

Trapezoidal-Connectors Series TMC

Subminiature-D Connectors

to DIN 41 652/IEC 807-3



General

Series **TMC** connectors are available in 5 different housing sizes with 9, 15, 25, 37 and 50 pins. In applications these connectors are frequently used for interface connections.

Owing to the various sizes of housing series TMC connectors match virtually any application.

Wires can be connected by manual soldering, insulation displacement and crimping. For use on PC boards there are versions with straight or angled pins for machine soldering. For versions with straight pins there is also the solderless press-fit technique (ERNIPRESS).

You can find ordering details for connectors with crimp termination and ERNIPRESS on separate data sheets.

Accessories

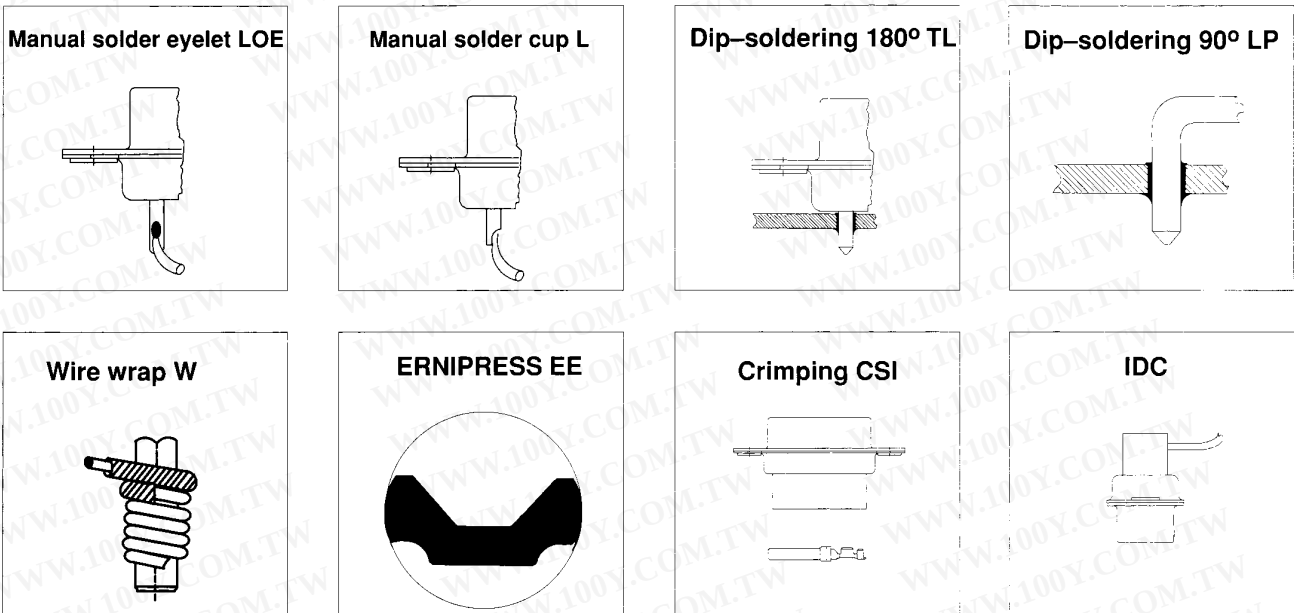
For series TMC connectors ERNI has a wide range of accessories available.

No matter whether the important criterion is easy assembly, different types of mounting, electromagnetic compatibility, locking devices or connector housings, you will find attractive solutions at ERNI.

Main features

- Indirect mating system
- International approval certificates such as UL and CSA
- 5 housing sizes with 9, 15, 25, 37 and 50 pins
- Accessories integrated into the connector
- Tinned metal housing
- Laminated ground contact on the male housings for optimal screening
- 3 different connector housing types available
- Various types of termination available
- Solid contacts on the male connectors with tinned manual soldering termination

Termination



For **ERNIPRESS**, crimping and insulation displacement (**IDC**) there are separate data sheets available.

Performance Levels

207 to DIN 41 652/IEC 807-3
 MIL-C-24308, CCTU 08-14
 and IEC-Recommendation 48 B
 200 mating cycles
 Contact zone gold-plated
terminal zone tinned

201 as for version 207 but
terminal zone gold-plated

107 to DIN 41 652/IEC 807-3
 MIL-C-24308, CCTU 08-14
 and IEC-Recommendation 48 B
 500 mating cycles
 Contact zone gold-plated
terminal zone tinned

101 as for version 107 but
terminal zone gold-plated

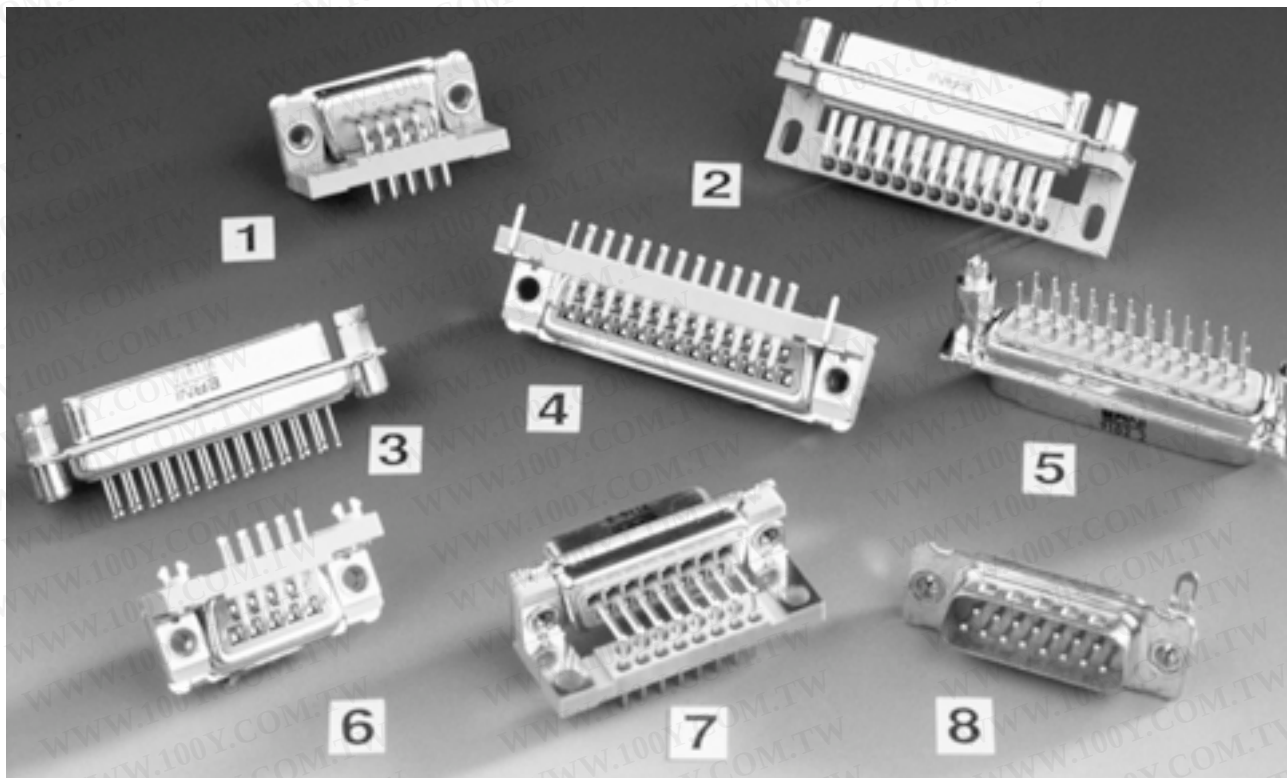
Performance level **107** and **101** connectors are available on request.

Approval Certificates

UL All male and female connectors from this data sheet are approved by the American certification authority „Underwriters Laboratories Inc.“.
 File no. E 84703

CSA All types are listed by the Canadian certification authority „Canadian Standards Association“.
 File Nr. LR 62503 and LR 62504.

Integrated Accessories



Riveted nut (see fig. 1)

On the version with riveted nut there is a nut riveted into the mounting flanges of the connector so that it cannot twist. The thread is available as a M3 and 4/40" version. This facilitates fitting into housings or front panels.

Threaded bolt (see fig. 2)

To ensure secure connector locking, a screw locking device is frequently used with threaded bolts. TMC connectors from ERNI are available with riveted threaded bolts. These hexagon bolts are available with internal threads of M3 and 4/40". For the user it means there is no need for loose accessories.

Spacer bolt (see fig. 3)

Due to the design of the TMC connectors a spacer is required for vertical assembly on pc boards. These parts are supplied by ERNI as individual accessories.

Ground pin (see fig. 4)

The additional ground pin is designed for connecting up to the pc board chassis contact for example.

Spacer bolt with mounting clip (on request) (see fig. 5)

These spacer bolts can be snapped into the mounting holes on the pc board. If the holes are plated-through there will also be a solder joint.

Ground clip (see fig. 6)

For screening contact there are angled ERNI TMC connector ground clips available. These clips are soldered into the mounting holes on the pc board, thus creating a firm chassis connection.

Ground bar (see fig. 7)

Ground bars on angled connectors are attached to the guide frame on the pc board. This makes it possible to make connection with chassis conductors on the pc board.

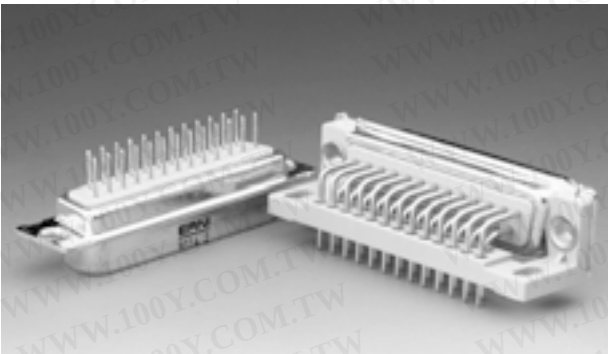
Ground eyelet (on request) (see fig. 8)

With the ground lug the chassis contact can be soldered on.



Tinned metal housings and laminated ground contacts

The metal housings on the TMC connectors (standard versions) from ERNI are tinned so as to achieve better contact for the chassis connection. Specially punched grooves on the metal protective collar of the male connectors ensure reliable contact. Together with the ERNI connector housings in the metallized version and grounding accessories on the connectors an optimal electromagnetically compatible application is achieved.



Solid punched male contacts

Due to a special manufacturing process we are in a position to offer solid punched male contacts. These versions have a tinned terminal zone and are suitable for a current-carrying capacity of up to 7.5 A.



Guide frame for angled connectors

For mounting purposes and better guidance of angled TMC connectors with pins for dip-soldering the standard versions are equipped with a guide frame made of plastic.

With this guide frame the connectors can be screwed or riveted onto pc boards.

Versions with a guide frame and mounting clip are clipped into the pc boards and soldered in place.



Connector housings for TMC connectors

ERNI has also developed connector housings for series TMC interface connectors.

- **KSG 183 housing with engagement locking**
- **KSG 184 housing with slide locking**
- **KSG 185 housing with engagement and/or screw locking, integrated coding**

These two-shell connector housings are also available in metallized versions. Together with the ERNI TMC connectors, which have laminated ground contacts, screening is optimized.

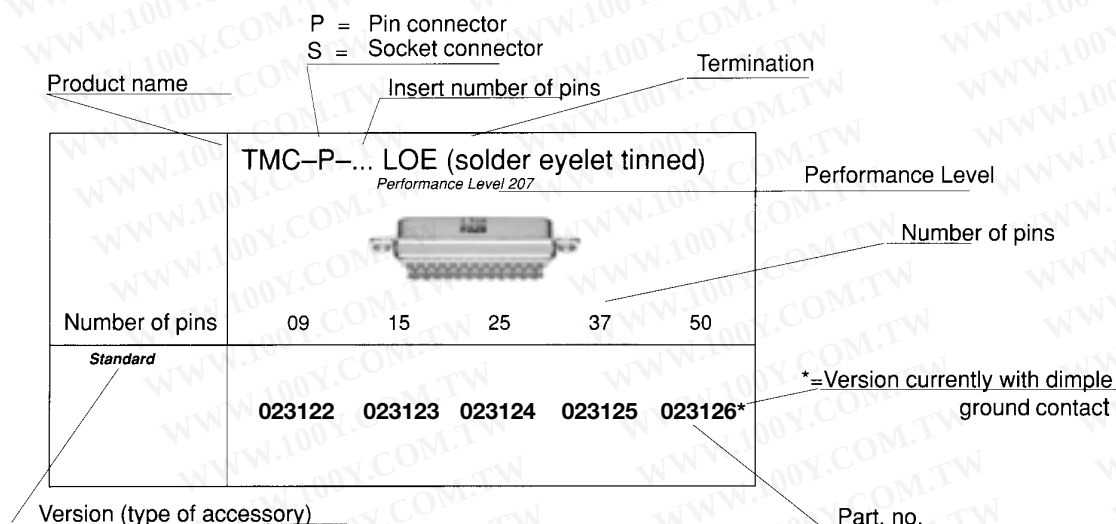


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Electrical and mechanical data

Versions	TMC-male connectors to Performance Levels 207 and 201	TMC-female connectors to Performance Levels 201	TMC-female connectors to Performance Level 207
Numbers of pins	2-rows of 9, 15, 25, 37 and 3-rows of 50 contacts		
Temperature range	-65°...+125° C		
Permissible humidity	Annual average ≤ 80%, max. 100%		
Creepage and clearance	≥ 1,0 mm		
Working current	7,5 A max.		5 A max.
Test voltage	1250 V _{rms}		1000 V _{rms}
Contact resistance	≤ 2,5 mΩ		≤ 10 mΩ
Insulation resistance	≥ 10 ¹⁴ Ω		
Shock and vibration proofness	No discontinuity at 20 g and 10...2000 Hz		
Shock proofness	up to 50 g		
Metal protective collar	Tinned steel MR St 4, 1+1 μm Ni, 8±2 μm SN		
Moulding	PBT 30% GV		
Inflammability of the plastic	Non flammable as per UL 94 V-0		
Comperative creepagefigure to DIN IEC 112 for PBT	CTI 275 / CTI 175 M		
Service life	Performance Level 2 ≥ 250 mating-cycles		
Contact force perfemale element	0,4 N		

Example of how to order



Dimension tables

Pin connectors (P)

Number of pins	A $\pm 0,3$	B (P) $+0,2$	C $\pm 0,2$	D (P) $+0,2$	E $\pm 0,3$	F $\pm 0,2$	G $+0,3$	H $\pm 0,3$	J $\pm 0,2$	K max.	L max.	M $\pm 0,2$
9	30,8	16,8	25	8,3	12,5	10,8	5,8	19,3	10,8	1,5	1,1	7,2
15	39,1	25,1	33,3	8,3	12,5	10,8	5,8	27,5	10,8	1,5	1,1	7,2
25	53	38,9	47	8,3	12,5	10,8	5,8	41,3	10,8	1,5	1,1	7,2
37	69,3	55,3	63,5	8,3	12,5	10,8	5,8	57,7	10,8	1,5	1,1	7,2
50	67	52,7	61,1	11,0	15,4	10,8	5,8	55,3	13,6	1,5	1,1	8,7

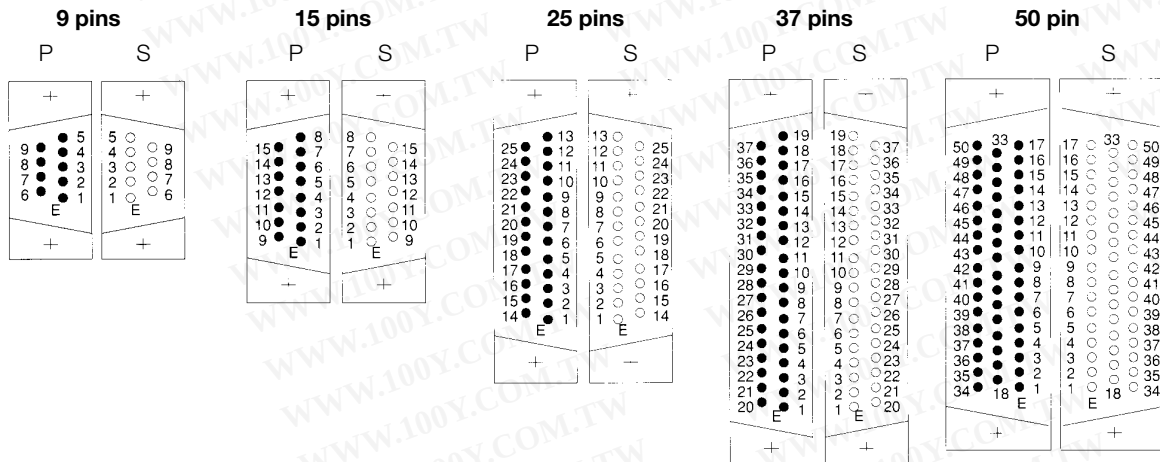
Socket connectors (S)

Number of pins	A $\pm 0,3$	B (S) $-0,2$	C $\pm 0,2$	D (S) $-0,2$	E $\pm 0,3$	F $\pm 0,2$	G $-0,3$	H $\pm 0,3$	J $\pm 0,2$	K max.	L max.	M $\pm 0,2$
9	30,8	16,4	25	8,0	12,5	11,0	6,3	19,3	10,8	1,5	1,1	7,2
15	39,1	24,7	33,3	8,0	12,5	11,0	6,3	27,5	10,8	1,5	1,1	7,2
25	53	38,5	47	8,0	12,5	11,0	6,3	41,3	10,8	1,5	1,1	7,2
37	69,3	54,9	63,5	8,0	12,5	11,0	6,3	57,7	10,8	1,5	1,1	7,2
50	67	52,5	61,1	10,8	15,4	11,0	6,3	55,3	13,6	1,5	1,1	8,7

Termination for the versions listed in this data sheet

- Loe = Solder eyelet tinned (male connector)
 L = Solder cup
 TL = Straight solder pin termination for print assembly
 LP = Angled solder pin termination for print assembly (with and without guide frame)
 W = Wire-wrap termination

Contact identification (wiring side)



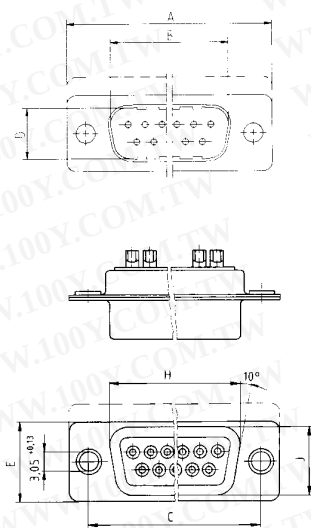


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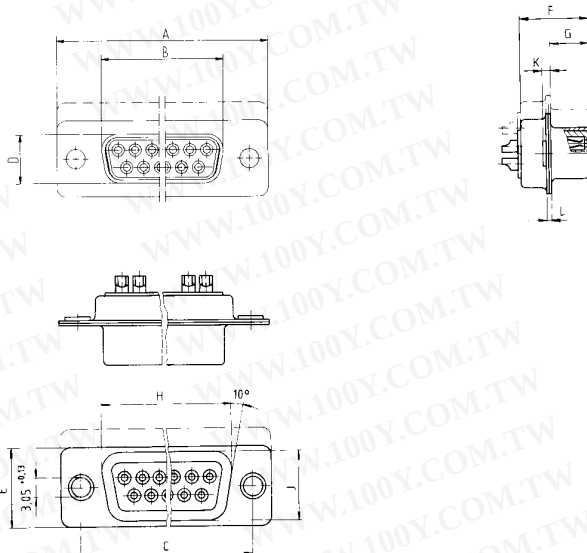
TMC with manual soldering termination

Dimensional drawings

Male connector



Female connector



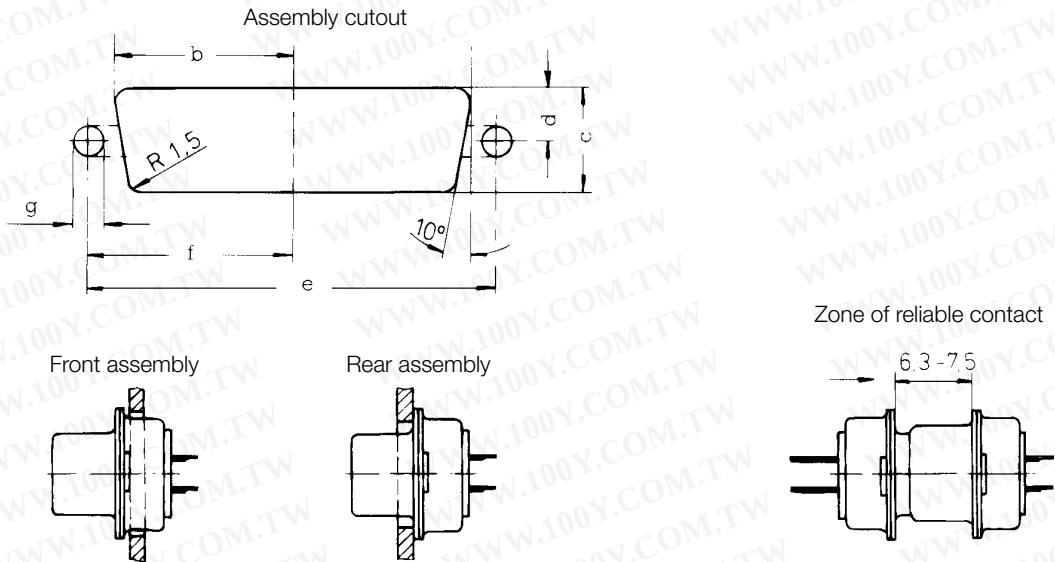
Ordering details

		Female connectors				
		TMC-S-....L (solder cup tinned)				
		Performance Level 207				
						
Number of pins		09	15	25	37	50
Standard		Standard version				
		004617	004620	004613	004926	004615

		TMC-P-....L (solder cup gold-plated)				
		Performance Level 207				
						
Number of pins		09	15	25	37	50
Standard		Standard version				
		023127	023128	023129	023130	023131*
		TMC-S-....L (solder cup gold-plated)				
		Performance Level 207				
						
Number of pins		09	15	25	37	50
Standard		Standard version				
		004125	013522	013635	004633	013844

Assembly details

TMC with manual solder termination



Number of pins	Assembly	a $\pm 0,13$	b $\pm 0,13$	c $\pm 0,13$	d $\pm 0,13$	e $\pm 0,1$	f $\pm 0,1$	g $\pm 0,1$
9	Front	22,2	11,1	13,0	6,5	25	12,5	3,1
	Rear	20,5	10,25	11,4	5,7			
15	Front	30,5	15,25	13,0	6,5	33,3	16,65	3,1
	Rear	28,8	14,4	11,4	5,7			
25	Front	44,3	22,15	13,0	6,5	47	23,5	3,1
	Rear	42,5	21,25	11,4	5,7			
37	Front	60,7	30,35	13,0	6,5	63,5	31,75	3,1
	Rear	59,1	29,55	11,4	5,7			
50	Front	58,3	29,15	15,8	7,9	61,1	30,55	3,1
	Rear	56,3	28,15	14,1	7,05			

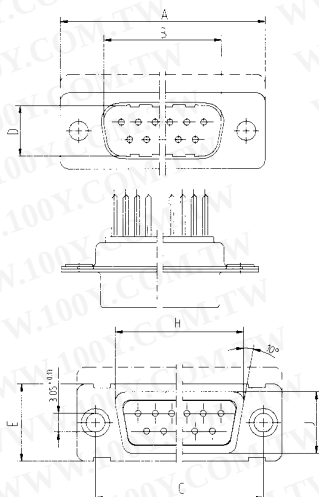


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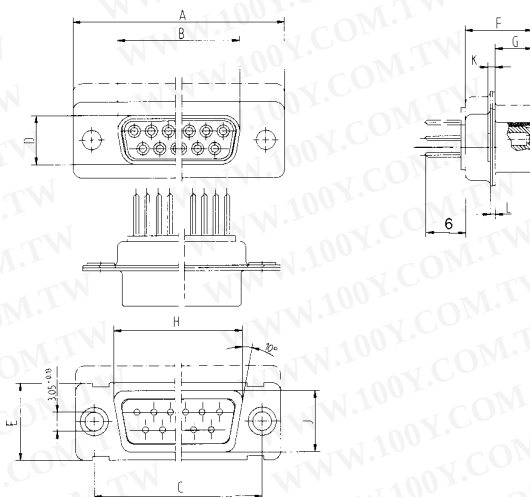
TMC with straight dip-solder termination

Dimensional drawings

Male connector



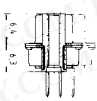
Female connector



Dimensional drawings

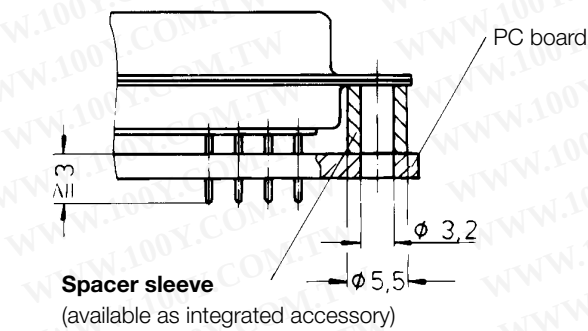
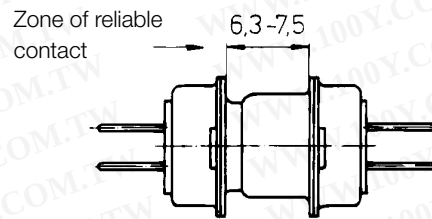
	Male connector					Female connector				
	TMC-P-....TL Performance Level 207					TMC-S-....TL Performance Level 207				
Number of pins	09	15	25	37	50	09	15	25	37	50
Standard	Standard version					Standard version				
	023132	023133	023019	023134	023135*	003552	003553	003554	003555	013920

Riveted nut and sleeve 	Version with riveted nut and sleeve M3 as accessories	023136	023137	023138	023139	023140*	Version with riveted nut and sleeve M3 as accessories	003634	013052	003625	013702	013897
	Version with riveted nut and sleeve 4/40 as accessories	023141	023142	023143	023144	023145*	Version with riveted nut and sleeve 4/40 as accessories	003633	013551	003626	013701	013898
Threaded bolt and sleeve 	Version with threaded bolt and sleeve M3 as accessories	023146	023147	023148	023149	023150*	Version with threaded bolt and sleeve M3 as accessories	003635	013550	003628	013700	013892
	Version with threaded bolt and sleeve 4/40 as accessories	023151	023152	023153	023154	023155*	Version with threaded bolt and sleeve 4/40 as accessories	003636	013549	003627	013699	013893

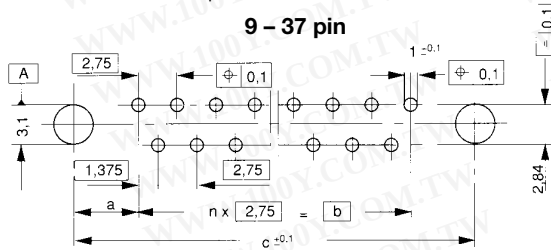
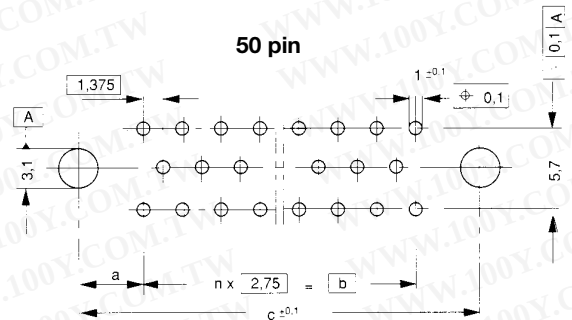
	Male connectors					Female connectors				
	TMC-P-....TL Performance Level 207					TMC-S-....TL Performance Level 207				
Number of pins	09	15	25	37	50	09	15	25	37	50
Threaded bolt and sleeve	Version with threaded bolt 4/40 and sleeve M3 as accessories					Version with threaded bolt 4/40 and sleeve M3 as accessories				
	023156	023157	023158	023159	023160*	013032	013033	013029	013034	013641

Assembly details

TMC with straight dip-solder termination



PC board hole patterns



Number of pins	a	b	c	n
9	7	11	25	4
15	7,025	19,25	33,3	7
25	7	33	47	12
37	7	49,5	63,5	18
50	8,55	44	61,1	16

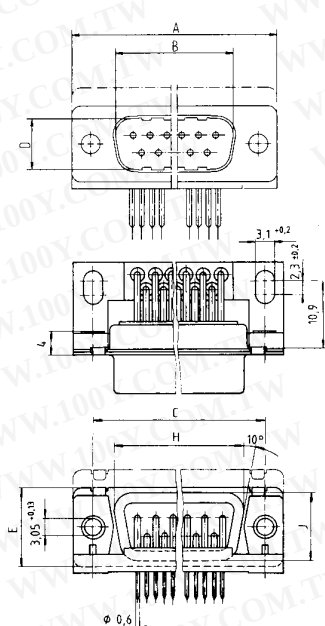


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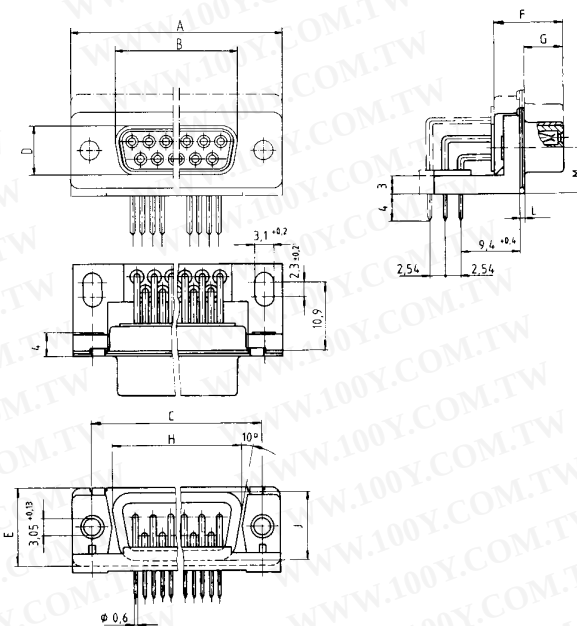
TMC with straight dip-solder termination (with guide frame)

Dimensional drawings

Male connector

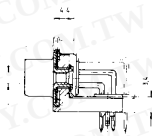
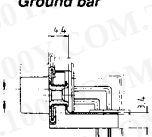
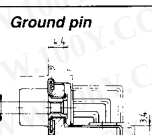
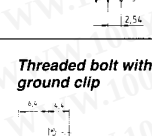
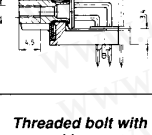
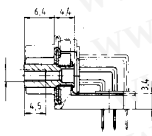
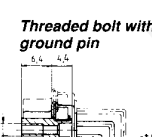


Female connector



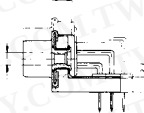
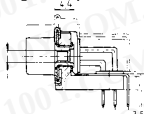
Ordering details

	Male connectors					Female connectors				
	TMC-P-....LP (with guide frame) Performance Level 207					TMC-S-....LP (with guide frame) Performance Level 207				
Number of pins	09	15	25	37	50	09	15	25	37	50
Standard	Standard version					Standard version				
	023166	023167	023168	023169	023170*	003644	004154	003643	004153	013922
Threaded bolt	Version with threaded bolt M3 as accessory					Version with threaded bolt M3 as accessory				
	023171	023172	023173	023174	023175*	003599	013533	003622	013707	013894
Riveted nut	Version with threaded bolt 4/40 as accessory					Version with threaded bolt 4/40 as accessory				
	023176	023177	023178	023179	023180*	003598	013532	003621	013708	013895
Riveted nut	Version with riveted nut M3 as accessory					Version with riveted nut M3 as accessory				
	023181	023182	023183	023184	023185*	003600	013535	003623	013710	013899
Riveted nut	Version with riveted nut 4/40 as accessory					Version with riveted nut 4/40 as accessory				
	023186	023187	023188	023189	023190*	003601	013534	003624	013709	013900

	Male connectors					Female connectors				
	TMC-P-....LP Performance Level 207					TMC-S-....LP Performance Level 207				
Number of pins	09	15	25	37	50	09	15	25	37	50
Ground clip 	Version with ground clip as accessory					Version with ground clip as accessory				
	023191	023192	023193	023194	023195*	023196	023197	023198	023199	023200
Ground bar 	Version with ground bar as accessory					Version with ground bar as accessory				
	023201	023202	023203	023204	023205*	023206	023207	023208	023209	023210
Ground pin 	Version with ground pin as accessory					Version with ground pin as accessory				
	023249	023250	023251	023252	023253*	023279	023280	023281	023282	023283
Threaded bolt with ground clip 	Version with threaded bolt M3 and ground clip as accessories					Version with threaded bolt M3 and ground clip as accessories				
	023211	023212	023213	023214	023215*	023254	023255	023256	023257	023258
	Version with threaded bolt 4/40 and ground clip as accessories					Version with threaded bolt 4/40 and ground clip as accessories				
	023216	023217	023218	023219	023220*	013973	434287	023259	023260	023261
Threaded bolt with ground bar 	Version with treaded bolt M3 and ground bar as accessories					Version with treaded bolt M3 and ground bar as accessories				
	023221	023222	023223	023224	023225*	023262	023263	023264	023265	023266
	Version with treaded bolt 4/40 and ground bar as accessories					Version with treaded bolt 4/40 and ground bar as accessories				
	023226	023227	023228	023229	023230*	003585	004225	003608	023367	023268
Threaded bolt with ground pin 	Version with treaded bolt M3 and ground pin as accessories					Version with treaded bolt M3 and ground pin as accessories				
	023284	023285	023286	023287	023288*	003584	013541	003464	023304	023305
	Version with treaded bolt 4/40 and ground pin as accessories					Version with treaded bolt 4/40 and ground pin as accessories				
	023289	023290	023291	023292	023293*	003583	004925	003606	023306	434705
Riveted nut with ground clip 	Version with riveted nut M3 and ground clip as accessories					Version with riveted nut M3 and ground clip as accessories				
	433196	023231	023232	023233	023234*	433197	023049	023082	023269	023270
	Version with riveted nut 4/40 and ground clip as accessories					Version with riveted nut 4/40 and ground clip as accessories				
	023235	023236	023237	023238	023239*	023104	023271	023272	023273	023274



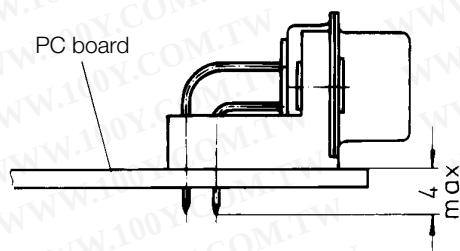
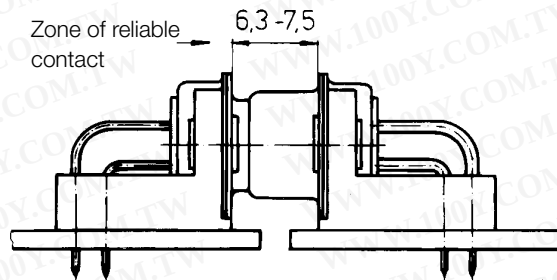
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	Male connectors					Female connectors				
	TMC-P-....LP Performance Level 207					TMC-S-....LP Performance Level 207				
Number of pins	09	15	25	37	50	09	15	25	37	50
Riveted nut with ground bar 	Version with riveted nut M3 and ground bar as accessories					Version with riveted nut M3 and ground bar as accessories				
	013966	023240	023241	023242	023243	013965	023275	003605	023276	004869
Riveted nut with ground pin 	Version with riveted nut 4/40 and ground bar as accessories					Version with riveted nut 4/40 and ground bar as accessories				
	023244	023245	023246	023247	023248*	003581	013542	013834	023277	023278
	Version with riveted nut M3 and ground pin as accessories					Version with riveted nut M3 and ground pin as accessories				
	023294	023295	023296	023297	023298*	003579	013014	023307	004448	023308
	Version with riveted nut 4/40 and ground pin as accessories					Version with riveted nut 4/40 and ground pin as accessories				
	023299	023300	023301	023302	023298*	003580	023309	003603	023310	023311

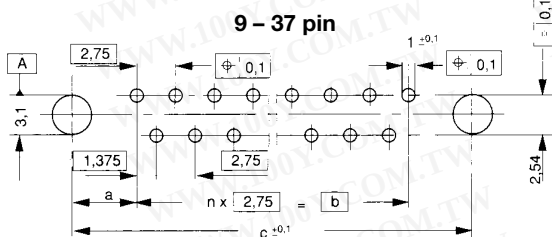
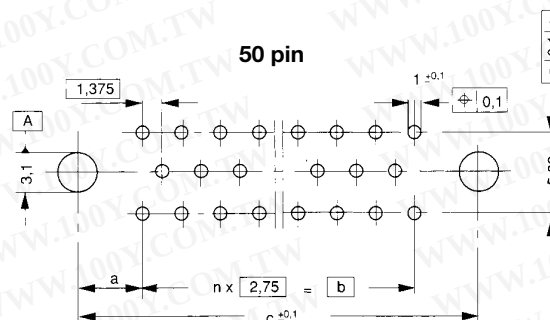
For further accessories and other combination options please consult ERNI's local office sales.

Assembly details

TMC with straight dip-solder termination



PC board hole patterns



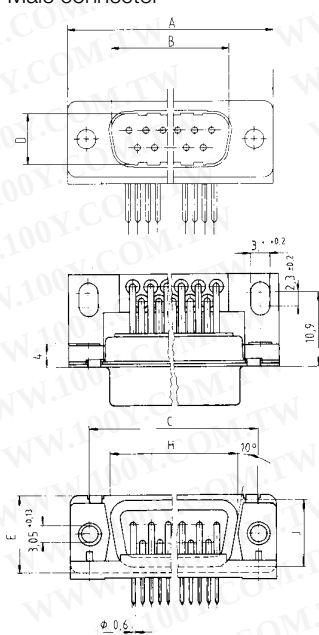
Number of pins	a	b	c	n
9	7	11	25	4
15	7,025	19,25	33,3	7
25	7	33	47	12
37	7	49,5	63,5	18
50	8,55	44	61,1	16

Special version with solder pitch of 2.84 mm between the rows

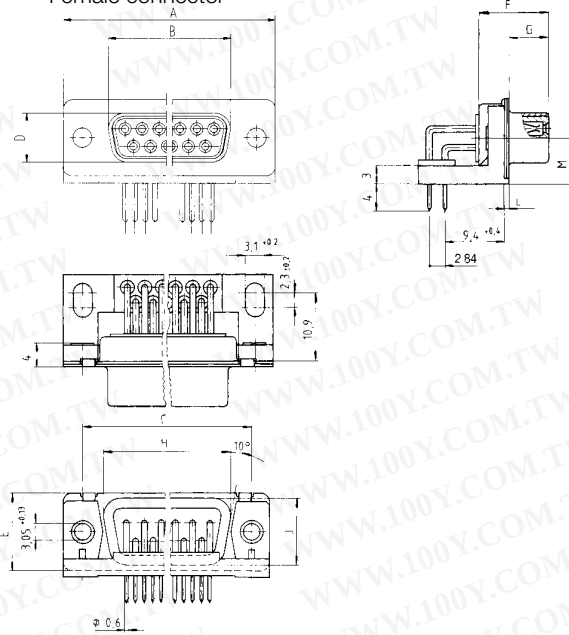
TMC with angled dip-solder termination (solder pitch 2.84 mm)

Dimensional drawings

Male connector



Female connector

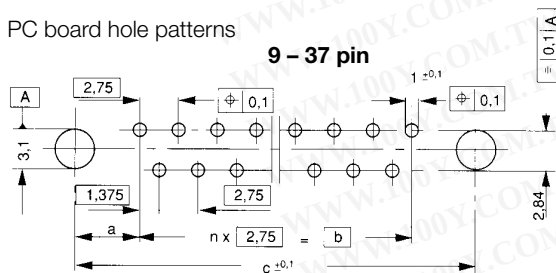


Ordering details about special version with solder pitch of 2.84 mm

	Male connector	Female connector
	TMC-P-....LP (with guide frame) Performance Level 207	TMC-S-....LP (with guide frame) Performance Level 207
Number of pins	09 15 25 37 50	09 15 25 37 50
Standard	Standard version 023312 023314	Standard version 023317 023318 023319 023320

Due to the wider pitch between the rows, there is more space for conductors on the PC board. The clearance and creepage ages are greater on these versions.

PC board hole patterns



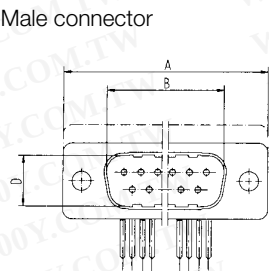
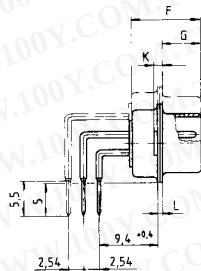
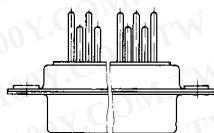
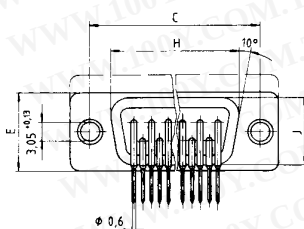


勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

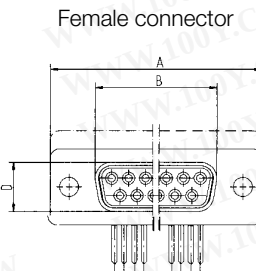
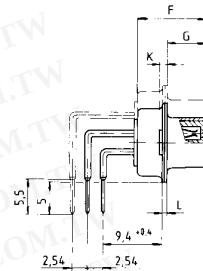
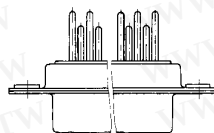
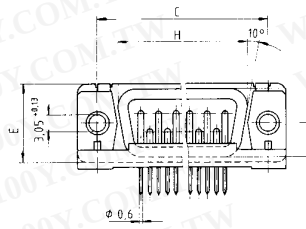
TMC with angled dip-solder termination (without guide frame)

Dimensional drawings

Male connector



Female connector



Ordering details

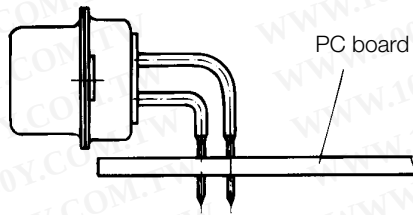
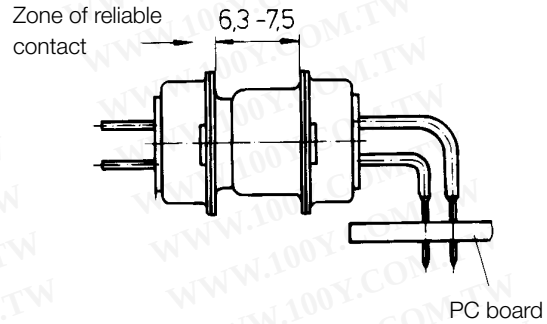
	Male connector	Female connector
	TMC-P-....LP (without guide frame) Performance Level 207	TMC-S-....LP (without guide frame) Performance Level 207
Number of pins	09 15 25 37 50	09 15 25 37 50
Standard	Standard version 023322 023323 023324 023325 023326*	Standard version 013487 013525 013624 013714 013930

Integrated accessories are also available on request for TMC connectors with angled terminals without guide frame.

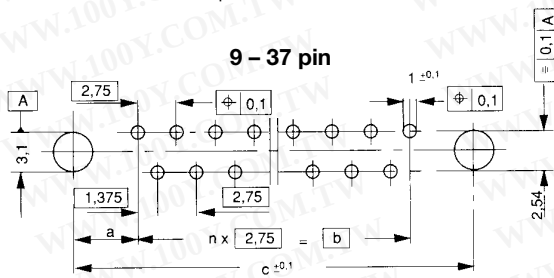
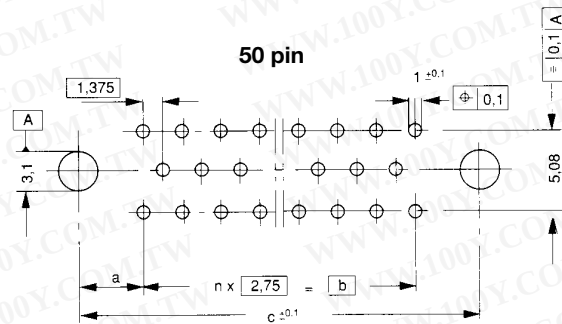
For assembly, an assembly comb is available on request.

Assembly details

TMC with angled dip-soldered termination without guide frame



PC board hole patterns



Number of pins	a	b	c	n
9	7	11	25	4
15	7,025	19,25	33,3	7
25	7	33	47	12
37	7	49,5	63,5	18
50	8,55	44	61,1	16

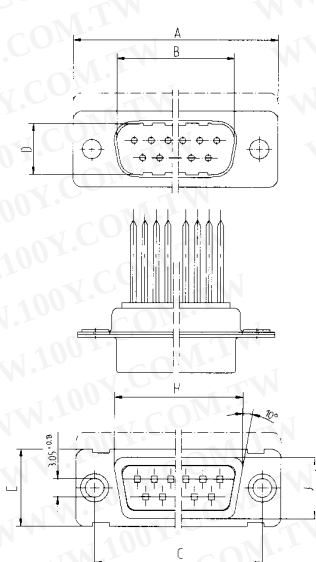


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 勝特力电子(深圳) 86-755-83298787
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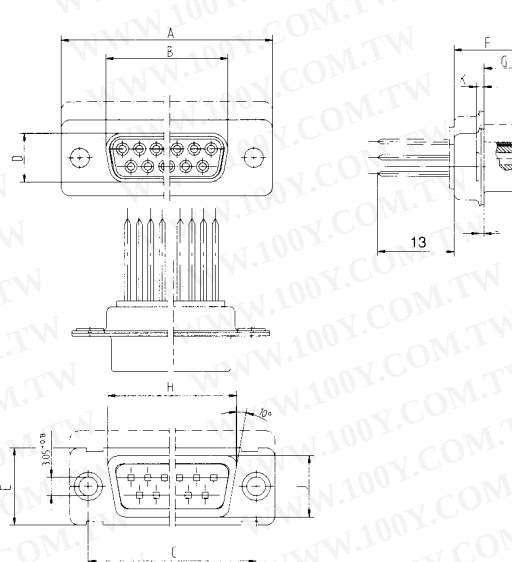
TMC with wire wrap terminations

Dimensional drawings

Male connector



Female connector



Ordering details

	Male connector					Female connector				
	TMC-P-...W Performance Level 201					TMC-S-...W Performance Level 201				
Number of pins	09	15	25	37	50	09	15	25	37	50
Standard	Standard version					Standard version				
	023327	023328	023329	023330	023331*	013492	013553	013632	013698	013928

Screw locking accessories (for all TMC standard version connectors)

Ordering details

Knurled screw 4/40" Each set comprises 2 screws and retainers.		Threaded bolt 4/40" Each set comprises 2 threaded bolts, spring washers and nuts.	
	Set		Set for assembly without board 434831
	434830		Set for assembly with board 2 mm thick 434832
			Set for assembly with board 3 mm thick 434833