M20A90° Indexable Chimney
787-8055-30M
EN4165-026M3090° Indexable Chimney
Tie Wrap
787-8055-31M
EN4165-026M30ATE/DEUTSCH Part Numbers (DMC-M / 787)
BOEING Part Numbers (BACC)
STANDARD Part Numbers (EN4165)

MODULES

PIN CONTACTS PER AS39029/58 AND EN3155

MODULES	DETAILS	PART NUMBER CROSS
	20 contacts size 22	DMC-M 20-22 AN BACI10BC2022PNB EN4165A20-221NA
	20 contacts size 22	DMC-MA 20-22 AN EN4165A20A221NA
	12 contacts size 20	DMC-M 12-20 AN BACI10BC1220PNB EN4165A12-201NA
	8 contacts size 16	DMC-M 08-16 AN BACI10BC0816PNB EN4165A08-161NA
	4 contacts size 12	DMC-M 04-12 AN EN4165A04-121NA
	1 contact size 8	DMC-M 01-08 AN EN4165A01-081NA
	6 contacts size 16 2 contacts size 22 8 contacts size 24	DMC-M 16-02 AN 2226454-1
	6 contacts size 16 5 contacts size 22	DMC-M 99-01 AN BACI10BC1622PNB EN4165A99-011NA
	6 contacts size 16 5 contacts size 22	DMC-MA 99-01 AN EN4165A99A011NA
	8 contacts size 22 3 contacts size 20	DMC-M 99-02 AN
	8 contacts size 20 8 contacts size 24	DMC-M 99-03 AN
	6 contacts size 20 2 contacts size 22 8 contacts size 24	DMC-M 99-04 AN
	8 contacts size 22 2 contacts size 12	DMC-M 99-06 AN BACI10BC1001PNB
	8 contacts size 20 2 contacts size 16	DMC-M 99-10 AN EN4165A99-101NA
	6 optical contacts	DMC-M MC5 AN
	2 optical contacts 5 contacts size 16 2 contacts size 22	DMC-M T47 AN
	12 or 24 optical contacts for round or ribbon cable	Hermaphrodite DMC-M MC6
	Blanking module	DMC-M 00-00 PN EN4165-1N

Aluminum Cable Technology

High Speed Modules

Distribution Shunt Modules

SOCKET CONTACTS PER AS39029/57 AND EN3155

MODULES	DETAILS	PART NUMBER CROSS
	20 contacts size 22	DMC-M 20-22 BN BACI10BC2022SNB EN4165 20-22 A1NB
	20 contacts size 22	DMC-MA 20-22 BN EN4165A20A221NB
	12 contacts size 20	DMC-M 12-20 BN BACI10BC1220SNB EN4165A12-201NB
	8 contacts size 16	DMC-M 08-16 BN BACI10BC0816SNB EN4165A08-161NB
	4 contacts size 12	DMC-M 04-12 BN EN4165A04-121NB
	1 contact size 8	DMC-M 01-08 BN EN4165A01-081NB
	6 contacts size 16 2 contacts size 22 8 contacts size 24	DMC-M 16-02 BN 2226455-1
	6 contacts size 16 5 contacts size 22	DMC-M 99-01 BN BACI10BC1622SNB EN4165A99-011NB
	6 contacts size 16 5 contacts size 22	DMC-MA 99-01 BN EN4165A99A011NB
	8 contacts size 22 3 contacts size 20	DMC-M 99-02 BN
	8 contacts size 20 8 contacts size 24	DMC-M 99-03 BN
	6 contacts size 20 2 contacts size 22 8 contacts size 24	DMC-M 99-04 BN
	8 contacts size 22 2 contacts size 12	DMC-M 99-06 BN BACI10BC1001SNB
	8 contacts size 20 2 contacts size 16	DMC-M 99-10 BN EN4165A99-101NB
	6 optical contacts	DMC-M MC5 BN
	2 optical contacts 5 contacts size 16 2 contacts size 22	DMC-M T47 BN
	20 contacts size 22 5 shunts 4 ways	DMC-M 22-05 BN EN4165A20Y221NB
	20 contacts size 22 3 shunts 4 ways 4 shunts 2 ways	DMC-M 22-07 BN EN4165A2AY221NB
	20 contacts size 22 10 shunts 2 ways	DMC-M 22-10 BN EN4165A2BY221NB

Note: 1) DMC-M modules are compatible with Aluminum Cable contacts and with EN3155-70 / 71 size 22. 2) Distribution shunt modules use dedicated contacts based on standard M39029. 3) DMC-M 99-02, 99-03, 99-04, 16-02 are specific modules for high speed Ethernet application.

TE/DEUTSCH Part Numbers (DMC-M / 787)
BOEING Part Numbers (BACI10)
STANDARD Part Numbers (EN4165)

CONTACTS



PART NUMBER DEUTSCH	TYPE	SIZE	CONTACTS			CABLES	
			COLOR CODES AS PER MIL			Ø OVER INSULATION IN/MM (GAUGE AWG)	WIRE SECTION IN/ MM ²
724-0001-22	P	22/22	Orange	Blue	Black	-	-
	S		Orange	Green	Yellow	-	-
182-0860-22	P	22/20	-	-	-	Red	Green
182-0862-22	S		-	-	-		
724-0001-20	P	20/20	Orange	Blue	Orange	-	-
724-0003-20	S		Orange	Green	Violet	-	-
724-1063-20	P	20/18	-	-	-	Red	Brown
724-1064-20	S		-	-	-		
724-0001-16	P	16/16	Orange	Blue	Yellow	-	-
724-0003-16	S		Orange	Green	Gray	-	-
724-1063-16	P	16/14	-	-	-	Blue	White
724-1064-16	S		-	-	-		
724-0001-12	P	12/12	Orange	Blue	Green	-	-
724-0003-12	S		Orange	Green	White	-	-
724-1063-12	P	12/10	-	-	-	Yellow	White
724-1064-12	S		-	-	-		
724-0001-08	P	Power 8	-	-	-	-	3.80 to 5.15 (8)
724-0003-08	S		-	-	-		
182-0001-08	P	Power 8	-	-	-	-	3.80 to 5.15 (8)
182-0003-08	S		-	-	-		
724-0004-16	P	Micro-Coax 16	Yellow	Red	Yellow	-	-
724-0005-16	S		Yellow	Orange	Red	-	-
182-0125-08	P	8	-	-	-	-	ALPEN A 26 DT
182-0126-08	S		-	-	-		
182-0048-08	P	8	-	-	-	-	Interface SMA
182-0044-08	S		-	-	-		
724-1272-22	S	Shunt 22	-	-	-	-	0.71 to 1.37 (22 - 26)
							0.095 to 0.40

DATABUS CONTACTS

DATABUS CONTACTS (TWISTED PAIR) AS PER MIL-C 38999 SERIES I, III AND IV STANDARD					
CONTACTS				CABLES	
PART NUMBER	TYPE	SIZE	COLOR CODE	TYPES	CONDUCT. MAX. SECTION
182-0034-03	P	8	Brown-Red	Braid Simple	2 x 0.34 mm ²
182-0035-03	S				
182-0034-04	P	8	Red-Red	High Immunity Double Braid	2 x 0.34 mm ²
182-0035-04	S				

Part numbers in red - Standard contacts delivered with modules

Note: Contacts for aluminium cable, contact us.

CONTACTS AND TOOLING



CONTACTS	TOOLING				
PART NUMBER DEUTSCH	CRIMPING TOOL P/N DEUTSCH	CRIMPING TOOL P/N MIL	LOCATOR P/N DEUTSCH	LOCATOR P/N MIL	INSERTION AND EXTRACTION TOOL
724-0001-22	057-0463-12	M22520/2-01	057-0467-32	M22520/2-09	M81969/14-01
724-0003-22			057-0515-32	M22520/2-06	
182-0860-22	057-0463-12	M22520/2-01	057-0467-32	M22520/2-09	M81969/14-01
182-0862-22					
724-0001-20	057-0461-11	M22520/1-01	057-0466-21	M22520/1-04	M15570-20
724-0003-20					
724-1063-20	057-0461-11	M22520/1-01	056-0466-21	M22520/1-04	-
724-1064-20					
724-0001-16	057-0461-11	M22520/1-01	057-0466-21	M22520/1-04	M15570-16
724-0003-16					
724-1063-16	057-0461-11	M22520/1-01	056-0466-21	M22520/1-04	-
724-1064-16					
724-0001-12	057-0461-11	M22520/1-01	057-0466-21	M22520/1-04	M15570-12
724-0003-12					
724-1063-12	057-0461-11	-	056-0466-21	M25520/1-04	-
724-1064-12					
724-0001-08	057-0064-05 A	-	057-0065-05 A	-	114-008 or M81969/14-06
724-0003-08					
182-0001-08	057-0064-05 A	-	057-0065-05 A	-	114-008 or M81969/14-06
182-0003-08					
724-0004-16	057-0463-12*	-	057-0539-32*	-	M15570-16
724-0005-16	057-0509-14**		057-0511-34**		
182-0125-08	-	-	-	-	-
182-0126-08					
182-0048-08	-	-	-	-	-
182-0044-08					
724-1272-22	057-0463-12	M22520/2-01	057-0467-32	M22520/2-09	M81969/14-01

Part numbers in red - Standard contacts delivered with modules

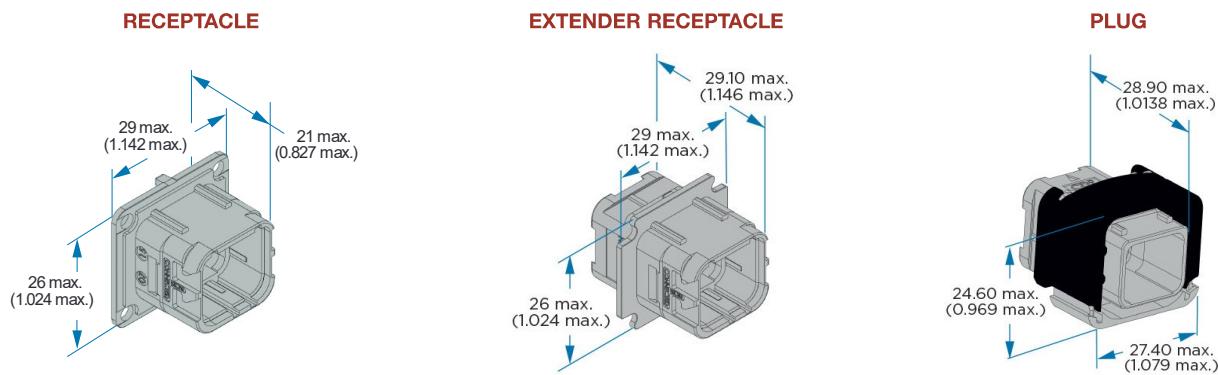
*For central contact **For exterior contact

DATABUS CONTACTS

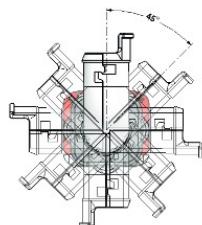
DATABUS CONTACTS (TWISTED PAIR) AS PER MIL-C 38999 SERIES I, III AND IV STANDARD			
SLEEVE TYPE	CRIMPING TOOL CENTRAL CONDUCTOR	CRIMPING TOOL FERRULE	INSERTION AND EXTRACTION TOOL
Thermoplastic and silicone	TDB-CY-08	TDB-CT-HEX Mark C	114-008 or M81969/14-06
Thermoplastic and silicone	TDB-CT-08	TDB-CT-HEX Mark D	114-008 or M81969/14-06

DIMENSIONS

RECEPTACLES & PLUG

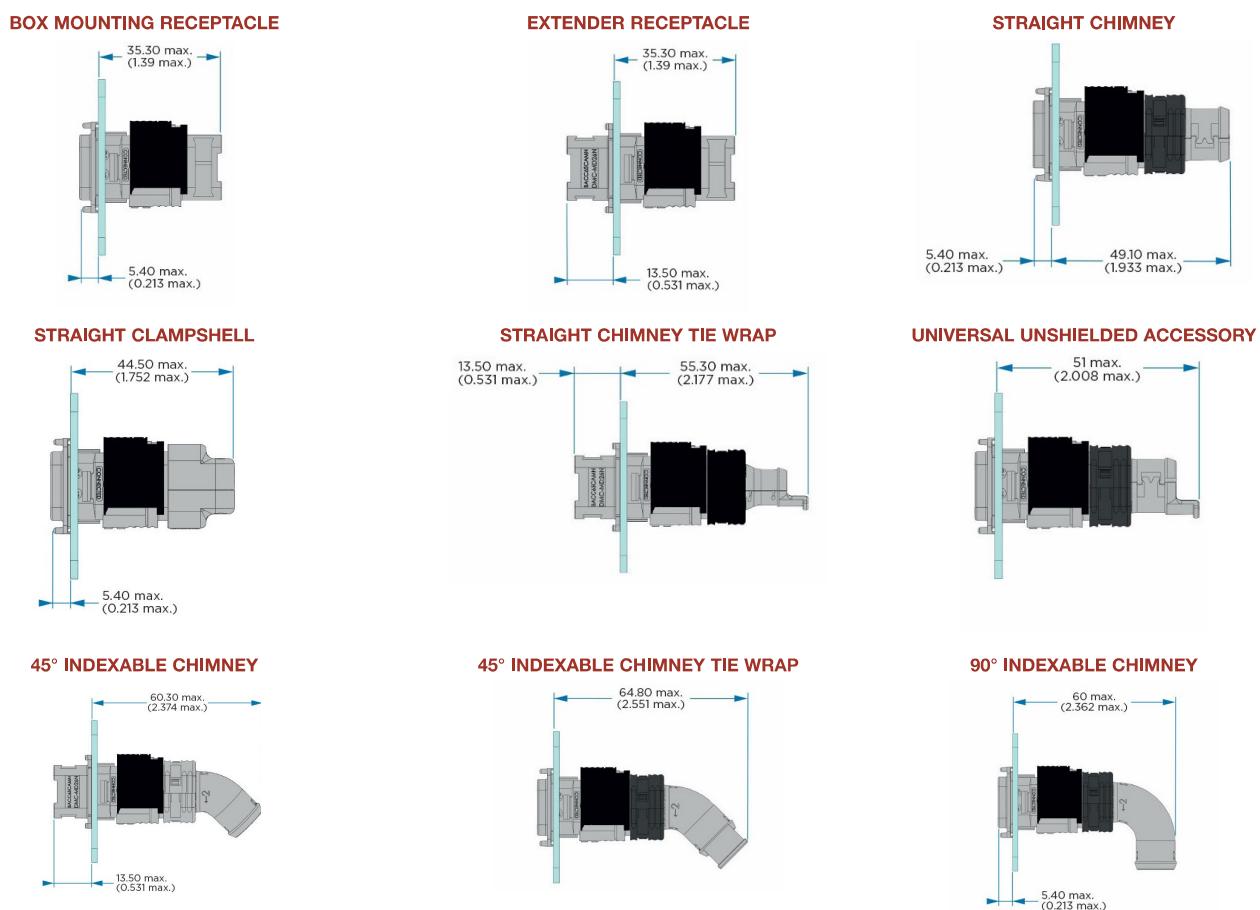


BACKSHELL / CHIMNEY INDEXATION



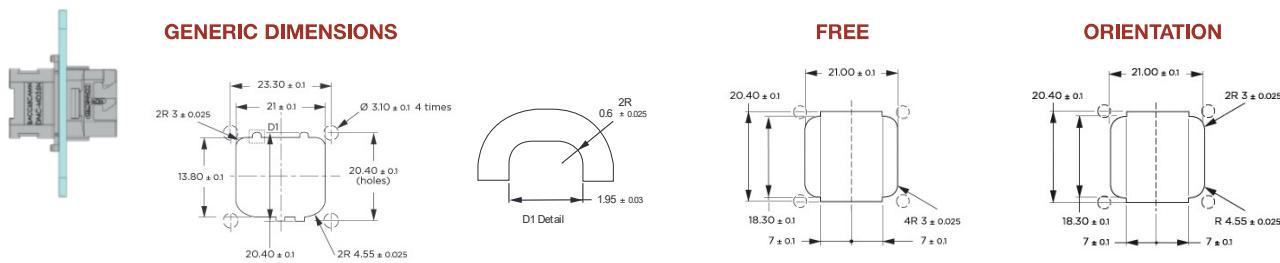
All backshells can be indexed in eight positions on the rear of plug and extender receptacle shell. This gives maximum flexibility during design and cable installation and reduces the number of variants and components.

MOUNTING PANEL DETAILS



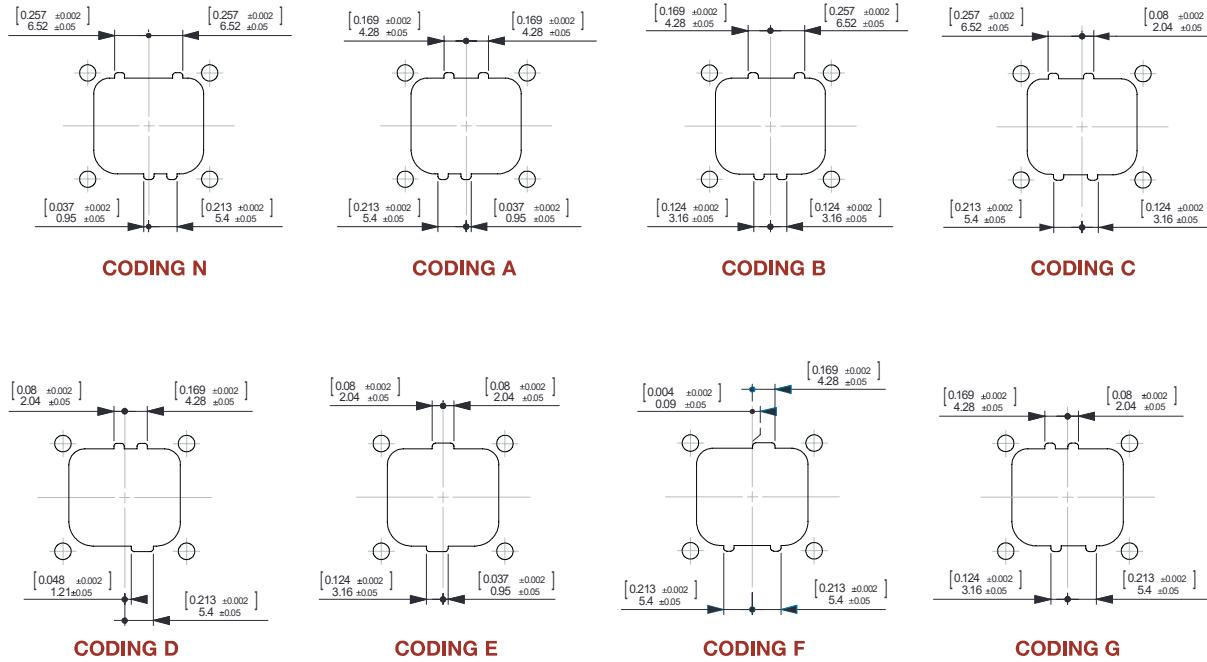
DIMENSIONS

PANEL CUTOUT

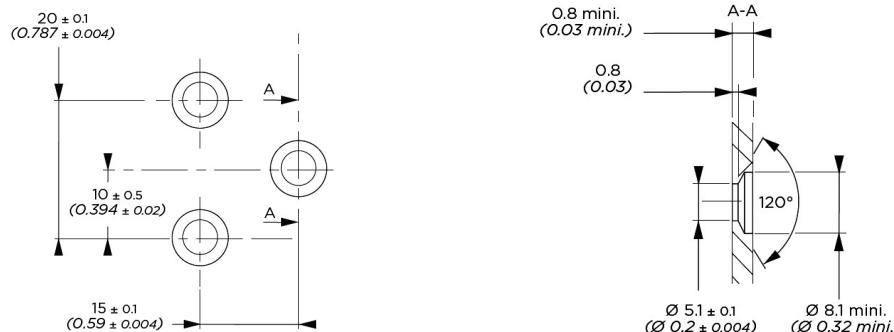


Note: Dimensions are in millimeters. Each hole Ø 3.1 mm must receive a screw (screw type 4-40) Recommended panel thickness: 0.8 mm min. - 2 mm max.

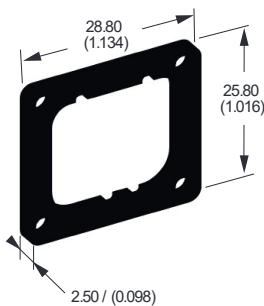
PANEL CODING KEYING



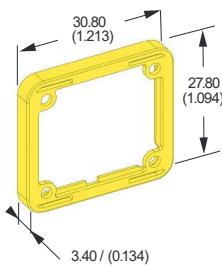
PANEL MOUNTING BRACKET CUTOUT



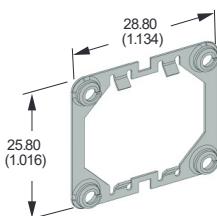
Overall dimensions and characteristics are given for indication guidance only.
TE DEUTSCH reserves the right to modify them for production improvement reasons.

OPTIONAL PARTS FOR RECEPTACLE**KEYING PLATE**

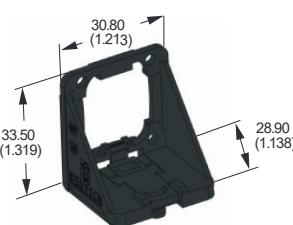
N - 787-0015-00	EN4165-25CN
A - 787-0015-01	EN4165-25CA
B - 787-0015-02	EN4165-25CB
C - 787-0015-03	EN4165-25CC
D - 787-0015-04	EN4165-25CD
E - 787-0015-05	EN4165-25CE
F - 787-0015-06	EN4165-25CF
G - 787-0015-07	EN4165-25CG

SEALING GASKET

787-0011-00
EN4165-25E

NUT PLATE

787-0016-00
EN4165-25D

PANEL MOUNTING BRACKET

787-8014-00

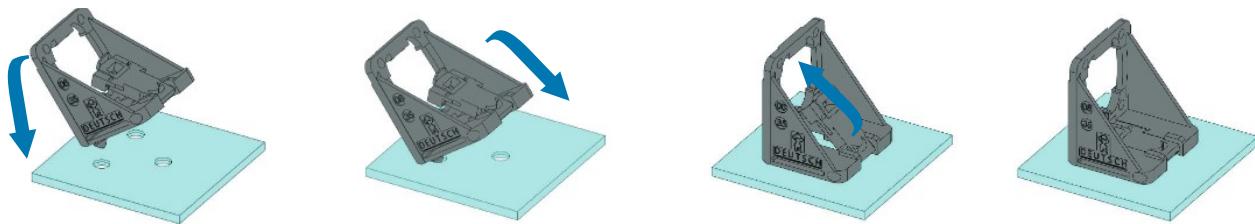
PROTECTIVE CAPS

PROTECTION LEVEL	PLUG CAP	RECEPTACLE CAP	RECEPTACLE AND EXTENDER CAP	PLUG FLIGHT CAP	RECEPTACLE AND EXTENDER FLIGHT CAP
	104-0236-00	104-0235-00	WITH LANYARD 787-8011-00 WITHOUT LANYARD 787-8009-00	787-8010-00	WITH LANYARD 787-8017-00; EN4165M3C WITHOUT LANYARD 787-8016-00
Shipping	x	x	-	-	-
Dust	x	x	x	x	x
EMI	-	-	x	x	x
Low Pressure Sealing	-	-	-	x	x



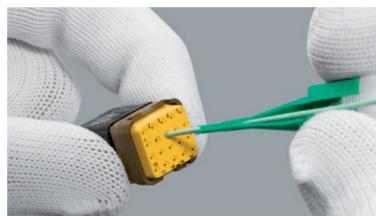
Lanyard
787-8013-00

TE DEUTSCH Part Numbers (DMC-M / 787)

MOUNTING BRACKETS**STEP 1:** Locate mating parts**STEP 2:** Install rear dowels**STEP 3:** Fix and snap in position**STEP 4:** Installed.**STEP 5:** Align receptacle with bracket**STEP 6:** Install and fix in position**STEP 7:** Assembled**CONTACT CRIMPING****STEP 1:** Use a crimping tool with the appropriate locator.**STEP 2:** Strip the insulation* 5 mm maximum.**STEP 3:** Insert the contact in the crimping tool.**STEP 4:** Insert the wire in the contact.**STEP 5:** Tighten the crimping tool.**STEP 6:** Inspect the contact. It must have 8 indents, and the wire must be seen in the contact inspection hole.

*For aluminum wire, contact us.

Note: For the use of a shielded version, do not forget to slide the cables in the chimney before crimping the contacts.

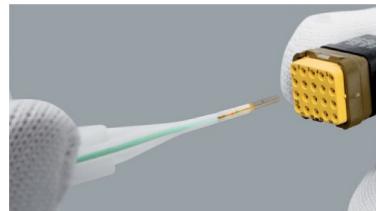
CONTACT INSERTION / EXTRACTION

STEP 1: Use the appropriate plastic tool. There is one tool for each contact size.

TOOLS PART NUMBERS	CONTACTS SIZE
M81969/14-01	22
M15570-20	20
M15570-16	16
M15570-12	12
114-008 or M81969/14-06	8

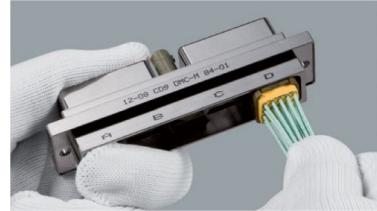
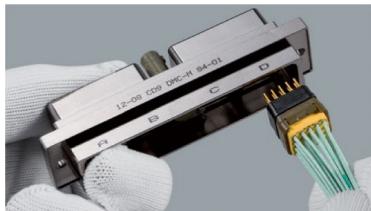
STEP 2: Insert the wire in the slot of the colored side of tool. Pull the wire until the contact butts against the tool.

STEP 3: Insert the contact in the corresponding module cavity. Push the contact fully home. Then remove the tool and lightly pull the wire back to make sure that the contact is well inserted.



STEP 4: For extraction, insert the wire in the slot of the white side of the tool. Slide the tool into the cavity and push fully home until it is butted against the contact shoulder.

STEP 5: Press the wire between the fingers and the tool. Then pull the overall wire and tool back.

MODULE INSERTION / EXTRACTION (NOTE: 4-WAY MODULE SHOWN)

STEP 1: The module must be inserted from the rear side of the housing. The module polarization key must be visible from the marked side of the housing.

STEP 2: Push manually the module (wired or not) until butting. For sealed modules use the insertion tool part number 057-0699-00 A or B. Make sure that the module is well inserted either by pulling back the wires (if wired) or by pushing the module from the front of the housing.

STEP 3: For extraction use the tool part number 057-0289-00 A or B.



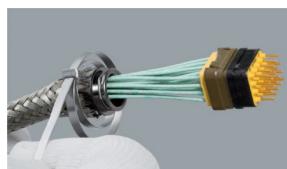
STEP 4: Slide the tool around the cable. Then push the tool inside the housing until butting.

STEP 5: Note the different tool's position depending on the A, B, C or D cavities.

STEP 6: Press the cable between the tool and the fingers and pull the overall back. If the module is not wired, use the same tool, but push the module from the front of the housing.

SHIELDED BRAID MOUNT ON CHIMNEY (NOTE: 4-WAY MODULE SHOWN)

STEP 1: Slide the chimney and the shielded braid around the cable.



STEP 2: Slide the shielded braid and the 3 mm "band it" ring over the chimney.



STEP 3: Use the tool part number 057-0450-00 to tighten the ring around the shielded braid over the chimney.



STEP 4: Clip the module in the housing.