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Amphenol Sine Systems, USA
Amphenol Tuchel Industrial, Germany

www.amphenol-sine.com



em eco|mate® Family Overview

The **ecomate® Family** of circular, multiway connectors provide an IP65-69k-rating range (in mated condition) for indoor/outdoor industrial applications and feature robust, durable plastic or metal designs with either bayonet or rapid coupling systems. With a current rating range of 5 to 300A across the individual series, the **ecomate® Family** is perfect for **Factory Automation, Industrial, Heavy Equipment, Heavy Duty, Transportation, and Entertainment/Lighting** markets.







em eco|mate® C16

em eco|mate® RM

em eco|mate® AQUARIUS™

em eco|mate® Plastic

IP Rating				
Available Shell Sizes/ Insert Arrangements	3 Shell Sizes/ 11 Insert Arrangements	8 Shell Sizes/ 32 Insert Arrangements	6 Shell Sizes/ 25 Insert Arrangements	1 Shell Sizes/ 4 Insert Arrangements
Approvals	VDE, UL and CSA	UL ETCB2 & ETCB8	Pending UL ETCB2 & UL ETCB8™	VDE, SEV, UL Recognized, CSA
Materials	Thermoplastic UL94 V-0	Body-Zinc Alloy; Coupling-Nickel Alum.	Thermoplastic UL94 V-0	
Contacts	Stamped & Formed	Machined, Stamped & Formed, PCB (ecomate® RM (Rugged Metal) contacts are fully compatible with ecomate® Aquarius™ contacts, providing significantly increased product flexibility.)		S&F, Machined, Solder
Termination	Screw (Field Install), Crimp	Crimp, Solder		Screw (Field Install), Crimp, Solder
Coupling System	Bayonet			Rapid Threading
Amperage	Up to 50A/900V	7 to 45A (RADSOK® 86 to 300A)	Up to 45A/500V	10 to 20A
Operating Temp	-40°C to +125°C	-40°C to +115°C	-40°C to +105°C	-40°C to +125°C

NOTE: ecomate® RM is available in two (2) ingress protection levels. The standard product IP67, and ecomate® RSSM (Superior Seal) IP69K. Example PN: RT06148PNH03-S5





















































em eco|mate® Family



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Individual ecomate™ Series Insert Arrangement Chart (For Reference Only)

ecomate® Plastic	ecomate® C16	ecomate® AQUARIUS™	ecomate® RM
 3+HE POS 16A/40V Standard	 2+HE POS 3A/25V SITE 1	 12 POS 13A/50V SITE 14	 3 POS 13A/50V SITE 10
 6+HE POS 13A/25V Standard	 3+HE POS 2A/19V SITE 1	 4 POS 23A 13A/50V SITE 14	 4 POS 13A/50V SITE 10
 3+HE POS 14A/40V High Voltage	 8+HE POS 10A 12A/40V SITE 1	 2+ POS 4 POS 13A/50V SITE 14	 4 POS 5A 7.5A/15V SITE 10
 6+HE POS 14A/40V High Voltage	 12+3+HE POS 12A 6A/25V SITE 1	 19 POS 5A 7.5A/15V SITE 14	 19 POS 5A 7.5A/15V SITE 14
 14+HE POS 16A 6A/10V SITE 1	 4 POS 45A 150V SITE 19	 6 POS 5A 7.5A/15V SITE 10	 1 POS 120A 180A/60V SITE 16
 17+HE POS 16A 6A/10V 5A 6A/10V 25V SITE 1	 19 POS 13A/40V SITE 16	 3 POS 13A/40V SITE 12	 4 POS 45A/150V SITE 16
 4+HE POS 3A/6V SITE 1	 19 POS 13A/40V SITE 16	 4+2-1 POS 13A/250V SITE 12	 4 POS 45A/150V SITE 16
 5+HE POS 16A 21A/40V SITE 2	 9 POS 23A 8 POS 13A/50V SITE 16	 8 POS 13A/50V SITE 12	 9 POS 23A 13A/250V SITE 16
 12+HE POS 21A 11A/30V SITE 2	 26 POS 5A 12A/25V SITE 16	 4+2-1 POS 5A 7.5A/15V SITE 12	 19 POS 13A/300V SITE 16
 14+HE POS 6A 12A/40V SITE 2	 23 POS 13A 130V SITE 18	 10 POS 5A 7.5A/15V SITE 12	 26 POS 5A 7.5A/15V SITE 16
 19+HE POS 5A 6A/25V SITE 2	 8 POS 22A 120V SITE 18	 3 POS 45A/60V SITE 14	 48 POS 13A/300V SITE 24
 32 POS 5A 7.5A/15V SITE 18	 7 POS 13A/50V SITE 14	 8 POS 13A/50V SITE 14	 8 POS 23A/375V SITE 18
 32 POS 5A 7.5A/15V SITE 18	 7 POS 13A/50V SITE 14	 8 POS 13A/50V SITE 14	 23 POS 13A/300V SITE 18

Available  ecomate™ Plastic Assembled Solutions



Example PN: CA0162C22020012

Example PN: CA0161G113003

Available in **RADSOX™** Technology

For more information, contact: Customer Service, +1 800 394 7732, csr@amphenol-sine.com

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DM DuraMate™ AHDP

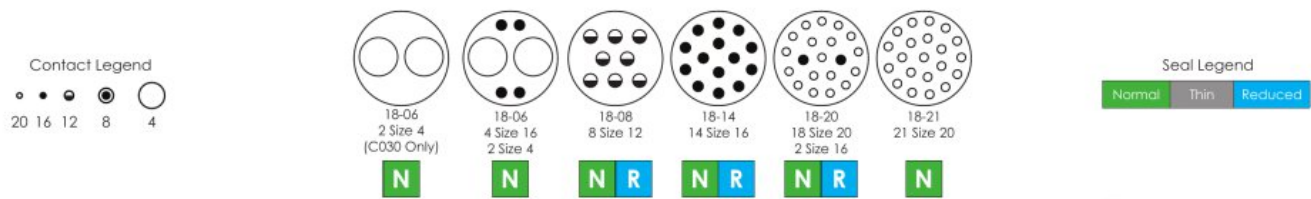
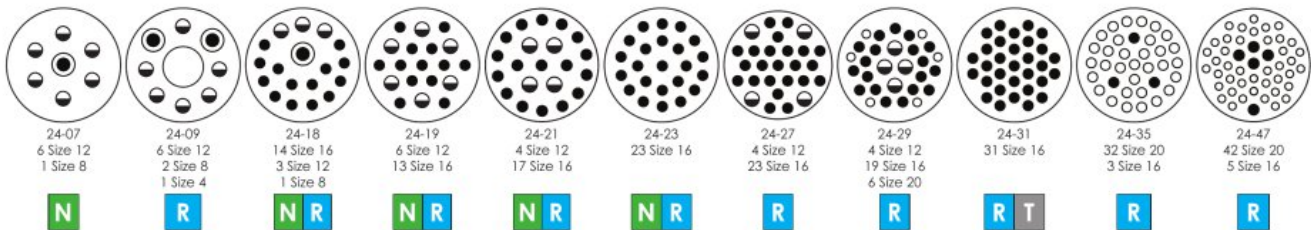
Plastic Circular Connectors for Heavy Duty Applications



Available in Size 24 with 11 insert arrangements (7, 9, 18, 19, 21, 23, 27, 29, 31, 35 and 47)
Available in Size 18 with 6 insert arrangements (2, 6, 8, 14, 20 and 21)

The DuraMate™ AHDP environmentally-sealed, multi-pin, heavy duty, plastic, circular connector series provides an economical quick-connect bayonet locking system manufactured to withstand the challenges and complexities of harsh environment off-road applications.

- 3 key-way bayonet design ensures proper mating of connectors
- High density signal and mixed power insert configurations
- Operating temperature range: -55 °C to +125 °C
- High current configurations incorporating revolutionary RADSOK® contacts
- High strength impact resistant & lightweight thermoplastic housings
- Low insertion force stamped terminals offer improved manufacturing efficiencies
- Standard WTA(Wide Thread Adapter) provides maximum access to rear grommet and improved serviceability.
- Environmentally-sealed and engineered rapid and secure mating system achieves IP67/IP69K protection (in mated condition) from ingress of dust, water, mud and other contaminants and is vibration resistant.
- Sealing features consisting of durable high temperature silicone provide barrier from lubricating oils, hydraulic fluids and fossil fuels
- Back shells maintain a compression-fit design to resist maximum pull-out forces and facilitate strain-relief for jacketed cable ranges.
- Utilizes A Series™ standard contact system
- Wire entry sealing available in three separate ranges for discrete wire applications

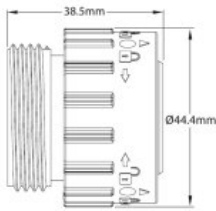


A Series™ Family

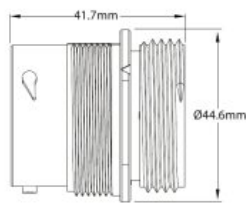


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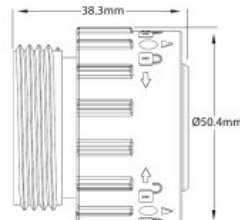
- 1 Wide threaded collar ring for increased serviceability and connector access
- 2 Highly visible indicators for quick alignment and 100% positive mating
- 3 Enclosed 1-piece threaded backshell with low-cost strain relief
- 4 Optional backshells available
- 5 Contact removal tools
- 6 RADSOK® contacts
- 7 Metal Wave Washer
- 8 Plastic Panel Nut
- 9 Plastic Caps



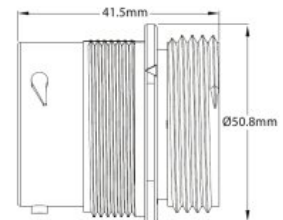
Shell Size 18 Plug



Shell Size 18 Receptacle



Shell Size 24 Plug



Shell Size 24 Receptacle

Material & Performance Specifications

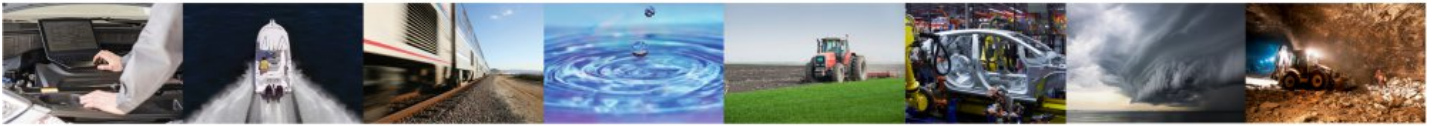
Current Rating per Contact	Size 4, 100A; Size 8, 80A; Size 12, 25A; Size 16, 13A; Size 20, 7.5A	Housing Material	Thermoplastic
Operating Temperature	-55°C to +125°C	Insulation Insert	Thermoplastic
Dielectric Withstanding Voltage	Current Leakage -12mA at 1500 VAC	Seal	Silicone Rubber
Degree of Protection	IP67/69K (in mated condition)	Contact	A Series™ Common System
Mating Cycle Durability	100 Cycles	Compliance	RoHS

Recommended Wire Insulation Overall Diameter (OD)

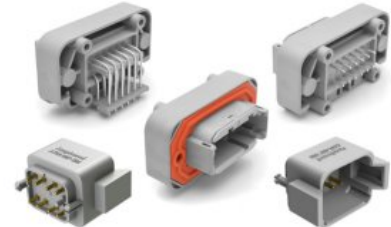
Contact Size	Normal Seal	Thin Seal	Reduced Seal
20	1.02mm (.040") - 2.10mm (.083")	N/A	1.02mm (.040") - 2.41mm (.095")
16	2.54mm (.100") - 3.40mm (.134")	2.23mm (.088") - 3.40mm (.134")	1.35mm (.053") - 3.05mm (.120")
12	3.43mm (.135") - 4.32mm (.170")	N/A	2.46mm (.097") - 4.01mm (.158")
8	4.83mm (.190") - 6.10mm (.240")	N/A	N/A
4	N/A	N/A	6.63mm (.261")-7.42mm (.292")

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BL BoardLock™ Family



Available in 2, 3, 4, 6, 8, 12 and 13 Position

Amphenol Sine Systems' **BoardLock™ Family** combines flanged or flangeless, 180° straight or 90° right angle pin-oriented, wire-to-board versatility with the proven reliability of the A Series™ environmentally-sealed thermoplastic connection system with a maximum current rating up to 25A. Featuring a compact, durable, low-profile and lightweight design, perfect for power or data signal applications in Heavy Equipment, Transportation, Industrial, Off-Road and Harsh Environments. All **BoardLock™** product lines accept A Series™ components and are compatible with other industry standard mating connectors.

Potential Applications

Power & Signal Connectivity, Data Acquisition, HVAC Systems, Farming Implementation, Boating, Sealed Environments

Features

- Flanged or Flangeless
- 180° Straight or 90° Right Angle Pin Orientation
- Snap-Lock or Screw-Lock Mounting
- Potted or Unpotted



BoardLock™ Family Specifications Overview

Positions	2, 3, 4, 6, 8, 12, and 13
Current Rating	(ATM) 7.5A / (AT) 13A / (Mixed) 25A
Pin Orientation	180° Straight or 90° Right Angle
Mounting Type	Snap-Lock or Screw-Lock
Flange	Flange or Flangeless (See individual series)
Contact Material/Plating	Copper Alloy/Gold, Nickel or Tin Plating
Contact Milivolt Drop	See individual series specs
Contact Termination	Direct Solder
Contact Types	Machined, PC Tail
Dielectric Value	Meets or exceeds 1500 volts minimum
Housing/Latch	Thermoplastic/Integrated
Insulation Resistance	1000 megohms minimum at 25°C
IP Rating	IP67 mated condition
Keying Options	Available in 6, 8 and 12 position only









Mating Cycles	100 Cycles
Operating Voltage	250 VDC
Seal Material	Silicone Rubber (depending on series)
Temperature Range	-55°C to +125°C at rated current
Shock	No latch disengagement or discontinuity shall be the result when subjected to 50 g's in each of three axis (X, Y & Z)
Thermal Shock	Subjected to 10 cycles at -55°C to +125°C with no cracking, chipping or other damage detrimental to the normal operation of the connector
Vibration	Continued continuity without degradation to mechanical or physical attributes following vibration. (Max acceleration 20 g's at Sine sweep of 10-2000Hz)



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BoardLock™ Series Comparison Chart

Series	 BoardLock™ AT	 BoardLock™ ATF13	 BoardLock™ AT13/15	 BoardLock™ ATM1
Image				
Positions	2, 3, 4, 6, 8 and 12 13 position avail. only in 90° RA	2, 3, 4, 6, 8 and 12 13 (Mixed Power and Signal)	2, 4, 6, 8 and 12	2, 3, 4, 6, 8, and 12
Current Rating	2, 3, 4, 6, 8, 12 pos: Size 16, 13A 13 pos: Size 16, 13A; Size 12, 25A	2, 3, 4, 6, 8, 12 pos: Size 16, 13A 13 pos: Size 16, 13A; Size 12, 25A	13A	7.5A
Pin Orientation	2, 3, 4, 6, 8, 12 pos: 180° Straight; 13 pos: 90° Right Angle	90° Right Angle	AT13: 90° Right Angle AT15: 180° Straight	ATM13: 90° Right Angle ATM15: 180° Straight
Mounting Type	Snap-Lock or Screw-Lock	Snap-Lock or Screw-Lock	Screw-Lock	Screw-Lock
Flange	Flangeless	Flangeless	Flanged	Flanged
Contact Material/Plating	Copper Alloy/Gold, Nickel Plating	Copper Alloy/Gold, Nickel Plating	Copper Alloy/Gold, Nickel Plating	Copper Alloy/Gold, Nickel
Contact Milivolt Drop	100 mV drop max at 13A test current	100 mV drop max at 13A test current	100 mV drop max at 13A test current	100 mV drop max at 7.5A test current
Contact Termination	Direct Solder	Direct Solder	Direct Solder	Direct Solder
Contact Types	Machined, PC Tail	Machined, PC Tail	Machined, PC Tail	Machined, PC Tail
Dielectric Value	Meets or exceeds 1500 volts minimum	Meets or exceeds 1500 volts minimum	Meets or exceeds 1500 volts minimum	Meets or exceeds 1500 volts minimum
Housing/Latch	Thermoplastic/Integrated	Thermoplastic/Integrated	Thermoplastic/Integrated	Thermoplastic/Integra
Insulation Resistance	1000 megohms minimum at 25°C	1000 megohms minimum at 25°C	1000 megohms minimum at 25°C	1000 megohms minimum
IP Rating	IP67 mated condition	IP67 mated condition	IP67 mated condition	IP67 mated conditic
Keying Options	Available in 8, 12 pos only	Available in 6, 8, 12 pos only	Available in 6, 8, 12 pos only	Available in 8, 12 pos
Mating Cycles	100 Cycles	100 Cycles	100 Cycles	100 Cycles
Operating Voltage	250 VDC	250 VDC	250 VDC	250 VDC
Seal Material	n/a	n/a	Silicone Rubber	Silicone Rubber
Temperature Range	-55°C to +125°C at rated current	-55°C to +125°C at rated current	-55°C to +125°C at rated current	-55°C to +125°C at rated curr
Shock	No latch disengagement or discontinuity shall be the result when subjected to 50 g's in each of three axis (X, Y & Z)	No latch disengagement or discontinuity shall be the result when subjected to 50 g's in each of three axis (X, Y & Z)	No latch disengagement or discontinuity shall be the result when subjected to 50 g's in each of three axis (X, Y & Z)	No latch disengagement or d shall be the result when subje g's in each of three axis (X, Y & Z)
Thermal Shock	Subjected to 10 cycles at -55°C to +125°C with no cracking, chipping or other damage detrimental to the normal operation of the connector	Subjected to 10 cycles at -55°C to +125°C with no cracking, chipping or other damage detrimental to the normal operation of the connector	Subjected to 10 cycles at -55°C to +125°C with no cracking, chipping or other damage detrimental to the normal operation of the connector	Subjected to 10 cycles at -55° +125°C with no cracking, chip other damage detrimental to operation of the connector
Vibration	Continued continuity without degradation to mechanical or physical attributes following vibration. (Max acceleration 20 g's at Sine sweep of 10-2000Hz)	Continued continuity without degradation to mechanical or physical attributes following vibration. (Max acceleration 20 g's at Sine sweep of 10-2000Hz)	Continued continuity without degradation to mechanical or physical attributes following vibration. (Max acceleration 20 g's at Sine sweep of 10-2000Hz)	Continued continuity without lation to mechanical or physica g's at Sine sweep of 10-2000H



The Clear Choice for Sealed Enclosures

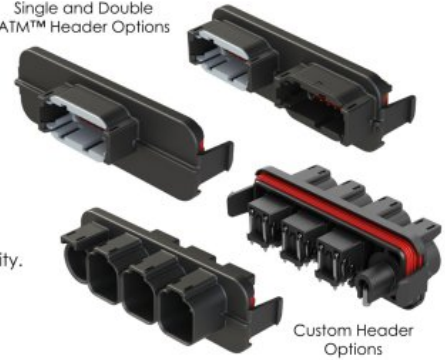
The Amphenol **Armor IPX™ Clear Sealed Enclosure** provides superior protection for printed circuit boards and electronic control modules in harsh environments and off-road applications, all in a clear, see-through housing. Available in two additional enclosure material types: Black Thermoplastic or Ultem® (Transparent Amber). Simplified installation is accomplished via a rugged tandem through-hole design for ease of mounting and includes optional environmental venting. The **Armor IPX™** electrical interface is established with the compact **ATM™ Header System** featuring optional keying and sealed 90° molded pins. The snap-in headers quickly and securely attach to the **Armor IPX™** enclosure and mate with standard **ATM™ Series** plugs. **Armor IPX™ Sealed Enclosures** and **ATM™ Header Systems** are compatible with industry standard EEC enclosures.

Key Features

- Interchangeable with industry standard connectors
- Optional header configurations - ATM™ Series 24 I/O (A, B, C & D Keying)
- Rugged tandem through-hole design for ease of mounting
- Snap-in headers establish ease of interface with PCB
- Cross hatch design increases venting protection
- Resistant to most fluids used in industrial applications



Single and Double ATM™ Header Options



Available Options

- Custom/Blank Headers available to assist in establishing additional connector interface flexibility.
- Vented enclosures (environmental venting)
- Enclosures available in Thermoplastic Black or Ultem® (Transparent Amber) material
- ATM™ Headers with optional tin- or gold-plated pins

Technical Specifications

Temperature Range	Clear Enclosure: -40°C to +120°C Black Enclosure: -55°C to +125°C Ultem® (Transparent Amber) Encl: -55°C to +125°C ATM™ Headers: -55°C to +125°C
Temperature (Humidity)	320 Hr
Temperature (Life)	1000 Hr
UV Exposure	500 Hr
Max. Current (AMP)	7.5A @ 85°C (ATM™ Headers)
IP Ratings	IP67/69K (w/ Header Installed)
Contact Resistance	<10mΩ (ATM™ Headers)
Insulation Resistance	>1000MΩ @ 500 VDC (ATM™ Headers)
Current Cycling	500 Hr (ATM™ Headers)

Material	Clear Enclosure: PC Black Enclosure: PA66 Ultem® (Transparent Amber) Enclosure: PEI ATM™ Headers: PA66
Salt Fog	96 Hr
Vibration	10 to 2000Hz – 20g peak level – XYZ – 24 Hr
Shock	50g - 20 pulses
Pins	Brass, Post Tin or Gold plated (ATM™ Headers)
Sealing Material	Silicone Rubber (ATM™ Headers)
RoHS	Compliant



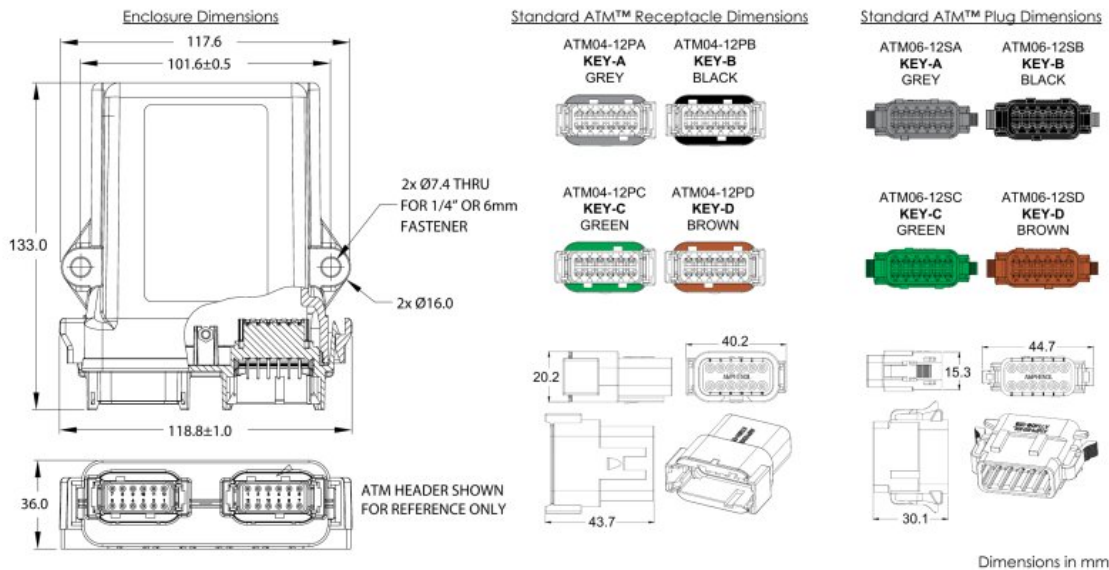
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Armor IPX Series™ Enclosures & Headers

Image	Part Number	Description	Amp	Voltage
	AIPXE-325X4A-E017	Armor IPX™, Clear, Thermoplastic Enclosure, Vent Hole, Op. Temp. Range: -40°C to +120°C	-	-
	AIPXE-325X4B-E017	Armor IPX™, Clear, Thermoplastic Enclosure, w/out Vent Hole, Op. Temp. Range: -40°C to +120°C	-	-
	AIPXE-325X4A	Armor IPX™, Black, Thermoplastic Enclosure, Vent Hole, Op. Temp. Range: -55°C to +125°C	-	-
	AIPXE-325X4B	Armor IPX™, Black, Thermoplastic Enclosure, w/out Vent Hole, Op. Temp. Range: -55°C to +125°C	-	-
	AIPXE-325X4A-E016	Armor IPX™, Ultem® (Transparent Amber), Enclosure, Vent Hole, Op. Temp. Range: -55°C to +125°C	-	-
	AIPXE-325X4B-E016	Armor IPX™, Ultem® (Transparent Amber), Enclosure, w/out Vent Hole, Op. Temp. Range: -55°C to +125°C	-	-
	ATM13-12PA-GR01	Armor IPX™, ATM™ Header, Thermoplastic, 1x12 Position, Size 20, A Key - Gold Plating	7.5A	250V
	ATM13-12PB-GR01	Armor IPX™, ATM™ Header, Thermoplastic, 1x12 Position, Size 20, B Key - Gold Plating	7.5A	250V
	ATM13-12PC-GR01	Armor IPX™, ATM™ Header, Thermoplastic, 1x12 Position, Size 20, C Key - Gold Plating	7.5A	250V
	ATM13-12PD-GR01	Armor IPX™, ATM™ Header, Thermoplastic, 1x12 Position, Size 20, D Key - Gold Plating	7.5A	250V
	ATM13-12PA-R008	Armor IPX™, ATM™ Header, Thermoplastic, 1x12 Position, Size 20, A Key - Tin Plating	7.5A	250V
	ATM13-12PB-R008	Armor IPX™, ATM™ Header, Thermoplastic, 1x12 Position, Size 20, B Key - Tin Plating	7.5A	250V
	ATM13-12PC-R008	Armor IPX™, ATM™ Header, Thermoplastic, 1x12 Position, Size 20, C Key - Tin Plating	7.5A	250V
	ATM13-12PD-R008	Armor IPX™, ATM™ Header, Thermoplastic, 1x12 Position, Size 20, D Key - Tin Plating	7.5A	250V
	ATM13-12PA-12PB-BM01	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, A&B Key - Gold Plating	7.5A	250V
	ATM13-12PA-12PC-BM01	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, A&C Key - Gold Plating	7.5A	250V
	ATM13-12PA-12PD-BM01	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, A&D Key - Gold Plating	7.5A	250V
	ATM13-12PB-12PC-BM01	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, B&C Key - Gold Plating	7.5A	250V
	ATM13-12PB-12PD-BM01	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, B&D Key - Gold Plating	7.5A	250V
	ATM13-12PC-12PD-BM01	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, C&D Key - Gold Plating	7.5A	250V
	ATM13-12PA-12PB-BM03	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, A&B Key - Tin Plating	7.5A	250V
	ATM13-12PA-12PC-BM03	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, A&C Key - Tin Plating	7.5A	250V
	ATM13-12PA-12PD-BM03	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, A&D Key - Tin Plating	7.5A	250V
	ATM13-12PB-12PC-BM03	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, B&C Key - Tin Plating	7.5A	250V
	ATM13-12PB-12PD-BM03	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, B&D Key - Tin Plating	7.5A	250V
	ATM13-12PC-12PD-BM03	Armor IPX™, ATM™ Header, Thermoplastic, 2x12 Position, Size 20, C&D Key - Tin Plating	7.5A	250V
	AIPXE-325XBP-01	ArmorIPX™, Blank Header Plate, Thermoplastic	-	-



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PB POWERBOSS™ M29

Three-Phase Control Power Receptacles and Cable Assemblies



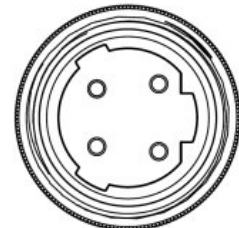
Amphenol Sine Systems continues to build upon an extensive range of factory molded Three-Phase and Control Power industrial connectivity with the new **PowerBOSS™ M29** 25A/29A 600V cable media. Ideally suited for quick connection of distributed motor controllers, industrial automation applications in which power requirements are exposed to long-term physical stresses, and subjected to liquids or oils. These IP68 protection class connectors provide an alternative to "hard-wiring" ensuring consistent, low resistance connection points reducing downtime, easier maintenance and increased safety.

Applications

- VFD Drive and Motor Connections
- Industrial Conveyors
- Sortation Systems
- Material Handling
- Food & Beverage
- Automotive
- Commercial/Industrial Light Displays
- Load Cells
- Pumps
- Solar Panels
- Solenoid Operated Valves

Advantages

- Eliminates the need for "pipe and wire" conduit
- Rated for Motor Branch Circuits
- Meets UL2237/UL2238 for Industrial Machinery / UL approved as an assembly
- 65 Ka High Fault Rating (SCCR)
- Straight or right angle over-molded connector options.
- Multiple standard lengths available
- Decreases wiring errors with inherent molded "plug & play design"
- Compact M29 (1.14") sizing minimizes panel space & wiring requirements
- Molded key indicator ensures keyway alignment of mating connector
- Gold over nickel contact plating provides low capacitance design and corrosion resistance
- Superior receptacle-to-wire leads epoxy potting ensures reliability by preventing conductor pull-out
- High performance, long-lasting plating that maintains low resistance through repeated mate/unmate cycles



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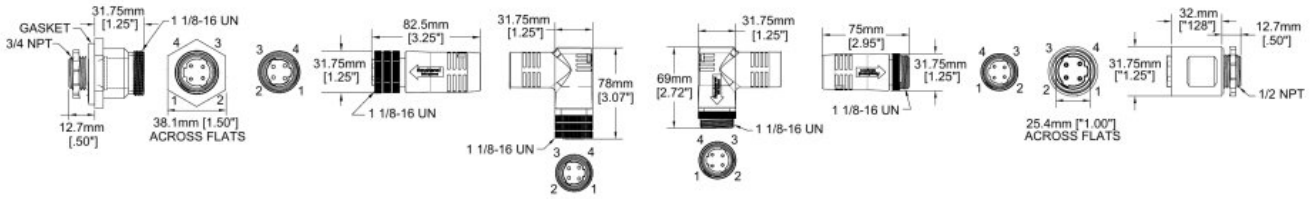


Technical Specifications-Cable

Jacket	TPE, Black
Number of Conductors	(Qty 4) 12AWG (4 mm ²)
Insulation	XLPE (plus)
Shielding	Triple Layer Foil Tape: 100% Coverage Braid: 85% Coverage
Minimum Bend Radius	7.5 x Cable Diameter
Cable Nominal O.D.	0.656 in. / 16.7 mm
Temperature Range	UL/CSA TC: -25°C to +90°C; For Stationary Use: -40°C to +105°C; For Flexible Use: -25°C to +105°C
Conductor Stranding	Class 5 Fine Wire
Color Code	[3] Black w White Numbers, plus [1] Green/Yellow Ground
Approvals	UL: TC-ER per UL 1277
Attributes	UL Oil Res I/II; 90°C Wet or Dry; -40°C Cold Bend; -25°C Cold Impact; Sunlight Resistant; Direct Burial; NFPA 79 2015
NEC	Class 1 Division 2 per NEC Article 501
Canadian Approvals	c(UL) CIC/TC FT4; cRU AWM I/II A/B FT4
Additional Approvals	CE (50V – 1kV) & RoHS
Agency Approvals	UL Recognized File #E339703

Technical Specifications-Connector

Number of Contacts	4
Contacts	Gold flash plating over copper alloy
Voltage Rating	600V AC
Insulation Resistance (Min)	5000M OHMs
Dielectric Test Voltage	2200V
Amperage Rating	25A per UL / c(UL)2237 29A per UL / c(UL)2238
IP Rating	IP68 - Type 4-12 24Hrs @ 1 Meter
Materials	Body: PVC; Coupler: Machined steel, nickel plated
Sealing	Silicone
Mating Cycles	>500



Part Number Overview-PowerBOSS™ M29

Amphenol Sine Systems Part Number	Comparable Allen-Bradley Part Number	Description
P31383-MXX	284-PWRM29G-MXX	PowerBOSS™ M29 (1.14"), Power Cable, Male Straight, Shielded, 4 Conductor, 12AWG Cable Assy, TPE
P31384-MXX	-	PowerBOSS™ M29 (1.14"), Power Cable, Male 90°, Shielded, 4 Conductor, 12AWG Cable Assy, TPE
P31385-MXX	-	PowerBOSS™ M29 (1.14"), Power Cable, Female straight, Shielded, 4 Conductor, 12AWG Cable Assy, TPE
P31386-MXX	-	PowerBOSS™ M29 (1.14"), Power Cable, Female 90°, Shielded, 4 Conductor, 12AWG Cable Assy, TPE
P31387-MXX	284-PWRM29A-MXX	PowerBOSS™ M29 (1.14"), Power Cable, Male to Female, Shielded, 4 Conductor, 12AWG Cable Assy, TPE
P31388-MXX	-	PowerBOSS™ M29 (1.14"), Power Cable, Male Straight to Female 90°, Shielded, 4 Conductor, 12AWG Cable Assy, TPE
P31389-MXX	-	PowerBOSS™ M29 (1.14"), Power Cable, Male 90° to Female Straight, Shielded, 4 Conductor, 12AWG Cable Assy, TPE
P31390-MXX	-	PowerBOSS™ M29 (1.14"), Power Cable, Male 90° to Female 90°, Shielded, 4 Conductor, 12AWG Cable Assy, TPE
P31532-MXX	-	PowerBOSS™ M29 (1.14"), Power Cable, Male to Female, Shielded, 4 Conductor, 12AWG Cable Assy, Highflex, TPE

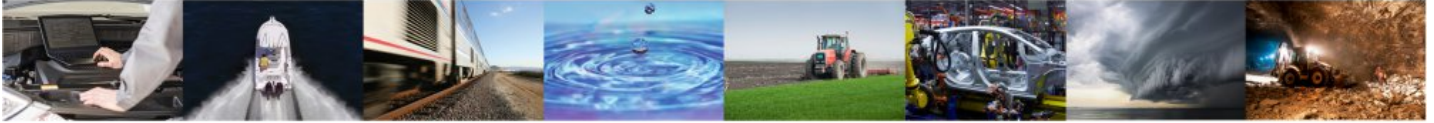
All PowerBOSS™ M29 part numbers listed above and ending in -MXX are available in 0.5, 1, 1.5, 2, 3, 4, 6, 8, 10, 12 and 14 Meter (M) lengths.

P31407-MX	284-M29M-MX	PowerBOSS™ M29 (1.14"), Power Receptacle, Male, Qty 4, 12AWG, UL1015 Wire Leads, 3/4" NPT Thread
P31443-MX	284-M29F-MX	PowerBOSS™ M29 (1.14"), Power Receptacle, Female, Qty 4, 12AWG, UL1015 Wire Leads, 1/2" NPT Thread

All PowerBOSS™ M29 part numbers listed above and ending in -MX are available in 1, 2 and 3 Meter (M) lengths.

For more information, contact: Customer Service, +1 800 394 7732, csr@amphenol-sine.com

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MM Magna|Mate™ Family Overview

The **MagnaMate™ ATHP Series** is a rugged thermoplastic power connector series featuring the surety and high performance contact technology of RADSOK®. Designed for various "xEV" applications, **MagnaMate™** is IP67 and available in single or two-pole housings with rated current from 20A to 180A. **MagnaMate™** includes optional integrated HVIL safety features and EMI shielding protection which can withstand temperatures ranging from -40°C to +130°C.



MM Magna|Mate™ ATHP



MagnaMate™ ATHP Standard is designed to withstand the extreme conditions of the trucking, agricultural, mining, construction, and marine industries, and features Amphenol's advanced RADSOK® contact technology.

Potential Applications: Inverters, Power Electric Box, Junction Box, xEV Battery

MM Magna|Mate™ ATHP Mini



MagnaMate™ ATHP Mini is a compact, low-profile two pole thermoplastic power connector which features four (4) keying options for multi polarization. Designed to withstand the extreme conditions of the trucking, agricultural, mining, construction, and marine industries.

Potential Applications: Power Converters, Hybrid Electric Vehicles, Heavy Equipment Electrification, 2 and 3-Phase Motors, Starter Generators, Process Control/Automation

MM Magna|Mate™ ATHP QL



MagnaMate™ QL ATHP (Quick Lok) connectors compact form factor deliver loads of 130A or 180A for cable outer diameters up to 15.2mm. The definitive front latch design allows for multiple angles of connector engagement providing ease of mating in blind mate or confined spaces achieving IP67 ingress protection. The MagnaMate™ QL ATHP high-voltage connector system is easy to assemble, cost effective and was developed for use in ancillary units such as air-conditioning, electrical heating systems, or AC/DC converters, and for battery charging applications. **QL (Quick Lok) is available in both Black and Orange housings.**

Potential Applications: Electrical Air Condition, Battery Charger, Electrical Heater




A Series™ Family



Standard products. Custom solutions
Customer Service +1 800 394 7732



Individual MagnaMate™ Series Comparison Chart

Series	MM Magna Mate-ATHP		MM Magna Mate-ATHP Mini			MM Magna Mate-ATHP QL	
Image							
Sample Part Numbers	ATHP042P08EL16	ATHP062S08EL16	ATHP042P25EL	ATHP062S25EL	ATHP041P08NN	ATHP061RS08NN	
Positions	2		2			1	
Current Rating	180A		20A	25A	35A	130A	180A
Wire Range/mm ²	50mm ²		2.5mm ²	4.0mm ²	6.0mm ²	35mm ²	50mm ²
Cable OD Range	15.5-16.5mm		4.8-5.8mm & 6.5-7.5mm			10.7-11.7mm	14.2-15.2mm
Operating Voltage	1000V AC/DC						
Contact Resistance	<0.3mΩ		<2.0mΩ			<0.3 mΩ	
HVIL	Optional		Optional			N/A	
EMC Shielding	Available					N/A	
Housing	Thermoplastic UL94 VO						
IP Rating	IP67 mated						
48 HR Salt Spray Test	Passed						
Keying Options	N/A		A, B, C, D			Black, Orange	
Temperature Range	-40°C to +130°C					-55°C to +125°C	
Mating Cycles	100 Cycles					50 Cycles	
Seal Material	Silicone Rubber						
Contact Material	Copper Alloy/Various Plating Options Available						
Thermal Cycle	No cracking, chipping or leaking after 20 test cycles from:						
	-40°C to +130°C		-40°C to +130°C			-55°C to +125°C	
Vibration	No unlocking or unmating. Exhibits no mechanical or physical damage after sinusoidal vibration levels of 20G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond.						
Fluid Resistance	Connectors show no damage when exposed to most fluids used in industrial application.						



- Socket cylinder within female contact has several equally spaced longitudinal beams twisted into a hyperbolic shape
- As a male pin is inserted, axial members in the female half deflect, imparting high current flow across the connection with minimal voltage loss
- The hyperbolic, stamped grid configuration ensures a large, coaxial, face-to-face surface area engagement
- Ideal for crimp termination applications requiring repeated mating cycles and high current with a low multi-volt drop

For more information, contact: Customer Service, +1 800 394 7732, csr@amphenol-sine.com

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