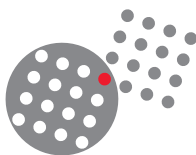




CRISTAL  
*Speed*

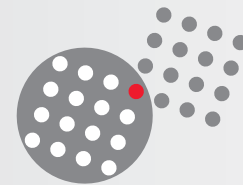
QuadraX  
Contact

# Ethernet 100 Mbps QuadraX



**SOURIAU**  
Connection Technology

# Quadrax Contact



Today's technology for Airbone and Military equipment is more and more complex, requiring the management of an increasing flow of information at greater speeds. In response to this need, SOURIAU offers a wide range of copper and fiber optic solutions for high speed networks in harsh environments. These solutions can handle data speeds from several Mbit/s up to several Gbit/s using a wide array of communication protocols (Ethernet, ATM,...).

Quadrax is the best solution for user requiring copper technology.

## ► Field of applications

High speed copper network applications with optimum performances requiring full 360° shielding. Excellent network performances (crosstalk, return loss), high density of links, and/or harsh environment use. Typical network applications: 100Mbit/s Ethernet, Gigabit Ethernet, IEEE 1394, Fibre Channel.

## ► Description

- Front and rear removable versions available.
- Crimp and PC tail versions available.
- Standard #8 cavity insertion and removal tools.
- Ground connection of the cable braid to the shell possible through the external shell of the # 8 contact.
- Compatible with star quad cable.

- Characteristic impedance of 100 Ohms.
- Operating temperature : - 65°C/+ 200°C.
- Inner contact: copper alloy.
- Body: copper alloy.
- Insulator: thermoplastic.
- Contact plating: gold over nickel plated.

## ► Electrical Performance of the Quadrax Contact

- Contact resistance (low level): initial 15 mOhms, after tests 30 mOhms.
- Dielectric withstanding voltage.  
Sea level = 500 Vrms between signal contacts and signal contact/body.  
21000m = 125 Vrms between signal contacts and signal contact/body.

- Insulation resistance: at ambient temperature >5000 MOhms at high temperature >1000 MOhms.
- Characteristic Impedance = 100 Ohms@ 100 MHz.
- Attenuation < 0,3 dB@ 100 MHz typical per contact pair (cat5E requirement 0,3 dB@ 100 MHz).
- Crosstalk > 40 dB@ 100MHz typical (cat5E requirement 40 dB).
- Contact to shell continuity < 10 mOhms (ARINC600).

Contact resistance at rated current :

		Max contact resistance mΩ		
		23°C		200°C
Contact	Rated current (A)	Initial	After test	After tests
Signal contacts	1	15	30	45
Outer body	12	3	4	6

## ► Ordering information

	Unsealed Contact	Release	Version	Part number
ARINC 600 EN 2997 NAS 1599	Male	Rear	To crimp	ETH1-1100A
	Female	Rear	To crimp	ETH1-1101A
	Male	Front	PC tail contact L = 6,35 mm (for ARINC 600 only)	ETH1-1110A

\* Sealed version please consult us.

	Sealed contact	Release	Version	Part number
38999 Series 1 and 3	Male	Rear	To crimp	ETH1-1235A
	Female	Rear	To crimp	ETH1-1236A
	Male	Rear	PC tail contact	ETH1-1237A
	Female	Rear	PC tail contact	ETH1-1238A

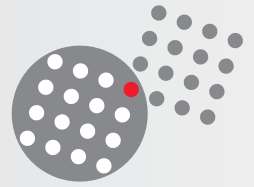
\* Contact delivered with a sealing boot. \*\* PC tail version : please consult us.

## ► Quadrax tools

- Outer body: M22520/5-01 crimping tool and M22520/5-45 die set rep B.
- Signal contacts: M22520/2-01 crimping tool and K709 positioner.
- Insertion/extraction tool: 8660-19/7 or M81969/8-14.

## ► Recommended Cable

Characteristic impedance	Supplier	Reference	Cable type	Number of pairs
100 Ω	Draka	F4703-3	Star quad	2
100 Ω	Nexans	ET2PC236	Star quad	2



## Quadrax Technology major Technical Features and Benefits

### ► Superior signal integrity performance thanks to an innovative insert

- Insert design enabling radial insertion of inner crimped contact.

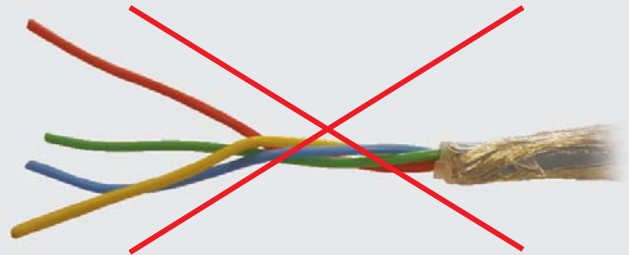


- Radial insertion of contacts in insert enabling minimum untwisting of the cable for wiring operation.
- Minimum untwisting of the cable = improved cross talk performance.

**GOOD**



**BAD**



### ► Ethernet Cat 5E compatible

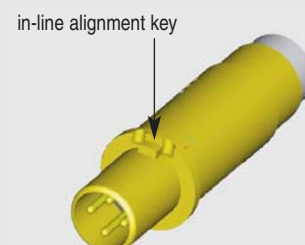
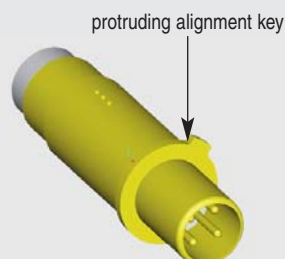
- Full-duplex 100 Mbps Ethernet.
- 100 Ohms impedance.
- 360° shielding.
- Equivalent to 2 Twinx contacts.

### ► Compact design

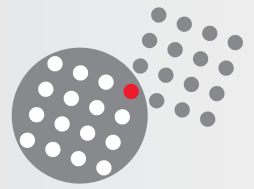
- Four contacts #24 within a #8 body.

### ► Alignment key

- Polarization of contacts.
- Protruding for ARINC 600, EN-2997 and EN-3545 – ARINC 664 compliant.
- In-line for MIL-DTL-38999.



# Arinc 600 with Quadrax Contact

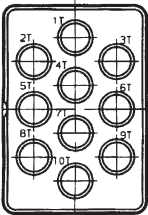
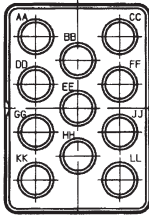
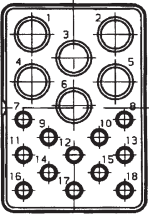
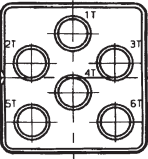
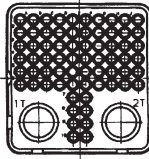
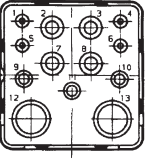
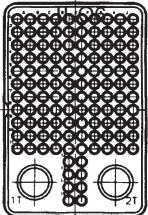
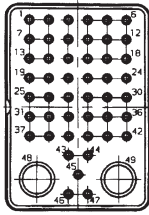
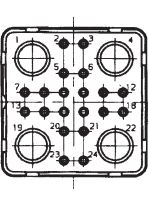


## ► Mechanical

ARINC 600 shell: alodine or Nickel plated.  
 ARINC 600 insulator: thermoplastic, thermoset or metal.  
 Clip #8: copper alloy, gold over nickel plated.  
 Quadrax Contact retention: 155N min.  
 Quadrax Contact insertion force: 11N max.  
 Protruding indexing key.



## ► Available Inserts

STANDARD INSERTS	 <p>I-Q10</p>	 <p>I-Q11</p>	 <p>I-C12Q6</p>
	 <p>II-Q6</p>	 <p>II-68Q2</p>	 <p>II-11Q2</p>
PLEASE CONSULT US	 <p>I-118Q2</p>	 <p>I-47Q2</p>	 <p>II-20Q4</p>

## ► Contact Layouts

#8 "Q" type cavities are compatible with all standard #8 Coaxial, Triaxial, ELIO® 8 and Quadrax contacts.

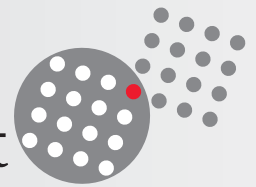
	Insert name	Arinc 600 cavity	Receptacle	Plug	Number of cavities				
			contact release	contact release	#22	#20	#16	#12	#8 "Quadrax" type
STANDARD INSERTS	I-Q11	A,B,D,E	Front/Rear	Rear					11*
	I-C12Q6	A,B,D,E	Rear	Rear				12*	6*
	II-68Q2	C,F	Front	Rear	68				2*
	II-Q6	C,F	Front/Rear	Rear					6*
	II-11Q2	C,F	Rear	Rear		4	3	4	2*
	I-Q10	A,B,D,E	Front/Rear	Rear					10*
	II-62Q2**	C,F	Rear	Rear	60		2		2*
PLEASE CONSULT US	I-47Q2	A,B,D,E	Rear	Rear		47			2*
	I-118Q2	A,B,D,E	Rear	Rear		118			2*
	II-20Q4	C,F	Rear	Rear		20			4*

\* Grounded cavities: contact to shell conductivity < 10mΩ.

## ► Ordering information

Please consult us to get the Part Number of the assembly you need.

# MIL-DTL-38999 with Quadrax Contact

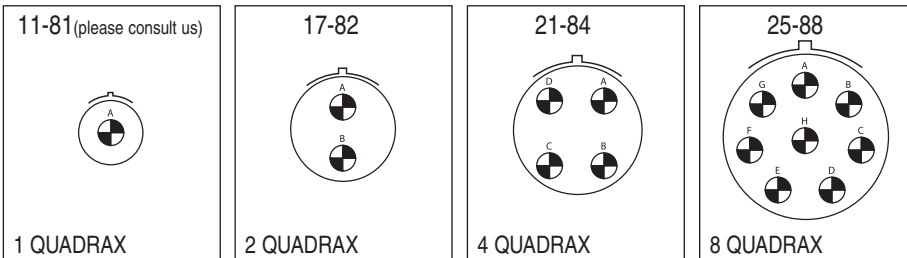


## ► Mechanical

Standard D38999 shell.  
 D38999 insulator: thermoplastic, thermoset or metal.  
 Clip #8: copper alloy (Gold Plated).  
 "In-line" indexing key.



## ► Available Inserts



## ► Ordering information

38999 Series III Stainless steel shell

Basic series		8D	0	C	11	K	81	P	N	284
<b>Style</b>	0 - square flange receptacle 7 - jam nut receptacle 5 - plug with RFI shielding									
<b>Type</b>	C - receptacle with PC tail (male and female #8 quadrax) Q - connectors with quadrax crimp contacts									
<b>Shell size</b>	11-17-21-25 (see table 1)									
<b>Class</b>	K - corrosion resistant stainless steel S - nickel plated stainless steel									
<b>Insert arrangement</b>	(see table 1)									
<b>Contact type</b>	P - male S - female A - male connector supplied less quadrax contact B - female connector supplied less quadrax contact									
<b>Orientation</b>	N - normal A - please consult us									
<b>Specification</b>	284 Quadrax contact grounded 308 Quadrax contact not grounded									

38999 Series III Aluminum shell

Basic series		8D	0	C	11	W	81	P	N	284
<b>Style</b>	0 - square flange receptacle 5 - plug with RFI shielding 7 - jam nut receptacle									
<b>Type</b>	C - receptacle with PC tail (male and female #8 quadrax) Q - connectors with quadrax crimp contacts									
<b>Shell size</b>	11-17-21-25 (see table 1)									
<b>Plating</b>	W - olive green cadmium F - nickel									
<b>Insert arrangement</b>	(see table 1)									
<b>Contact type</b>	P - male S - female A - male connector supplied less quadrax contact B - female connector supplied less quadrax contact									
<b>Orientation</b>	N - normal A - please consult us									
<b>Specification</b>	284 Quadrax contact grounded 308 Quadrax contact not grounded									

Other shell materials available. Please consult us.

**CRISTAL Speed**  
ELIO® Contact

**Cristal Speed®**  
High Speed  
Fiber Optic Technology

**SOURIAU**  
Connection Technology

**CRISTAL Speed**  
Quadrax Contact

**Cristal Speed™**  
Ethernet 100 Mbps Quadrax

**SOURIAU**  
Connection Technology

**CRISTAL Clear**

**Cristal Clear™**  
Planar Filter  
Connectors

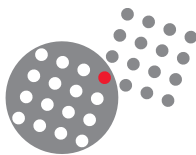
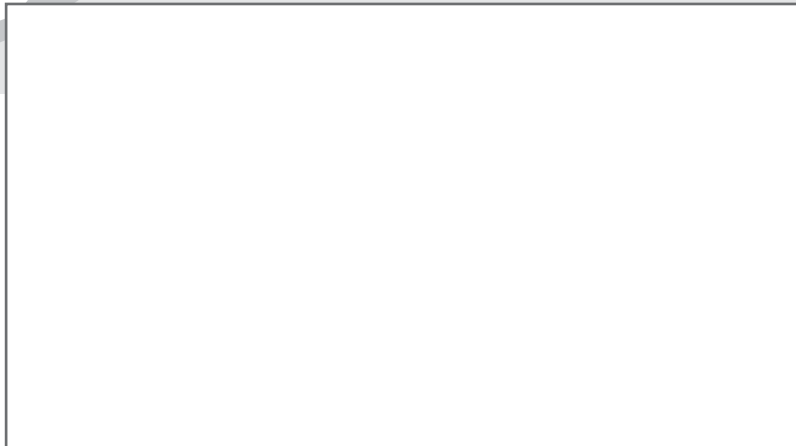
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**CRISTAL Clear**

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Connectors  
Transient Voltage Suppression (TVS)

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