# **Amphenol SOCAPEX**



Miniature High-Density & Reliability 1,27mm / .050" pitch PCB connector











#### TABLE OF CONTENTS

About Amphenol Socapex	4
Markets & applications	8
MICRO HDAS - High performance & versatile	10
General characteristics	10
Overall dimensions	12
Fittings	14
PCB layout	16
How to order	17





- Since **1947**, Amphenol Socapex has prescribed, designed and manufactured reliable and innovative interconnection solutions for harsh environments, specializing in standard and customized electrical and fiber optic connectors, contacts, accessories and cabling solutions.
- Located in the **Mont Blanc region** of France and Pune in India, Amphenol Socapex serve customers in over 100 countries around the world.
- Amphenol Socapex is part of the leading supplier of interconnect systems **Amphenol**.



1400+ employees



142 M€ Net Sales 2023 70% Export - 30% France



Thyez, France Pune, India

#### Our expertise has no boundaries

#### **Integrated Production in France & India**

- 24 000 m<sup>2</sup> manufacturing capacity on 2 sites
- Design and manufacturing centers in France and India
- State-of-the-art manufacturing technology

#### **Our markets**



**Defense** 



Commercial Aerospace



**Space** 



**Industry** 

## **TECHNOLOGIES & INNOVATION**

#### **Engineering Laboratory**



Product testing and qualification expertise in many fields:

- Environmental, mechanical, electrical, chemical, climatic skills
- RF and fiber optics expertise

#### **High-Speed Expertise**



Strong expertise in high-speed signals - 3D EM simulation software & EM

- Time Domain and frequency domain

models

#### **Materials Expertise**



Focus on materials expertise and manufacturing techniques to produce faster, smaller and stronger products

- Advanced technology research and development: polymers, metals, platings, resins ...
- Cutting edge characterizations of interconnects: Radio Frequency, partial discharges
- 3D CAD mechanical software, simulation & analysis

#### **Eco-responsibility**



Sustainable environment approach, with pro-active management of regulations (REACH / RoHS / Conflict minerals...)

- New materials development, plating, and suitable processes
- Recycling and rational resources consumption

#### Our workshops









Our workshops located in France & India provide consistent quality adapted to your volume requirements.

Automation & Tooling: Tools for our different activities: molding, machining, assembly

Molding: Solid expertise in thermoplastic elastomer and thermoset molding

Machining: Manufacturing of cylindrical shells and rectangular shells

Screw Machining: Manufacturing of electrical contacts

Plating: Plating with cadmium, nickel, electroless nickel, silver, black zinc nickel, gold

Assembly: Connector and harness assembly (electrical & optical)

#### Our certifications

Product certifications: MIL-DTL38999, EN3645, EN3155, VG (VG95328, VG95319, VG96944, VG95218, VG96949)













Our memberships

Member of CMG (Connecting Manufacturing Group) Consortium







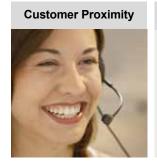






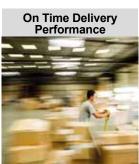
▶ We have a strong reputation for helping customers solve their toughest challenges. This approach of serving your needs is ingrained in our company – from our sales team to our product development engineers.

#### A partner you can trust











#### **Buy our solutions**

You can access our solutions through our global network of sales offices or through our distributors.

#### Field Sales Team:

- 4 10 in France
- 4 15 in Europe
- 100+ in North America and rest of the world.

5 Business Development Managers supporting local sales force Europe, North America and the rest of the world

Technical Advisement & Multilingual Customer Service : 20 people



#### **Worldwide Distribution Network:**

Our range of circular connectors, contacts, fiber optic connectors, PCB connectors and accessories are available thru our extensive distribution network.

It includes qualified distributors (QPL approved) for assembling MIL-DTL-38999 & derivatives and PT/451 (VG95328) connectors.











### **OUR HISTORY**

1947

1956-57

**Early 1960's** 

1973

1975



Socapex creation in Suresnes, France

- 1st radio connector

Manufacturing unit in Cluses (74), France

- Thomson-CSF becomes primary shareholder



- 1st board level connectors: HE8 - 1st "licence Bendix"
- manufactured connectors
- SL Series



New factory in Thyez (74) France with 250 people, 13 000m<sup>2</sup>



Production of 38999 connectors

1986

shareholder

1995-96

2004

2005

2010's



Amphenol becomes primary







- Headquarters transferred to Thyez



RJ Field launch, "Award Electronica"



New factory in Pune, India



LuxBeam™ **HDAS** and launch

2014-2017

2019





#### **Today & tomorrow**





New workshops:

- Cable Assembly & Contact Manufacturing workshop



Increased manufacturing capacity with 2<sup>nd</sup> building in Pune, India



Harness in the box solution launch

New technologies: Investment in automation & technical expertise



Amphenol SOCAPEX joins the "Convention des Entreprises pour le Climat ".

Our goal: to accelerate our transition to a more sustainable operation.

#### **MARKETS AND APPLICATIONS**













# MICRO HDAS Amphenol SOCAPEX



#### **GENERAL CHARACTERISTICS - MICRO HDAS**

#### High performance and high density miniature connector





#### **Description**

Amphenol Socapex introduce the Micro HDAS, its new micro board to board and board to wire connector. Micro HDAS allows you to save space on your board while maintaining a high level of performances. Offering you PC Tail, SMT & crimp contact terminations, Micro HDAS provides a modularity to fit all your needs.

#### **Benefits**

- Space & weight reduction to meet your miniaturization needs
- High density: 1.27mm [.050"] pitch
- · Protected contacts by design
- 7,4mm distance between boards

#### **Features**

- 29 arrangements, from 4 to 60 contacts
- PC Tail, SMT & Crimp contacts
- Meet & Exceed MIL-DTL-55302G & 83513G
- Full range of fittings to answers your needs

#### **Configurations**



Board to wire (Crimp AWG 24 to 30)



Mezzanine



Mother board to Daughter board

#### **Exploded views and Materials**





30% glass-filled termoplastic (LCP) UL94V-0 Polarized

#### FITTINGS







Male Female Guiding Guiding

Passivated Stainless Steel

#### Online configurator & 3D model download





#### **GENERAL CHARACTERISTICS - MICRO HDAS SERIES**



#### **Technical Specifications**

MECHANICAL CHARACTERISTICS	MICRO HDAS	MIL-DTL	-55302				
Backoff - Electrical security (mm)	1,27	N/	Α				
Contact engagement & separation forces Mating force per contact (N) Unmating force per contact (N)	0,39 < F < 0,68 0,16 < F < 0,21	4.5	.3				
Mating and unmating forces - Initial - Tested on a 30 ways connector Mating forces (N) - average per contact Unmating forces (N) - average per contact	0,44 0,31	4.5	i.4				
Durability cycles	500	4.5					
Sinusoidal vibrations	Up to 45g	4.5.					
Shocks (sawtooth/6ms)	Up to 160g	4.5.	10				
Fixing torque between connector and PCB (N.m)	0,3	N/					
Fixing torque between connectors (N.m)	0,2	N/					
	AWG 24 > 49,98N						
	AWG 26 > 36,64N						
Crimp tensile strength	AWG 28 > 19,90N	N/	A				
	AWG 30 > 11,30N						
ENVIRONMENTAL CARACTERISTICS		:					
Operating Temperature (°C)	-65/+150	4.5.	13				
Salt spray (hours)	96	4.5.	.11				
Humidity - 25/65°C - 90-95%	10 cycles of 24 hours	4.5.	15				
Thermal vacuum outgassing Applicable to LCP housing, PEEK ring (AWG 24 contact) and backpotting Stycast 2651 MM + Catalyst 9	Total mass loss: TML < 1% of the original mass Max volatile condensable material: CVCM < 0.1% of the original mass	ASTM E595 (E 020					
ELECTRICAL CARACTERISTICS		·					
	Contact configuration	@25°C	@85°C				
Current rating per contact (A) - 30 ways connector	YD/YD YD/YC	3,4A 3,9A	2,5A 2,6A				
	YD/CRIMP	Depending on o	cable, up to 5A				
Insulation resistance (at 500Vdc) (GΩ)	> 5	4.5	.8				
Contact resistance (mΩ)	< 8	4.5	.5				
Dielectric withstanding voltage (Vrms) at sea level	750						
Dielectric withstanding voltage (Vrms) 70 000 feet (between contacts)	4.5.7.1 480						

#### **Connector marking**

Micro HDAS connectors are laser marked. Exemple of marking :

Series name	Contact type	Date code
MHDAS	YC	YYWW

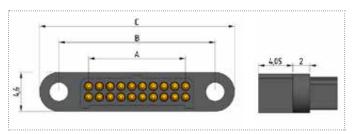
Series name : MHDAS = Micro HDAS

Contact type: as specified in our how to order

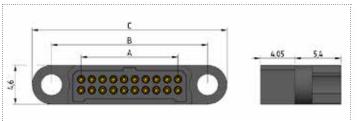
YYWW : year + week batch

#### **OVERALL DIMENSIONS - MICRO HDAS**

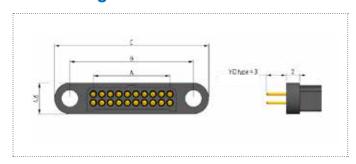
#### Male for cable



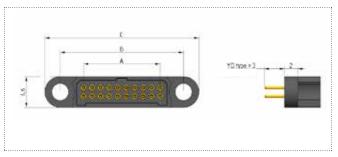
#### Female for cable



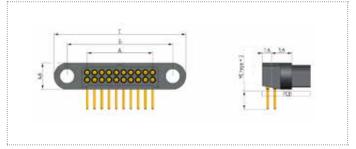
#### **Male Straight Thru Hole**



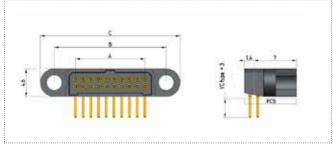
#### **Female Straight Thru Hole**



#### Male 90° Thru Hole



#### Female 90° Thru Hole



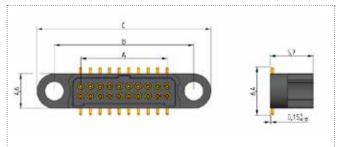
											ı	Dimer	nsion	table															
LF contact number	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
A = Distance between pins (mm)	1.27	2.54	3.81	5.08	6.35	7.62	8.89	10.16	11.43	12.70	13.97	15.24	16.51	17.78	19.05	20.32	21.59	22.86	24.13	25.40	26.67	27.94	29.21	30.48	31.75	33.02	34.29	35.56	36.83
B = Distance between fittings (mm)	8.27	9.54	10.81	12.08	13.35	14.62	15.89	17.16	18.43	19.70	20.97	22.24	23.51	24.78	26.05	27.32	28.59	29.86	31.13	32.4	33.67	34.94	36.21	37.48	38.75	40.02	41.29	42.56	43.83
C = Distance between extremities (mm)	12.87	14.14	15.41	16.68	17.95	19.22	20.49	21.76	23.03	24.3	25.57	26.84	28.11	29.38	30.65	31.92	33.19	34.46	35.73	37	38.27	39.54	40.81	42.02	43.35	44.62	45.89	47.16	48.43

#### **OVERALL DIMENSIONS - MICRO HDAS**

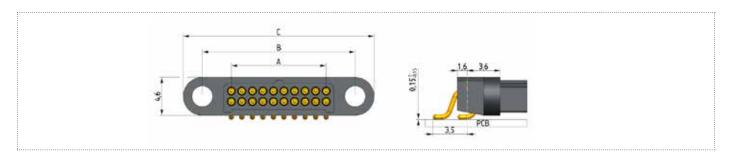
#### **Male Straight SMT**

# 5 0,151,4

#### **Female Straight SMT**



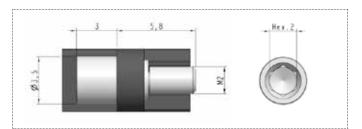
#### Male 90° SMT



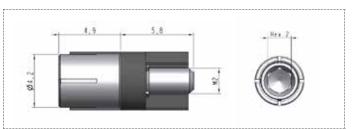
												Dime	nsion	table															
LF contact number	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
A = Distance between pins (mm)	1.27	2.54	3.81	5.08	6.35	7.62	8.89	10.16	11.43	12.70	13.97	15.24	16.51	17.78	19.05	20.32	21.59	22.86	24.13	25.40	26.67	27.94	29.21	30.48	31.75	33.02	34.29	35.56	36.83
B = Distance between fittings (mm)	8.27	9.54	10.81	12.08	13.35	14.62	15.89	17.16	18.43	19.70	20.97	22.24	23.51	24.78	26.05	27.32	28.59	29.86	31.13	32.4	33.67	34.94	36.21	37.48	38.75	40.02	41.29	42.56	43.83
C = Distance between extremities (mm)	12.87	14.14	15.41	16.68	17.95	19.22	20.49	21.76	23.03	24.3	25.57	26.84	28.11	29.38	30.65	31.92	33.19	34.46	35.73	37	38.27	39.54	40.81	42.02	43.35	44.62	45.89	47.16	48.43

#### FITTINGS - MICRO HDAS

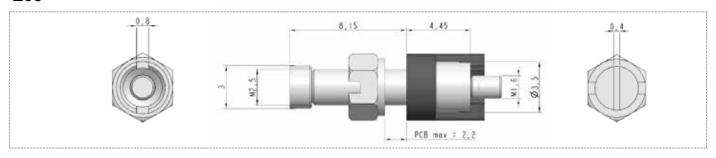
#### E01



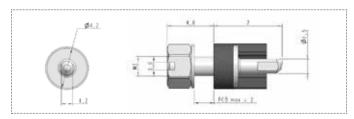
#### **E02**



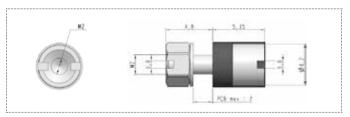
#### **E03**



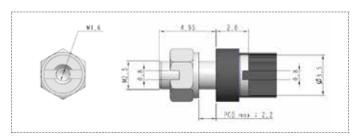
#### E10



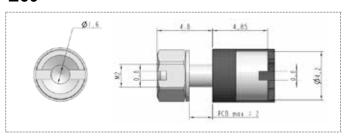
#### E50



#### E53



#### E60

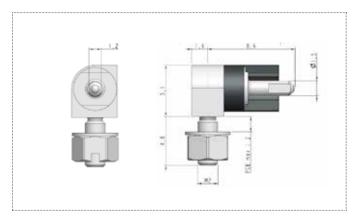


#### **Fittings compatibility**

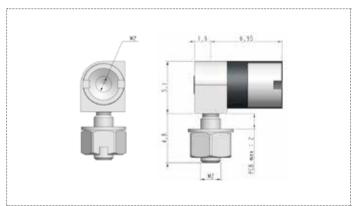
Contact		Fitting	Torque	e (N.m)	Compatible with
	E01	Jackscrew for harness	0	.3	E50 or E51
	E02	Captive Screw for harness	0	.3	E50 or E51
	E03	Jackscrew for PCB/Panel mount	On PCB: 0.25	On coupled part: 0.16	E53 or E63
A - B - G - YD - T	E10	Male straight guiding	0	.3	E60 or E61
	E50	Female straight jackscrew	0	E01 or E02	
hand the second	E53	Female straight jackscrew	0.	25	E03
	E60	Female straight guiding	0	.3	E10 or E11
	E11	Male 90° guiding	0	.3	E60 or E61
YC - R	E51	Female 90° jackscrew	0	.3	E01 or E02
ru-R	E61	Female 90° guiding	0	E10 or E11	
	E63	Female 90° jackscrew	0.	25	E03

#### FITTINGS - MICRO HDAS

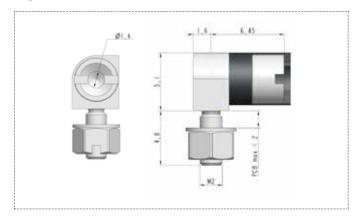
#### E11



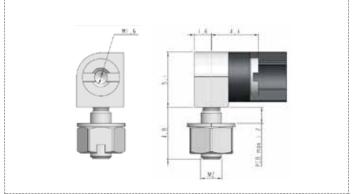
#### E51



#### E61



#### E63



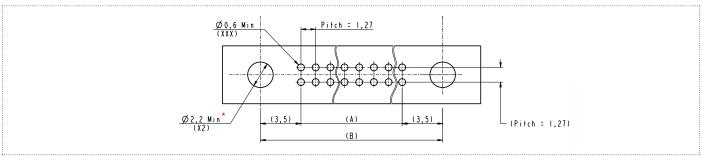
#### **Fittings compatibility**

Contact		Fitting	Torque	(N.m)	Compatible with
	E01	Jackscrew for harness	0.	3	E50 or E51
	E02	Captive Screw for harness	0.	3	E50 or E51
	E03	Jackscrew for PCB/Panel mount	On PCB: 0.5	On coupled part: 0.16	E53 or E63
A - B - G - YD - T	E10	Male straight guiding	0.	3	E60 or E61
	E50	Female straight jackscrew	0.	3	E01 or E02
	E53	Female straight jackscrew	0.	5	E03
	E60	Female straight guiding	0.	3	E10 or E11
	E11	Male 90° guiding	0.	3	E60 or E61
YC - R	E51	Female 90° jackscrew	0.	3	E01 or E02
fC - K	E61	Female 90° guiding	0.	3	E10 or E11
	E63	Female 90° jackscrew	0.	3	E03

#### **PCB LAYOUT - MICRO HDAS**

#### Straight/90° on PCB

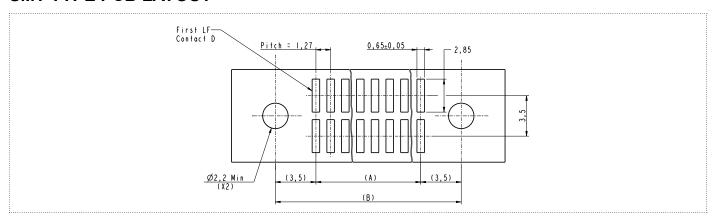
#### THROUGH-HOLE PCB LAYOUT



\* ø2.8 Min with E03 and E53 fittings

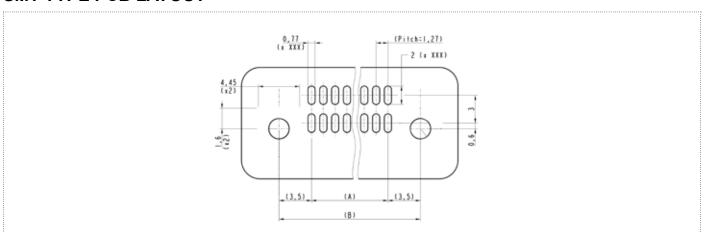
#### **Straight on PCB**

#### **SMT TYPE PCB LAYOUT**



#### 90° on PCB

#### **SMT TYPE PCB LAYOUT**



												Dime	ensio	n tab	le														
LF contact number	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
A = Distance between pins (mm)	1.27	2.54	3.81	5.08	6.35	7.62	8.89	10.16	11.43	12.70	13.97	15.24	16.51	17.78	19.05	20.32	21.59	22.86	24.13	25.40	26.67	27.94	29.21	30.48	31.75	33.02	34.29	35.56	36.83
B = Distance between fittings (mm)	8.27	9.54	10.81	12.08	13.35	14.62	15.89	17.16	18.43	19.70	20.97	22.24	23.51	24.78	26.05	27.32	28.59	29.86	31.13	32.4	33.67	34.94	36.21	37.48	38.75	40.02	41.29	42.56	43.83

#### **HOW TO ORDER - MICRO HDAS**



6.

#### **Straight on PCB**

90° on PCB

For Harnesses

9

1. 2. 3. 4.

Series	Number of rows	Connector type	Number of contacts	Contact type	Fitting type
MHDAS	2	M	016	YD	E10

#### 1. Series

MHDAS Micro HDAS 1.27mm pitch

# Number of rows 2 2 rows connector

2 TOWS CONNECTION

<b>3</b> . Co	nnector type
M	Male connector
F	Female connector

4. Number of c	4. Number of contacts									
004	024	044								
006	026	046								
008	028	048								
010	030	050								
012	032	052								
014	034	054								
016	036	056								
018	038	058								
020	040	060								
022	042									

5. Con	tact type
YD	Straight PC tail standard 🗸
Т	Straight SMT 🗸

6. Fitting type			
E10	Male straight guiding		
E50	Female straight jackscrew		
E60	Female straight guiding		
E01	Jackscrew for harness		
E02	Captive screw for harness		
E03	Jackscrew for PCB/Panel mount		
E53	Female straight jackscrew		

All the fittings type are compatible with male and female contacts.

#### **HOW TO ORDER - MICRO HDAS**





Straight on PCB

90° on PCB

For Harnesses

1.	2.	3.	4.	5.	6.
Series	Number of rows	Connector type	Number of contacts	Contact type	Fitting type
MHDAS	2	M	016	YC	E11

#### 1. Series

MHDAS Micro HDAS 1.27mm pitch

2. Num	ber of rows
2	2 rows connector

3. Connector type		
М	Male connector	
F	Female connector	

4. Number of contacts			
004	024	044	
006	026	046	
008	028	048	
010	030	050	
012	032	052	
014	034	054	
016	036	056	
018	038	058	
020	040	060	
022	042		

<b>5</b> . Cor	ntact type	ROHS
YC	Right angle PC tail standard 🗸	
R	Right angle SMT (only male) 🗸	

6. Fitting type			
E11	Male 90° guiding		
E51	Female 90° jackscrew		
E61	Female 90° guiding		
E63	Female 90° jackscrew		

All the fittings type are compatible with male and female contacts.

#### **HOW TO ORDER - MICRO HDAS**

#### **For Harnesses**

1.

3.

5.

6.

Series	Number of rows	Connector type	Number of contacts	Contact type	Fitting type
MHDAS	2	M	016	Α	E02

#### 1. Series

MHDAS Micro HDAS 1.27mm pitch

#### 2. Number of rows

2 rows connector

3.	Con	nector	type

M	Male connector
F	Female connector

			_		
<b>4</b> . N	lum	her	οf	COL	ntacts

T. Number of contacts				
004	024	044		
006	026	046		
008	028	048		
010	030	050		
012	032	052		
014	034	054		
016	036	056		
018	038	058		
020	040	060		
022	042			

For harnesses, backpotting is recommended for enhanced protection.

5. Con	stact type
A	Crimp AWG 24 🗸
В	Crimp AWG 26 🗸
G	Crimp AWG 28-30 ✓

Contacts A and B are the same ones. The differentiation comes from the addition of a ring in peek to crimp the AWG 24.

6. Fitting type		
E01	Jackscrew for harness	
E02	Captive screw for harness	
E10	Male straight guiding	
E50	Female straight jackscrew	
E60	Female straight guiding	
E03	Jackscrew for PCB/Panel mount	
E53	Female straight jackscrew	

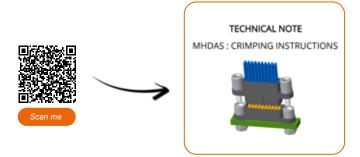
All the fittings type are compatible with male and female contacts.

#### **TOOLING & INSTRUCTION - MICRO HDAS**

#### Signal contact crimping tool

Reference	Description
MH800	Hand crimp tool DANIELS
K2024	Positioner for Micro HDAS signal contacts

Access our crimping instruction for Micro HDAS connector signal contacts : PCB-ER-020-Ext.



#### Signal contact insertion and extraction tool

Reference	Description	
MHDASODIEC	Insertion and extraction tool for Micro HDAS signal contacts	
	TECHNICAL NOTE	
	MHDAS · CRIMP CONTACT	

Access our insertion and extraction instruction for Micro HDAS connector signal contacts: PCB-ER-016-Ext.



#### **Backpotting**

Amphenol Socapex recomend to do backpotting with Stycast 2651MM and Catalyst 9 (10%).

# ABOUT AMPHENOL

Founded in 1932, **Amphenol** is one of the largest manufacturers of interconnect products in the world. The company designs, manufactures, and markets electrical, electronic, and fiber optic connectors, interconnect systems, and coaxial and specialty cables.

**Amphenol** has a diversified presence as a leader in high growth areas of the interconnect industry and provides solutions for customers in the automotive, broadband, industrial, information technology and data communications, military and aerospace, mobile devices, and mobile networks markets.

More info on www.amphenol.com

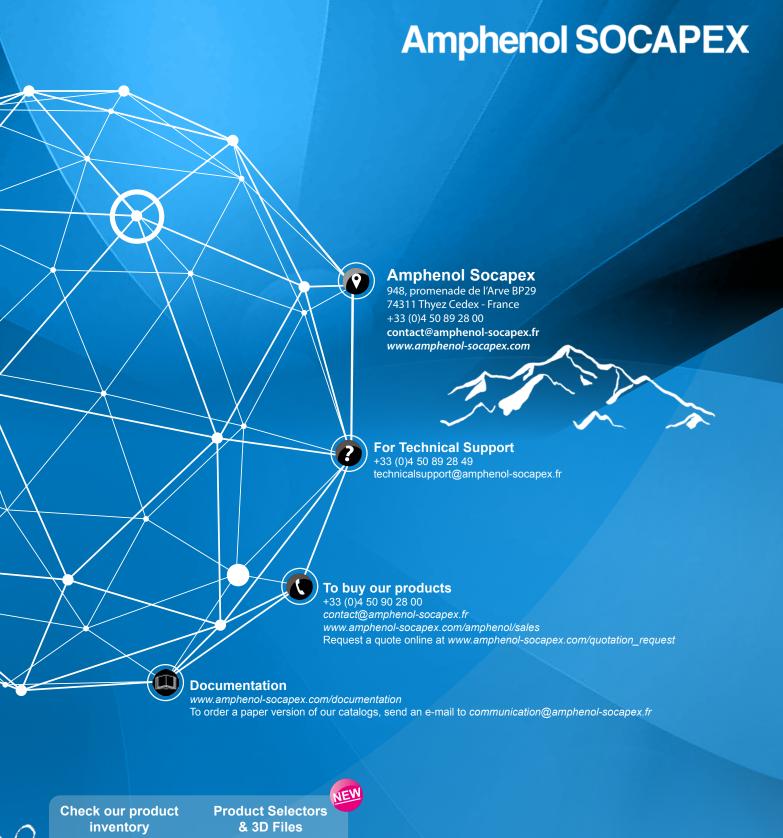


Europe			
FRANCE	Amphenol AIR LB	2 rue Clément Ader, ZAC de Wé - 08110 Carignan	+33 3 24 22 78 49
FRANCE	Amphenol SEFEE	Z.I. des Cazes – BP243 - 12402 Saint-Affrique Cedex	+33 5 65 98 11 00
GERMANY	Amphenol AIR LB GMBH	Am Kleinbahnhof 4 - 66740 Saarlouis	+49 6831 981 00
ITALY	Amphenol EUROPEAN SALES OPERATIONS	Via Barbaiana n.5 - 20020 Lainate - Milano	+39 293 254 214
UNITED KINGDOM	Amphenol INVOTEC	Unit 1-3, Hedging Lane Industrial Estate, Dosthill - Tamworth, B77 5HH	+44 1827 263 000
UNITED KINGDOM	Amphenol IONIX SYSTEMS	Prospect House, Taylor Business Park, Risley, Warrington, WA3 6HP	+44 1 942 685 200
UNITED KINGDOM	Amphenol LTD	Thanet Way, Whitstable - KENT, CT53JF	+44 1227 773 200
UNITED KINGDOM	Amphenol MARTEC	St Augustines Business Park. Swalecliffe Whitstable - Kent CT5 2QJ	+44 1227 793 733

North America			
CANADA	Amphenol CANADA	605 Milner avenue - Toronto, Ontario	+1 416 291 0647
USA	Amphenol AEROSPACE OPERATIONS	40-60 Delaware street - Sidney, NY 13838	+1 800 678 0141
USA	Amphenol BORISH TECHNOLOGIES	4511 East Paris AVE - Grand Rapids, MI 49512	+1 616 554 9820
USA	Amphenol FSI	1300 Central Expwy N, Suite 100 - Allen, TX 75013	+1 214 547 2400
USA	Amphenol GRIFFITH ENTERPRISES	6000 East Coury Drive - Cottonwood, AZ 86326	+1 928 634 3685
USA	Amphenol NEXUS TECHNOLOGIES	50 Sunnyside Avenue - Stamford, CT 06902	+1 203 327 7300
USA	Amphenol PCD	72 Cherry Hill Drive - Beverly, MA. 01915	+1 978 624 3400
USA	Amphenol PRINTED CIRCUIT	Board Technology, 91 Northeastern Boulevard - Nashua, NH 03062	+1 603 324 4500
USA	Amphenol SV MICROWAVE	2400 Centrepark West Drive - West Palm Beach, FL	+1 561 840 1800
USA	Amphenol TIMES MICROWAVE	358 Hall Avenue - Wallingford, CT 06492	+1 800 867 2629

Asia			
CHINA	Amphenol PCD CO.	Building 21, 1st Liao Keng Industrial Zone, Shi Yan Street - Bao An District - Shenzhen 518108	+86 755 8173 8000/8286
INDIA	Amphenol INTERCONNECT INDIA	105 Bhosari Industrial Area - Pune 411 026	+91 20 27120363
JAPAN	Amphenol JAPAN	471-1, Deba, Ritto-City - Shiga 520 3041	+81 77 553 8501
KOREA	Amphenol DAESHIN	558 SongNae-Dong SoSa-Gu, Bucheon-city, Kyunggi-Do - 420-130	+81 32 610 3830/3845
SINGAPORE	Amphenol EAST ASIA	26/F, Railway Plaza, 39 Chatham Road South, Tsim Sha Tsui, Kowloon, Hong Kong	+65 6294 2128

Other Areas			
AFRICA	Amphenol AFRICA	30 Impala Rd - Sandton 2146	+27 82 410 5179
ARGENTINA	Amphenol ARGENTINA	Av. Callao 930 2do piso Oficina B "Plaza" C1023 - AAP Buenos Aires	+54 11 4815 6886
AUSTRALIA	Amphenol AUSTRALIA PTY	2 Fiveways Blvd., Keysborough - Melbourne - Victoria 3173	+61 3 8796 8888
BRAZIL	Amphenol DO BRAZIL	Rua Diogo Moreira, 132, 20 andar, rooms 2001-2-3	+55 11 3815 1003
ISRAEL	Amphenol BAR-TEC	3 Hagavish Street, K fir-Barkan Bldg. East Industrial Zone - Kfar-Sava, 44102	+972 9 764 4100
MEXICO	Amphenol OPTIMIZE	Carretera Internacional Km 6.5, Col. Parque Industrial, Nogales, Sonora, C.P. 84094	+52 631 311 160
NEW ZEALAND	Amphenol PHITEK	Level 4, 2 Kingdon Street, Newmarket, Auckland 1023	+64 9 524 2984
RUSSIA	Amphenol RUSSIA	Yaroslavskaja Street 8 - 129164 Moscow	+7 495 937 6341
TURKEY	Amphenol TURKEY	Sun Plaza 15 Kat: 15 Maslak Hah. Bilim Sok. No.5 - Sisli/Istanbul, 34398	+90 212 367 92 19











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