UTO - Bantam

Metal circular connector

(Suitable for EMC requirements)

Description

"UT0" Bantam industrial circular connectors are a range of multiway connectors available in 8 shell sizes and 8 insert arrangements all intermateable, interchangeable and intermountable with the Trim-Trio "UTG", "UTGS" and "UTP industrial connector families.

"UT0" is equipped with identical shells from military connectors complying to MIL-C-26482 spec.

Strong and rugged built to resist every environmental and mechanical requirement for indoor and outdoor applications. In combination with the shielded backshell , "UT0" offers the perfect solution to EMC requirements.

Features and benefits

- Suitable for EMC requirements.
- Shielded backshell is independent of the cable diameter and its shielding.
- Available in 8 shell sizes and 8 insert arrangements.
- Available in plug and receptacle version for both male and female contacts.
- Shells and accessories are made from tin plated corrosion resistant Aluminium.
- Plastic inserts with flammability rating: UL94-V0.
- Alu. bayonet ring:
 - Metal wave spring loaded.
 - Locks with audible positive "click"
 - Assures 500 matings and unmatings



Performance characteristics

Operating							
temperature:	-55°C to +125°C						
Insulation							
resistance:	5000 MΩ min.						
Test potential:	2000 VAC						
Durability:	500 matings and unmatings.						
Vibration	Per MIL-STD202						
resistance:	method 204						
Thermal	Per MIL-STD202						
shock:	method 207						
Corrosion:	Salt spray per MIL-STD 202						
	method 101						
Shielding effect	tiveness: 95 dB at 1 Mhz						
(see shielded c	onnectors section)						
Degree of protection per DIN 40050:							
IP65 in mated condition. "H" version used							
with UTG-PG c	able clamp						

Construction

Shells and accessories: Alumimium alloy
Coupling ring: Aluminium alloy
Tri-lock pins: Stainless steel
Coupling spring: Spring steel
Insert: Glass-filled thermoplast UL94-V0
Finish: Bright tin (standard)

Contact accommodation

- "UT0" connectors accept Trim-Trio crimptype removable snap-lock contacts (see contacts section)
- Contacts to be ordered seperately.

How to order

		UT0 UT0	0 6	14 14	12 12	P S	-	н	 т	B B
Body variation:	 0: Wall mounting receptacle 6: Cable plug 1: Free hanging receptacle 7: Bulk head receptacle for real 	ar panel	mounting							
Shell size:										
Insert arrangemen	nt:									
Type of contacts:	P : Pin contacts S : Socket contacts									
Insert polarisation	: No letter : Standard version									
Application:	No letter : Standard version H : Water protected version (only rece	eptacle)							
Design variation:	No letter : Standard version Others : Special versions									
Plating:	T : Bright tin (Standard versio	n)								
Packing:	No letter: Standard version: E B: Bulk packing per qty of 10	Each cor 0 pcs	nnector in	dividualy	packed in	plastic b	ag			





Cable plug for pin contacts (UT06- - - - PT)



Part number	Shell size	Ø A ±0.2	B max.	Ø C ±0.15	Ø D ±0.15	E ±0.2
UT06104PT	10	21.6		10.2	12.3	
UT06128PT	12	24.8		13.4	15.1	
UT061412PT	14	28.0		16.7	18.3	
UT061619PT	16	31.2	31.8	19.7	21.5	19.1
UT061823PT	18	34.3		21.7	24.0	
UT062028PT	20	37.5		24.9	27.2	
UT062235PT	22	40.7		28.1	30.4	
UT062448PT	24	43.9		31.2	33.5	

For bulk packing (qty 100 pcs) add B at the end of cat. Nr. eg. UT061412PTB

Cable plug for socket contacts (UT06- - - -ST)





Part number	Shell size	Ø A ±0.2	B max.	Ø C ±0.15	Ø D ±0.15	E ±0.2
UT06104ST	10	21.6		10.2	12.3	
UT06128ST	12	24.8		13.4	15.1	
UT061412ST	14	28.0	31.8	16.7	18.3	
UT061619ST	16	31.2		19.7	21.5	19.1
UT061823ST	18	34.3		21.7	24.0	
UT062028ST	20	37.5	24.9	24.9	27.2	
UT062235ST	22	40.7		28.1	30.4	
UT062448ST	24	43.9	26.2	31.2	33.5	

For bulk packing (qty 100 pcs) add B at the end of cat. Nr. eg. UT061412STB



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Wall mounting receptacle for pin contacts (UT00- - - - PT)





Part number	Shell size	A max.	B ±0.25	C ±0.2	Ø D ±0.15	E ±0.25	F •0.25	Ø G ±0.1	Ø H ±0.1	Ø J ±0.1
UT00104PT	10				15.0	18.3	23.8		17.3	15.1
UT00128PT	12		1.6		19.0	20.6	26.2		21.8	18.2
UT001412PT	14	31.7		11.3	22.2	23.0	28.6		25.0	21.4
UT001619PT	16				25.3	24.6	31.0	3.2	28.1	24.6
UT001823PT	18				28.5	26.9	33.3		31.3	27.8
UT002028PT	20			14.5	31.7	29.4	36.5		34.5	30.9
UT002235PT	22	33.3	2.4		34.9	31.8	39.7		37.7	34.1
UT002448PT	24			15.3	38.0	34.9	42.9	3.9	40.9	37.3

For waterprotected version add "H" behind "P" e.g. UT001412PHT

For bulk packing (qty 100 pcs) add B at the end of cat. Nr. eg. UT001412PTB

Wall mounting receptacle for socket contacts (UT00- - - -ST)





Part number	Shell size	A max.	B ±0.25	C ±0.2	Ø D ±0.15	E ±0.25	F •0.25	Ø G ±0.1	Ø H ±0.1	Ø J ±0.1
UT00104ST	10				15.0	18.3	23.8		17.3	15.1
UT00128ST	12		1.6		19.0	20.6	26.2		21.8	18.2
UT001412ST	14	24.3		11.3	22.2	23.0	28.6		25.0	21.4
UT001619ST	16				25.3	24.6	31.0	3.2	28.1	24.6
UT001823ST	18				28.5	26.9	33.3		31.3	27.8
UT002028ST	20			14.5	31.7	29.4	36.5		34.5	30.9
UT002235ST	22	25.9	2.4		34.9	31.8	39.7		37.7	34.1
UT002448ST	24			15.3	38.0	34.9	42.9	3.9	40.9	37.3

For waterprotected version add "H" behind "P" e.g. UT001412SHT

For bulk packing (qty 100 pcs) add B at the end of cat. Nr. eg. UT001412STB

UTO - Bantam





Part number	Shell size	A max.	B ±0.25	C ±0.2	Ø D ±0.15	Ø E max.
UT01104PT	10				14.9	24.1
UT01128PT	12				19.0	26.4
UT011412PT	14	31.7	1.6	11.3	22.2	28.8
UT011619PT	16				25.3	31.2
UT011823PT	18				28.5	33.6
UT012028PT	20			14.5	31.7	36.8
UT012235PT	22	33.3	2.4		34.9	39.9
UT012448PT	24			15.3	38.0	43.1

For waterprotected version add "H" behind "P" e.g. UT011412PHT

For bulk packing (qty 100 pcs) add B at the end of cat. Nr. eg. UT011412PTB

Free hanging receptacle for pin contacts (UT01- - - -ST) - suitable for cable to cable applications



Part number	Shell size	A max.	B ±0.25	C ±0.2	Ø D ±0.15	Ø E max.
UT01104ST	10				14.9	24.1
UT01128ST	12				19.0	26.4
UT011412ST	14	24.3	1.6	11.3	22.2	28.8
UT011619ST	16				25.3	31.2
UT011823ST	18				28.5	33.6
UT012028ST	20			14.5	31.7	36.8
UT012235ST	22	25.9	2.4		34.9	39.9
UT012448ST	24			15.3	38.0	43.1

For waterprotected version add "H" behind "P" e.g. UT011412SHT

For bulk packing (qty 100 pcs) add B at the end of cat. Nr. eg. UT011412STB





Bulk head receptacle for pin contacts (UT07- - - - PT) - suitable for rear panel mounting



Part number	Shell size	A ±0.15	B ±0.2	D max.	F max.	G ±0.25	H •0.2	K ±0.2	L ±0.12	Ø M ±0.2
UT07104PT	10	14.9				27.0	22.2	16.6	17.0	17.7
UT07128PT	12	19.0				31.8	27.0	20.8	21.2	22.5
UT071412PT	14	22.2	18.0	31.7	3.2	34.9	30.2	23.9	24.3	25.7
UT071619PT	16	25.3				38.1	33.3	27.1	27.5	28.7
UT071823PT	18	28.5				41.3	36.5	30.3	30.6	32.0
UT072028PT	20	31.7	22.7			46.1	39.7	33.4	33.8	35.2
UT072235PT	22	34.9		33.3	6.4	49.2	42.9	36.6	37.0	38.4
UT072448PT	24	38.0	23.6			52.4	46.0	39.8	40.1	41.5

For waterprotected version add "H" behind "P" e.g. UT071412PHT

For bulk packing (qty 100 pcs) add B at the end of cat. Nr. eg. UT071412PTB

Bulk head receptacle for pin contacts (UT07- - - -ST) - suitable for rear panel mounting







Part number	Shell size	A ±0.15	B ±0.2	D max.	F max.	G ±0.25	H •0.2	K ±0.2	L ±0.12	Ø M ±0.2
UT07104ST	10	14.9				27.0	22.2	16.6	17.0	17.7
UT07128ST	12	19.0				31.8	27.0	20.8	21.2	22.5
UT071412ST	14	22.2	18.0	24.3	3.2	34.9	30.2	23.9	24.3	25.7
UT071619ST	16	25.3				38.1	33.3	27.1	27.5	28.7
UT071823ST	18	28.5				41.3	36.5	30.3	30.6	32.0
UT072028ST	20	31.7	22.7			46.1	39.7	33.4	33.8	35.2
UT072235ST	22	34.9		25.9	6.4	49.2	42.9	36.6	37.0	38.4
UT072448ST	24	38.0	23.6			52.4	46.0	39.8	40.1	41.5

For waterprotected version add "H" behind "P" e.g. UT071412SHT For bulk packing (qty 100 pcs) add B at the end of cat. Nr. eg. UT071412STB



Metal cable clamp with strain relief (U--ACT)





Part number	Shell size	A ^{≠0.2}	L ±0.3
U10ACT	10	16.7	41.2
U12ACT	12	20.2	41.0
U14ACT	14	23.1	46.0
U16ACT	16	26.2	49.3
U18ACT	18	29.7	53.5
U20ACT	20	32.6	56.6
U22ACT	22	35.8	58.6
U24ACT	24	39.2	62.6

Metal cable clamp with strain relief nut for waterprotected applications (UT0--PGT)





Part number	umber Shell		number Shell Sealing		L ±1	A ±0.25
	5120					
UT010PGT	10	13.5 x 5 x 8	53	16.7		
UT012PGT	12	16 x 7 x 10.5 x 13	57	20.1		
UT014PGT	14	18.5 x 7 x 105 x 13 x 16	62	23.0		
UT016PGT	16	20.5 x 8 x 10.5 x 13 x 16	68	26.2		
UT018PGT	18	20.5 x 8 x 10.5 x 13 x 16	71	29.6		
UT020PGT	20	26 x 11 x 15 x 18 x 22	82	32.5		
UT022PGT	22	26 x 11 x 15 x 18 x 22	88	35.7		
UT024PGT	24	35 x 19 x 23 x 27 x 31	103	39.2		

CIRCULAR ACCESSORIES

*In order to accommodate different cable dia's, the sealing exisits of different layers which can be pulled out easily.



Environmental dustcap for plugs (UTG6--DCG)



Part number	Shell size	A max.	В
UTG610DCG	10	20.0	
UTG612DCG	12	24.0	
UTG614DCG	14	27.5	20.8
UTG616DCG	16	30.5	
UTG618DCG	18	33.5	
UTG620DCG	20	36.5	
UTG622DCG	22	40.0	22.5
UTG624DCG	24	43.0	

For dustcap without chain skip "G" e.g. UTG612DC

Metal environmental dustcap for receptacles (UTG--DCG)



Part number	Shell size	A max.
UTG10DCG	10	20.8
UTG12DCG	12	24.9
UTG14DCG	14	28.1
UTG16DCG	16	31.3
UTG18DCG	18	34.4
UTG20DCG	20	37.6
UTG22DCG	22	40.8
UTG24DCG	24	43.9

For dustcap without chain skip "G" e.g. UTG12DC



Plastic environmental dustcap for receptacles (UTP--DCG)





Part number	Shell size	Ø A ±0.2	B max.
UTP10DCG	10	26.7	19.3
UTP12DCG	12	31.4	20.0
UTP14DCG	14	34.5	
UTP16DCG	16	37.8	
UTP18DCG	18	40.8	20.2
UTP20DCG	20	43.9	
UTP22DCG	22	47.0	
UTP24DCG	24	50.1	21.8

For dustcap without chain skip "G" e.g. UTP12DC

Sealing for square flange receptacle (UTFD1-B)





New

0.6 ±0.2



Overview TRIM TRIO and SEALOK contacts



Selection matrix TRIM TRIO and SEALOK contacts



Contacts



Current ratings for multi-contact connectors

Choice of right connector - contact combination.

The choice of a Trim Trio connector in combination with a Trim Trio contact is essential and different for any application There is considerable misunderstanding in the field on current carrying capabilities for the various contacts in the TrimTrio programme.

The intention of this part is to give guidance how to interprete the given current ratings in general and how to calculate them for particular applications.

The information given is based upon existing

MIL specifications such as:

MIL-C-26482, MIL-C-8384,

MIL-T-7928, MIL-W-5086, MIL-W-5088, MIL-W-16878, etc. and in

conjunction with long field practice.

Current carrying capabilities

Trim Trio contacts are designed to carry a specific current, in accordance with the applicable specification.

This specification will be defined by

following variables:

Connector size

The more contacts in a connector, the less current per contact can be loaded.

• Wire size (see table 1)

The cross section will determine the internal resistance and temperature rise for a given current.

-Table 1 gives the current ratings for the various wire sizes commonly used with Trim Trio contacts.

• Current rating (see table 2)

The current load for a given application will generate heat.

- Table 2 gives the *maximum current carrying capacity* of most of the Trim Trio contacts, *the maximum operating current* and *the recommended continuous current*.

Ambient temperature

The combination of the connector size, the wire size and the current rating will generate a temperature rise.

This temperature rise + a given ambient temperature may not exceed the maximum operating temperature of the connector material (see performance characteristics for each connector family).

Table 1 - Current carrying capabilities per wire size

AWG	wire size mm²	wire dia. mm Amp.	max.curr. carrying Amp.	max.oper- ating curr. Amp.	recomm. cont. curr.
26	0.13	0.40	3	2	1
24	0.20	0.51	4.5	3	2
22	0.32	0.64	9	5	3
20	0.52	0.81	11	7.5	5
18	0.82	1.02	16	10	7.5
16	1.30	1.29	22	13	10
14	2.10	1.63	32	17	13

Table 2 - Current carrying capabilities per contact type

size	pin dia.	type	max. curr. carying Amp.	max. oper- ating curr. Amp.	recomm. cont. curr. Amp.
		RM / RC machined	22	13	10
16	.062* 1.6 mm	SM / SC 2 piece stamped	22	13	10
20	.040* 1.0 mm	SM-W / SC-W 2 piece stamped	11	7.5	5

- Max. current carrying capacity
- Max. operating current
- Recommended continuous current

What do these values mean in practice ?

• Max current carrying capacity

of a contact is defined by the conducting section of the contact in its smallest area. The listed values are obtained from several tests in laboratories under room conditions (21°C). The contact is considered to be in free air.

• Max operating current

is the current with which the contacts can be energized during a longer or shorter period, without deteriorating and depending on working conditions.

These are dissipated heat, cooling provisions, ambient temperature, insulation material, etc.

• Recommended continuous current can be applied for all normal cases and working conditions. The values include a safety margin. However, there are restrictions in the application of the given values. The most important restriction is the used wire, its sectional area, insulation temperature range, as well as wires in bundles.

Military specifications require that for a cable bundle of 15 conductors or more, the bundle shall not carry more than 20% of the total carrying capacity of the bundle. In smaller bundles, the allowable percentage of total current may be increased as the bundle approaches the single wire condition. This percentage of increase in total current carrying capacity of the bundle is 6% for each conductor less than 15 in a bundle.

Contacts



From simple calculations, one can see that the closer the bundle approaches the single wire condition, the higher the allowable current per conductor becomes, to even such an extent, that it exceeds the recommended continuous current value. In that case, the recommended continuous value should have preference. In order to make this clear, we will give hereafter some typical examples.

• Example 1

Cable bundle, 48 conductors AWG20 (0.5mm²) used with circular TrimTrio connector with insert arrangement 24-48 and machined size 16 contacts RM/RC20.

- Total operating current capacity of bundle 48 x 7.5 A (table I) = 360 A
- Total allowable capacity for bundles of more than 15 wires is 20% = 72 A
- When all conductors are energized equally, this gives:
- <u>72 : 48 = 1.5 A per conductor</u>

When for instance 5 conductors are energized to the recommended continuous current of 5 A (see table 1) resulting in 25 A consumption, the other conductors may not take more than

72 - 25 = 47 A all together, or 1 A per conductor.

Any other combination can of course also be taken as long as the total capacity of 72 A is not exceeded and the recommended continuous current is respected.

Remark

Please note that contacts used are of the size 16 type with maximum operating current of 13 A (table 2).

The maximum operating current of the bundle is however restricted to 7.5 A per conductor due to the wire size of AWG20 (see table 1).

• Example 2

Cable bundle, 14 conductors AWG22 (0.32 mm²) used with rectangular Trim Trio connector with insert arrangement for 14 contacts, and machined size 16 contacts RM / RC20.

- Total operating current capacity of bundle 14 x 5 (table I) = 70 A
- Total allowable for wire bundle of 15 wires less 1 is 20% + 6% = 26% gives 18.2 A.
- All conductors energized equally, gives: <u>18.2: 14 = 1.3 A per conductor</u>

This value is within the recommended rating of 3 A so that it can be applied. See also remark under example 1.

• Example 3

Cable bundle, 4 conductors AWG16 (1.3mm²) used with circular Trim Trio connector with insert arrangement 10-4 and stamped 2 piece contacts SM /SC.

- Total operating current capacity of bundle 4 x 13 A (table I) = 52 A
- Total allowable for wire bundle of 15 wires less 11 is 20% + 66% = 86% gives 44.7 A.
- All conductors energized equally, gives: 44.7 : 4 = 11.2 A per conductor

Since the recommended continuous current is 10 A, the conductor should not carry more than 10 A individually.

As said before, the recommended ratings are valid for most common wiring systems and under normal working conditions. For extreme conditions, the given values should be lowered. The percentage of current reduction should be investigated from case to case. A rule-of thumb which can be used for such cases is:

4 Amp. per mm² wire section

It gives us for common used wire sizes the values listed in table 3.

Table 3 - Recommended continuous current for extreme working conditions

AWG	wire size mm2	recommended continuous current Amp.
26	0.13	0.5
24	0.20	0.8
22	0.32	1.3
20	0.52	2.0
18	0.82	3.3
16	1.30	5.2
14	2.10	8.4

Contacts



Crimping instructions

The conductor and insulation crimp section

Are designed to accommodate wireconductor and insulation diameters, expressed in AWG (American Wire Gauge) or mm².

For each wire gauge, a correct crimp requires a crimp height that offers the highest performance.

This performance is defined as the highest tensile strength force.

A good conductor crimp can be guaranteed if the tensile stength force is equal or higher as indicated on the graph below. E.g. a conductor of AWG20 (0.52 mm²) has a good crimp if the tensile strength is min 84N. The tensile strength force is measured in Newtons and is the wire-to-contact connection that will withstand when a straight axial load is applied to the terminated wire. This is however a destructive test and is therefore inappropriate as a 100% inspection method.

An alternative method is to measure crimp height. The crimp height is measured at the conductor-crimp section.

- If the dimension is to small, then the conductor is over-crimped and the wire strands could be damaged, which results in a lower tensile strength force.
- If the dimension is to large, then the conductor is under-crimped and the wire strands will not be deformed enough to assure that the crimp will pass the tensile strength test.

In both cases, the application tooling's crimp height should be adjusted. In order to have the right tooling's crimp height go and no-go gauges can be obtained and are defined in function of the type of crimp tooling and the wire gauge. For further information consult factory.



RM/RC - Machined contacts

Size 16 solid machined contacts for TRIM **TRIO** connectors

Description

Size 16 RM/RC .0625" (1.6mm) diameter contacts are precision solid machined crimp snap-in pin and sockets for heavy duty top performance requirements.

Springs on both contacts are made of spring-tempered, heat-treated, beryllium copper.

The socket inner spring supplies high contact pressure to ensure low-resistance contact between pin and socket. The socket contact features closed entry to prevent probe damage. Crimp barrels have insulation grips for vibration support and are provided with a cable stop and inspection hole.

Features and benefits

- Made from high conductive copper allov with gold or tin over nickel plate finish.
- Heat-treated beryllium copper locking springs assure proper locking and alignment of contacts in the housing.
- Colour coded for different wire sizes. · Closed entry design on socket contact to prevent probe damage.
- · Contacts available in bulk packing

Performance characteristics

Current rating:	13 Amp
Contact resistance:	\leq 3 m Ω
Operating voltage:	750 V RMS
Contact retention in body:	110 N min.
Individual insertion force:	3.5 N max.
Individual withdrawal force:	0.55 N min.



Construction

Contact body: High conductive copper alloy. Outer spring: Tempered, heat-treated, non-plated beryllium copper.

Inner spring socket: Tempered, heat-treated, plated beryllium copper.

Plating table

K (std) = Min. 0.4 µ Gold all over.over Nickel

- = Gold flash all over, over Nickel
- = Min. 0.75 µ Gold all over,over Nickel Ν
- = 3 5 µ Tin all over, over Nickel т
- Other platings on request

Connector accommodation

Any TRIM TRIO contact can be used in any contact position in any connector in the TRIM TRIO interconnection system.

- MS-M Rectangular connectors
- SMS Qikmate
- PI43 Eurorack connectors
- UT-Bantam
- UTG Metalok bantam
- UTP Full plastic bantam • UTGS Shielded bantam
- MBG Bantamate II

How to order

		(K) RM (K) RC	16 16	M M	23 23	(GE1) (GE1)	K K	-		
Contact type:	RM: Male contact bulk packingRC: Female contact bulk packingKRM: Male contact on plastic carrierKRC: Female contact on plastic carrier	r strip rier strip								
AWG Size:	16, 20, 24, 28									
Size 16:	.0625" (1.6mm) Diameter contacts	.0625" (1.6mm) Diameter contacts								
Design variation:	Crimp barrel									
Grounding contact:										
Plating indication:	See plating table									
Packing quantity:	No digit (std) : 50 pcs. bulk packing (: 2000 pcs on reel (KRN 1000 : 1000 pcs bulk packing	RM/RC) 1/KRC) 1 (RM/RC)								



Standard RM/RC crimp contacts: Contact size 16 - Pin diameter 1.57mm (.062")



Dimensional table

	Part number			Colour wire size			Max.	Max.	wire		
Pin contacts	Fig.	Socket contacts	Fig.	code	AWG	mm ²	wire dia.	insul. dia.	strip length	I.D.	O.D
RM28M1K	1	RC28M1K	7	-	30 - 28	0.05 - 0.08	0.55	1.1		1.50	1.90
RM24M9K	2	RC24M9K	8	Red	26 - 24	0.13 - 0.20	0.8	1.7	4.8	1.50	2.55
RM20M13K	3	RC20M13K	9	Black	22 - 20	0.32 - 0.52	1.18	1.9		1.83	2.92
RM20M12K	4	RC20M12K	10	Blue	22 - 20	0.32 - 0.52	1.18	2.2		1.83	2.92
RM16M23K	5	RC16M23K	11	Green	20 - 16	0.52 - 1.50	1.82	3.2	7.1	2.55	-
RM16M23GE1K	6	RC16M23GE1K	12	Green + red	20 - 16	0.52 - 1.50	1.82	3.2		2.55	-

Packing quantity: 50 pcs bulk packing (standard)

For 1000 pcs bulk packing add "1000" at the end of the part number e.g. RM16M23K1000

For machined contact reeled on plastic carrier: put "K" in front of part number e.g. KRM16M23K

For other platings: See plating table

Crimptooling table

		Hand	Automatic crimp tooling for contacts on strip						
Size	Hand tools	мн	MH860		MH860 M10S1		M8ND	P100MAN (Press)	Extraction
	die set included	Positioner	Locator setting	Die set	Stop bushing	Die set	Left side applicator KRM/KRC	tools	
		(not incl.)		(not incl.)	(not incl.)	(not incl.)	(not incl.)		
28			4/6	S9		N24RT10	MLS228		
24	MR8GE5	MH86164G	5/6		SL40		MLS224	RX2025GE1	
20	and		5/7	S10		N20RT30	MLS220	or	
16	Y16RCM				SL39	N16RT21		RX2025GE2	
16		MH86186	6/8	S3D1	SL115	N16RT25	MLS216		
GE1									

For detailed information on crimp tooling : See crimp tooling section



Special RM / RC contacts: Contact size 16 - Pin diameter 1.57mm (.062")



Pin contacts	art numt	er Socket contacts	Fig.	code	wire s AWG	ize mm²	Post cross section A cavity	Length out of TRIM TRIO part number	Anti-rotating bushing
RM16SEOK	1	RC16SE4K	2	Handsolder	16 - 20	1.50 - 0.52	ø1.7	3.5	-
RM20M12G4K	3	RC20M12G4K	4	Mini - wrap	28 - 30	0.08 - 0.05	ø 0.636	16.0	J1661
RM20M12E8K	7	RC20M12E8K	8	Dipsolder	-	-	ø 0.9	5.2	-
		RC20M12E83K	9	Dipsolder	-	-	ø 0.9	10.4	-
		RC20M12384K	10	Dipsolder	-	-	ø 0.9	13.9	-

The RM/RC contact principle



The RM/RC contact packing



50 pcs bulk packing (standard)



1000 pcs bulk packing



Reeled contacts on plastic carrier (qty 2000 pcs)

SM/SC-M Stamped contacts

Size 16 stamped and formed contacts for TRIM TRIO connectors

Description

Size 16 SM/SC .0625" (1.6mm) diameter contacts are two piece strip formed crimp snap-in pin and sockets.

These contacts consist of a crimp body made of high conductive copper alloy, and a stainless steel retaining spring featuring retention in the housing cavity and a closed entry socket to prevent probe damage. The contact with its open barrel is standard available on srtip and packaged with 3000 pcs on reel. This reel packaging combined with semi or even full automatic crimp tooling provides the added advantage of a lower installed cost.

Features and benefits

- Made from high conductive copper alloy with gold or tin over nickel plate finish.
- Two piece construcion with dual purpose spring which serves for contat retention and protects the body against damage.
- Contacts available on reel (standard) and in bulk packing (100 pcs).
- Suitable for high volumes and lower installation cost.

Performance characteristics

Current rating:	13 Amp
Contact resistance:	$\leq 6 \text{ m}\Omega$
Operating voltage:	750 V RMS
Contact retention in body:	65 N min.
Individual insertion force:	3.5 N max.
Individual withdrawal force:	0.55 N min.



Construction

Contact body: High conductive copper alloy. Outer spring: Stainless steel

Plating table

- S6 = 0.75μ Gold min. in contact area, flash on crimp barrel over Nickel.
- D70 = Gold flash all over, over Nickel. TK6 = Preplated Tin all over.

Connector accommodation

Any TRIM TRIO contact can be used in any contact position in any connector in the TRIM TRIO interconnection system.

- MS-M Rectangular connectors
- SMS Qikmate
- PI43 Eurorack connectors
- UT-Bantam
- UTG Metalok bantamUTP Full plastic bantam
- UTGS Shielded bantam
- MBG Bantamate II

How to order

	SM SC	16 16	M M	(L) (L)	1 1	S6 S6
Contact type:	SM: Male contact SC : Female contact					
AWG Size:	14, 16, 20, 24					
Type of crimp barrel	: American open crimp barrel					
Packing:	No digit: Contacts on strip (qty 3000 per L: Preformed loose piece contacts	reel)				
Design variation	 1: Only wire crimp for size 14 and 16 : Wire + insulation crimp for sizes 20 11: Wire + insulation crimp for size 16) and 24				
Plating indication:	See plating table					



Standard SM/SC crimp contacts: Contact size 16 - Pin diameter 1.57mm (.062")



Dimensional table

Part numb	Part number: contacts on strip Loose pieces			Wire s	ize		
Pin contacts	Fig.	Socket contacts	Fig.	AWG mm ²		Insulation diameter	Wire strip length
SM24M1S6	1	SC24M1S6	2	26 - 24	0.13 - 0.25	0.89 - 1.58	4.0
SM24ML1S6		SC24ML1S6					
SM20M1S6	3	SC20M1S6	4	22 - 20	0.35 - 0.50	1.17 - 2.08	4.0
SM20ML1S6		SC20ML1S6					
SM16M1S6	5	SC16M1S6	6	18 - 16	0.80 - 1.50	2.0 - 3.0	4.65
SM16ML1S6		SC16ML1S6					
SM16M11S6	7	SC16M11S6	8	18 - 16	0.80 - 1.50	3.0	6.35
SM16ML11S6		SC16ML11S6					
SM14M1S6	9	SC14M1S6	10	14	2.0	3.0	6.35
SM14ML1S6		SC14ML1S6					

For other platings: See plating table.

Crimptooling table

Size	Hand crimp tooling t	for loose contacts	Automatic crin contacts P100	Extraction	
0.20	Hand tools die set included	M8ND Die set (not included)	Left side applicator (not included)	Stripper unit	tooning
24	Y16SCM2 (ratchet)	N24RT11	MLS0318B		
20	Y14SCM2 (not ratchet)	N20RT29	MLS0555A		
	Y14MTV (ratchet)				
16M(L)11	Y16SCM2 (ratchet)	N16RT26	MLS0356A	SC10S1	RX2025GE1
	Y14SCM2 (not ratchet)				or
16M(L)1	Y14SCM (ratchet)	N16RT24	MLS1579		RX2025GE2
	Y14MTV (ratchet)				
14	Y14SCM (ratchet)	N14RT13	MLS1047]	
	Y14MTV (ratchet)				

For detailed information on crimp tooling : See crimp tooling section

Size 16 MULTIPIECE coaxial contacts for TRIM TRIO connectors

Description

Size 16 RMDX/RCDX Multipiece .0625" (1.6mm) diameter contacts are subminiature coaxial contacts to cover a wide range of subminiature coaxial and twisted pair cables.

They are suitable in applications where a mix of signal, power and coaxial cable terminations for low frequency, shielded signal and high frequency applications are needed.

The contact consist of an inner pin/socket and an outer male/female body.

The thermoplastic insulating bushing in the outer body is designed to accept and permanently retain the inner contact. The outer ferrule hold the outer braid to the outer contact and act as an insulating support to ensure against bending and vibrating stresses.

The inner and the outer conductor are crimped individually, thereby enabling inspection of both critical crimp points.

Features and benefits

- The inner and outer conductors are crimped individually
- The thermoplastic insulating bushing in the outer body is designed to accept and permanently retain the inner contact.
- Outer ferrule hold the outer braid to the outer contact and act as an insulating support to ensure against bending and vibration.

Performance characteristics

Operating voltage between
inner / outer contact:230 VDCTest potential between
inner / outer contact750 VAC 1 min.Operating temperature:-55°C t0 + 125°CContact retention in body:65 N min.Contact voltage drop a 1A:25m V max.Shielding eff. at 30 MHZ:140 db.



Construction

Inner and outer contacts: High conductive copper alloy

Retaining spring: berylium copper Insulating bushing: Polyamide 6.6

Plating table

Retaining spring: Nickel plated Inner and outer contacts: D28: 0.75 µ Gold min. over Nickel

Connector accommodation

Any TRIM TRIO contact can be used in any contact position in any connector in the TRIM TRIO interconnection system.

- MS-M Rectangular connectors
- SMS Qikmate
- PI43 Eurorack connectors
- UT-Bantam
- UTG Metalok bantam
- UTP Full plastic bantam
- UTGS Shielded bantam
 MBG Bantamate II

How to order

		RMDX RCDX	K10 K1	D28 D28
Contact type:	RMDX = Male subminiature coax. RCDX = Female subminiature coax.			
Multipiece coax kit	K10 = Kit male coax. K1 = Kit female coax			
Plating indication				



MULTIPIECE Subminiature coax - Male contact for coaxial cable



	Contact for inner conductor				Contact for outer braid						
Type of	Inner fer	nale	Crimp to		Outer fer	nale	Ungin	~	Crim	p tool	Extrac
coaxial	conta	ct	Crimp to		conta	contact		nyning		MH860	tool
cable	Part number	Fig.	Positioner	Locator setting	Part number	Fig	Part number	Fig	Posit	tioner	
RG161U										MH86167G	
RG179A/U				1			YOC074	4		Locator	RX2025
RG179B/U										setting 8	GE1
RG187U											
RG174/U	1				1						or
RG188/U	RFD26L1D28	2	MH86166G	3	RMDX602D28	1	YOC074	4	TP120	_	
Amphenol											RX2025
21-598											GE2
RG178A/U	1				1		YOC074	4		MH86167G	
RG196U				1			+			Locator	
							RMDXB0553	3		setting 8	

Kit reference RMDXK10D28 includes RMDX602D28 + RFD26L1D28 + YOC074 + RMDXB0553 and are packed in plastic bag.

MULTIPIECE Subminiature coax - Female contact for coaxial cable



	Contact for inner conductor				Contact for outer braid						
Type of	Inner fer	nale	Crimp to		Outer fer	nale	Ungin	~	Crim	Crimp tool	
coaxial	conta	ct	Crimp to		contac	ct	Hyrin	y	AF8	MH860	tool
cable	Part number	Fig.	Positioner	Locator setting	Part number	Fig	Part number	Fig	Posit	ioner	
RG161U										MH86167G	
RG179A/U				1			YOC074	4		Locator	RX2025
RG179B/U										setting 8	GE1
RG187U											
RG174/U]						or
RG188/U	RMD26L1D28	2	MH86166G	3	RCDX602D28	1	YOC074	4	TP120	-	
Amphenol											RX2025
21-598											GE2
RG178A/U]		YOC074	4		MH86167G	
RG196U				1			+			Locator	
							RCDXB0551	3		setting 8	

Kit reference RCDXK1D28 includes RCDX602D28 + RMD26L1D28 + YOC074 + RCDXB0551 and are packed in plastic bag.



MULTIPIECE Subminiature coax - Male contact for twisted pair cable



	Contact for inner conductor					Contact for outer braid					
Type of coaxial	Inner female contact		Crimp tool M10S1		Outer fer contac	Outer female contact		9	Crimp to	ol M10S1	Extrac tool
capie	Part number	Fig.	Die set	Stop bushing	Part number	Fig	Part number	Fig	Die set	Stop bushing	
2 #24 solid							YORX090	4			
or stranded							YOC074	5			RX2025
2 #26 str							RMDXB0553	3			GE1
2 #24											
7/20 str.							YORX090	4		SL471	or
MIL-W-76 or	RFD26L1D28	2	S26D2	SL46D2	RMDX602D28	1	YOC074	5	S221	or	
MIL-W-16878							RMDXB0554	3		SL47GE3	RX2025
type B											GE2
#28 per	1						YORX090	4			
MIL-W-							YOC074	5			
81822/3							RMDXB0553	3			

MULTIPIECE Subminiature coax - Female contact for twisted pair cable



	Contact for inner conductor					Contact for outer braid					
Type of coaxial	Inner fen contac	nale ct	Crimp to	ol M10S1	Outer fer contac	nale ct	Hyring	g	Crimp to	ol M10S1	Extrac tool
Cable	Part number	Fig.	Die set	Stop bushing	Part number	Fig	Part number	Fig	Die set	Stop bushing	
2 #24 solid							YORX090	4			
or stranded							YOC074	5			RX2025
2 #26 str							RCDXB0551	3			GE1
2 #24											
7/20 str.							YORX090	4		SL471	or
MIL-W-76 or	RMD26L1D28	2	S26D2	SL46D2	RCDX602D28	1	YOC074	5	S221	or	
MIL-W-16878							RCDXB0552	3		SL47GE3	RX2025
type B											GE2
#28 per							YORX090	4			
MIL-W-							YOC074	5			
81822/3							RCDXB0551	3			

Size 16 monocrimp coaxial contacts for TRIM TRIO connectors

Description

Size 16 RMDX/RCDX Monocrimp .0625" (1.6mm) diameter contacts are one-piece monocrimp subminiature coaxial contacts to cover a wide range of subminiature coaxial and twisted pair cables.

They provide cost effective solutions in applications where a mix of signal, power and coaxial cable terminations for low frequency, shielded signal and high frequency applications are needed. Monocrimp one piece coaxial contacts offer high reliability plus the economic advantage of a 95% reduction in installation time over conventional assembly methods currently in use.

Features and benefits

- The monocrimp one-piece coaxial contacts offer high reliability plus the economic advantage of a 95% reduction in installation time over conventional assembly methods.
- This economy is achieved by simultaneously crimping of both the inner and outer conductor

Performance characteristics

Operating voltage between	
inner / outer contact:	230 VDC
Test potential between	
inner / outer contact	450 VAC 1 min.
Operating temperature:	-55°C to + 125°C
Contact retention in body:	65 N min.
Contact voltage drop a 1A:	30m V max.
Shielding eff. at 30 MHZ:	140 db.



Construction

Inner and outer contacts: High conductive copper alloy

Retaining spring: berylium copper Insulating bushing: Polyamide 6.6

Plating table

Retaining spring: Nickel plated Inner and outer contacts: D28: 0.75µ Gold min. over Nickel

Connector accommodation

Any TRIM TRIO contact can be used in any contact position in any connector in the TRIM TRIO interconnection system.

- MS-M Rectangular connectors
- SMS Qikmate
- PI43 Eurorack connectors
- UT-Bantam
- UTG Metalok bantam
- UTP Full plastic bantam
- UTGS Shielded bantam
 MBG Bantamate II

How to order

		RMDX60 RCDX60	36 36	D28 D28
Contact type:	RMDX = Male subminiature coax. RCDX = Female subminiature coax.			
Monocrimp design	variation			
Plating indication				

RMDX/RCDX

MONOCRIMP Twisted pair



Part number		Dia. outer	Cat	ole strip leng	ghts	Crim M1		
Male Female	AWG inner conduct.	jacket (single wire)	А	В	с	Die set not incl.	Stop bushing not. incl.	Extraction tool
RMDX6019D28 RCDX6019D28	26 (19 x 0.10) 24 (7 x 0.20) 24 (19 x 0.13)	1.25 1.25 1.45	4.7	6.0	4.0	M10SG8* Crimping kit		RX2025GE1 or
RMDX6031D28 RCDX6031D28	26 (7 x 0.16)	0.70				S80	SL105	RX2025GE2



MONOCRIMP Subminiature coax



Part number	AWG		Coax dimensions				Coax strip lengths			Crimp tool M10S1		
Male Female	inner conduct.	Cable type	D max	E	F	G	A	В	С	Die set not incl.	stop bushing not incl.	Extraction tool
RMDX6050D28		-	2.64	2.11	1.70	0.30	5.1		8.9	S80		
RCDX6050D28	30											
RMDX6050D28		-	2.29	1.63	1.22		4.2		8.5	S87		
RCDX5016D28												
RMDX6032D28	28	-	2.90	2.29	1.91	0.38			11.7	S80		
RCDX6032D28												
RMDX6024D28		-	1.78	1.37	0.97	0.48				S82		
RCDX6024D28												
RMDX6032D28	1	RG174/U	2.92	2.24	1.52	0.48	5.1	6.35		S80	SL105	RX2025GE1
RCDX6032D28												
RMDX6026D28	26	-	3.05	2.44	1.96	0.41				S82		OR
RCDX6026D28												
RMDX6036D28	1	RG188A/U	2.79			0.51			11.7	S80		RX2025GE2
RCDX6036D28												
RMDX6036D28	1	RG316/U	2.72	1.98	1.52							
RCDX6036D28												
RMDX6018D28	1		2.62			0.53			8.9		1	1
RCDX6018D28										M10SG8*		
RMDX6018D28	26		2.34	1.70	1.27	0.64				crimping kit		
RCDX6018D28												

* M10SG8 consists of die set, stop bushing and M10S1 tool



Accessories



Description

In applications where similar connectors are used next to each other, mismatching can be a reason for disturbances, system failure or even danger to operating personnel. To eliminate mismatching, all TRIM TRIO connectors can be equipped with discrimination keys, which offer unlimited possibilities for a "fool - proof" interconnection system.

When one of these discrimination keys is used, the TRIM TRIO connector will only mate with a connector which has a vacant contact or discrimination cavity at the corresponding position.

This system offers boundless opportunities for all applications which involve several identical TRIM TRIO connectors.

The material used is polyamide 6.6





SMSPKE0

A dummy contact, which can be inserted into an empty contact cavity in any of the TRIM TRIO connectors.



SMSPKB2

A tube, which can be fitted over a preassembled male contact in all TRIM TRIO male boardmount connectors MSO, SMS, PI43.





SMSPKE2V1

A pin, which can be inserted into a preassambled female contact in all TRIM TRIO female boardmount connectors MSO, SMS, PI43.



SMSPKE3

A pin, Which can be inserted in the discrimination cavities of the SMS Qikmate cable and boardmount connectors. The discrimination cavities are in between of the contact cavities and offer the advantage that no contact cavities are lost due to discrimination.

As extraction tool, the RX2025GE1 without the "extraction tool tip" can be used. To unlock the discrimination pin, insert the extraction tool in the discrimination cavity at the rear side of the connector. Meanwhile, the pin can be extracted manually at the mating side.



Overview TRIM TRIO and SEALOK tooling



Selection matrix TRIM TRIO and SEALOK tooling



Crimptooling for TRIM TRIO and SEALOK contacts

The TRIM TRIO and SEALOK connection system not only offers versatility in connectors but production versatility in tooling as well. All information needed on tooling ranges from simple handtools for small production, over semi-automatic to full automatic strip-and-crimp machines can be found on the hereafter paragraphs. All the TRIM TRIO and SEALOK tooling and this for machined, stamped and formed and coax contacts, is specially designed for this system to make reliable, trouble-free connections.



MR8GE5 - for machined contacts

A rugged handtool ratchet controlled to guarantee a complete crimp cycle.

It has a fixed 3-groove die set to crimp **Size 16 TRIM TRIO RM/RC loose piece machined contacts**. Features a high reliable two-indent crimp on as well the wire as insulation crimp-barrel. The MR8GE5 features a flat area in case the handtool is installed on a bench. Each crimp-groove has a codification color same as on the RM/RC contacts.



Y16RCM - for machined contacts

A light weight, low cost crimptool with fixed, 3-groove die set to crimp Size 16 TRIM TRIO RM/RC loose piece machined contacts. The tool is ratchet controlled to guarantee a complete crimp cycle. Each crimptool is supplied with a locator to guarantee a perfect crimp indent positioning.



MH860 - for machined contacts

A light weight crimptool Qualified to MIL-C-22520/7 that gives an 8 impression crimp with a precision cycle-controlled ratcheting mechanism. It features an 8 step crimp-depth selector knob and is designed to crimp Size 16 TRIM TRIO RM/RC loose piece machined contacts and RMDX/RCDX coax contacts. The tool can be provided with different locators heads to crimp different contact types





AF8 - for machined contacts

Qualified to MIL-C-22520/1. has virtually limitless application within the specified wire range of 12 through 26 AWG. It gives an 8 impression crimp with a precision cycle-controlled ratcheting mechanism and is used for certain machined power

contacts and certain coax contacts. The tool can be provided with different turret heads to crimp different contact types



M10S1 - for machined contacts

A robust, versatile, full cycling handtool which is fully qualified to the requirements of MIL-C-22520. Interchangeable 4-indent die sets are available for a wide range of machined contacts and gives a simultaneous crimp on both wire and insulation. This tool is suitable for application of RM/RC machined contacts

and coaxial from the TRIM TRIO range.



M8ND - for machined and formed contacts

A robust full cycling hand ratchet tool which utilises interchangeable "N" die sets to crimp

Size 16 TRIM TRIO RM/RC loose piece machined contacts. Size 16 TRIM TRIO SM-M/SC-M loose piece formed contacts. Size 20 SEALOK SM-W/SC-W loose piece formed contacts.





Y14SCM2 - for formed contacts

A low cost non ratchet plier type handtool for AWG26 to 16 \pm insulation crimp for:

Size 16 TRIM TRIO SM-M/SC-M loose piece formed contacts. Size 20 SEALOK SM-W/SC-W loose piece formed contacts.



Y14MTV - for formed contact

A light weight crimptool with fixed 3-groove die set for AWG26 to 14 for:

Size 16 TRIM TRIO SM-M/SC-M loose piece formed contacts. Size 20 SEALOK SM-W/SC-W loose piece formed contacts. Ratchet controlled to guarantee a complete crimp cycle.



Y16SCM2 - for formed contacts

A light weight crimptool with fixed 3-groove die set for AWG26 to 16 for:

Size 16 TRIM TRIO SM-M/SC-M loose piece formed contacts. Size 20 SEALOK SM-W/SC-W loose piece formed contacts. Ratchet controlled to guarantee a complete crimp cycle. Each crimptool is supplied with a locator to guarantee a perfect crimp indent positioning.



Y14SCM - for formed contacts

A light weight crimptool with fixed 3-groove die set for AWG18 to 14 for:

Size 16 TRIM TRIO SM-M/SC-M loose piece formed contacts. Ratchet controlled to guarantee a complete crimp cycle. Each crimptool is supplied with a locator to guarantee a perfect crimp indent positioning.

P100MAN Automatic crimp tooling for TRIM TRIO and SEALOK

Description

This electromechanical high speed full automatic crimping press is specially designed for mass production and is realised totally in assembled steel parts. The available force consents the crimping of a wire section up to 2.5mm².

The press has a 40mm stroke and can be used together with automatic cut and stripping machines.

It uses a new electronic module to control the bracking of the press at the desired point. The noise level of the press is less than 70dB.

There is a safety mechanism that stops the press if the working speed is too high or the press does not complete its cycle. This protects the press or equipment mounted on board from damage.

Ref.:	P100MAN
Power.:	0.37 kWatt
Neight:	35 kg
Dimensions:	200x300x580





MLS--- Left side miniapplicator

Miniapplicatorsn to crimp machined or stamped and formed TRIM TRIO and SEALOK contacts.

All the adjustments requested to make tool correctly functioning (crimp feeding pitch, crimp height...) can be simply made. Resolution of 0.03mm. Regulation range from 0 to 2.7 mm.

Ref.:	See contact sections
Stroke:	40 mm
Weight:	4.5 kg
Dimensions:	145x107x150

Options

1 - Quality assurance for crimping technology... A crimping force sensor continuously checks the quality of each individual

crimp and records it without impairing the processing speed. The sensor detects bad crimp connections, eliminating the high subsequent costs otherwise caused by them.

For ordering consult factory



SC10S1 Stripper-crimper

This stripper unit is used to strip insulation, immediately before the crimping of the contact terminal. The stripper unit is totally separate from the miniapplicator that allows the execution in a way that the setup and trial of the stripper unit can be done independently.

Ref.:	SC10S1
Pressure:	5 - 7 bars
Cable section:	0.2 - 3 mm2
Stripping length:	2.5 - 12 mm
Weight:	7.5 kg

Options

2 - Crimp pull press gauge The crimp pull press gauge allows to measure the resistance to the pulling of crimped terminals.

3 - Crimp height measuring device 4 - Kit press lighting lamp

For ordering consult factory



Trim Trio + Sealok

Extraction tooling



RX2025GE1

A spring loaded extraction tool **for the full range of TRIM TRIO contacts**. This tool ensures that the contact locking louvres are fully retracted before any pressure is applied to extract a contact. It is especially suitable for applications where the integrity of the assemblies are of the utmost importance.



RX2025GE2

A low cost spring loaded extraction tool for the full range of TRIM TRIO contacts.



RX20D44

A spring loaded extraction tool **for the full range of SEALOK contacts**. This tool ensures that the contact locking louvres are fully retracted before any pressure is applied to extract a contact. It is especially suitable for applications where the integrity of the assemblies are of the utmost importance.

Insertion tooling



RTM205

This tool is especially designed to ease insertion **of any TRIM TRIO and SEALOK contact** crimped on very flexible or small wire sizes. Simply position the insertion tool so that the tip of the tool bears against the back of the wire barrel, retaining the wire with thumb in the groove of the tool. Push the contact slowly into the connector until it snaps into position.



How to extract a contact out of its cavity?

Slide the extraction tip over contact from mating side till the locking spring from the contact is depressed.

Push on handle to push out the contact with the spring loaded inner plunger.