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Component Specification

C04710

Archer Kontrol
M55 Series 1.27mm Pitch Connectors
March 2023

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ARCHER KONTROL

1. DESCRIPTION OF CONNECTOR SYSTEM

A range of 1.27mm (0.05") pitch connectors, male and female shrouded connectors for board-to-board and cable-to-board connection. All connector part numbers start with the series code M55.

The socket connectors are twin-beam female contacts, and these mate to solid pin male connectors. All board mount connectors are double row and Surface Mount, supplied in tape-and reel packaging (pick-and-place caps included when applicable). All connector housings include location pegs for additional placement assistance on the PCB, and SMT side tabs for additional peel strength and strain relief when soldered down.

Both male and female connectors are available in Vertical or Horizontal orientations, with 3 height options on the Vertical connectors. The range can therefore be used for parallel board-to-board (mezzanine layouts), right-angle motherboard-to-daughterboard, or co-planar / edge-to-edge layouts. All housings include polarisation within the design.

All IDC female connectors are double row, available as individual connectors or horizontally mounted to a PVC ribbon cable. Connector housings feature a latch for quick and secure mating to the male half.

2. RATINGS

2.1. Materials

All materials are listed on individual drawings.

Contacts:	
Materials	Phosphor Bronze
Finish	Gold finish on contact area, 100% Tin on terminations, all over Nickel
Housing & Cap	LCP, UL94V-0
SMT Side Tabs	Brass, 100% Tin over Nickel finish
Latch Cover (cable connectors)	PA66, UL94V-0
Spring (cable connectors)	Stainless Steel
Cable (cable assemblies)	PVC, UL2678, 30AWG

2.2. Electrical Characteristics

Current Rating:	
PCB Connectors (M55-6XX, M55-7XX)	1.2A max per contact
Cable Connectors (M55-8XX)	0.5A max per contact
Voltage Rating	100V AC
Dielectric Withstanding Voltage (EIA-364-20C, Method B)	500V AC for 1 minute
Contact Resistance (EIA-364-23B):	
Initial	25mΩ max
After Conditioning	Additional 10mΩ max variation
Insulation Resistance (EIA-364-21C):	
PCB Connectors (M55-6XX, M55-7XX)	10GΩ min
Cable Connectors (M55-8XX)	1GΩ min

2.3. Environmental Characteristics

Operating Temperature Range:
- PCB Connectors (M55-6XX, M55-7XX) ..... -55°C to +125°C
- Cable Connectors (M55-8XX) ..... -20°C to +105°C

Vibration (EIA-364-28D, Condition IV) ..... 10-2000Hz, 20G (196m/s²) peak, 1.52mm amplitude, duration 4 hours each axis, 12 hours total

Thermal Shock (EIA-364-32C, Condition III):
- PCB Connectors (M55-6XX, M55-7XX) ..... -55°C to +125°C, 10 cycles, 30 mins each extreme
- Cable Connectors (M55-8XX) ..... -20°C to +105°C, 10 cycles, 30 mins each extreme

Temperature Life (EIA-364-17B, Method A):
- PCB Connectors (M55-6XX, M55-7XX) ..... +125°C, 96 hours
- Cable Connectors (M55-8XX) ..... +105°C, 96 hours

Humidity (EIA-364-31B, Condition A) ..... 90-95% RH at +40°C for 96 hours

Salt Spray (EIA-364-26B) ..... 24 hours at +35°C, concentration 5%

Solderability (EIA-364-52):
- PCB Connectors (M55-6XX, M55-7XX) ..... +245±5°C for 5±0.5 seconds
- Cable Connectors (M55-8XX) ..... N/A

Soldering Heat Resistance:
- PCB Connectors (M55-6XX, M55-7XX) ..... +260°C for 10 seconds max
- Cable Connectors (M55-8XX) ..... N/A

2.4. Mechanical Characteristics

Durability (EIA-364-09C) ..... 500 operations

Insertion Force (initial per contact, EIA-364-13C) ..... 0.8N max

Withdrawal Force (per contact, EIA-364-13C) ..... 0.2N min

Contact Retention in housing (EIA-364-29C) ..... 3.9N min per contact

APPENDIX 1 – MATING HEIGHTS/LENGTHS

A1.1. Vertical PCB to Vertical PCB Connectors

Female Connector	Male Connector	Mating Height (fully mated)	Mating Height (with 1.5mm separation)
M55-600XX42R	M55-700XX42R	8.00mm	9.50mm
	M55-701XX42R	9.50mm	11.00mm
	M55-702XX42R	11.10mm	12.60mm
M55-601XX42R	M55-700XX42R	10.80mm	12.30mm
	M55-701XX42R	12.30mm	13.80mm
	M55-702XX42R	13.90mm	15.40mm
M55-602XX42R	M55-700XX42R	15.40mm	16.90mm
	M55-701XX42R	16.90mm	18.40mm
	M55-702XX42R	18.50mm	20.00mm

A1.2. Horizontal PCB to Horizontal PCB Connectors

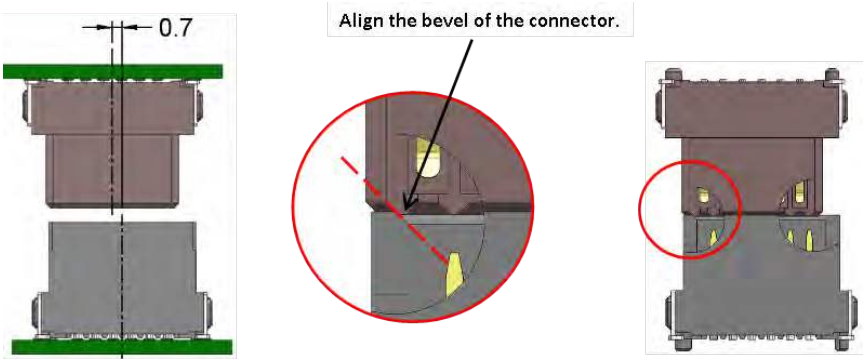
Fully Mated 15.80mm
With 1.5mm Separation.....17.30mm

A1.3. Cable to Board Connectors

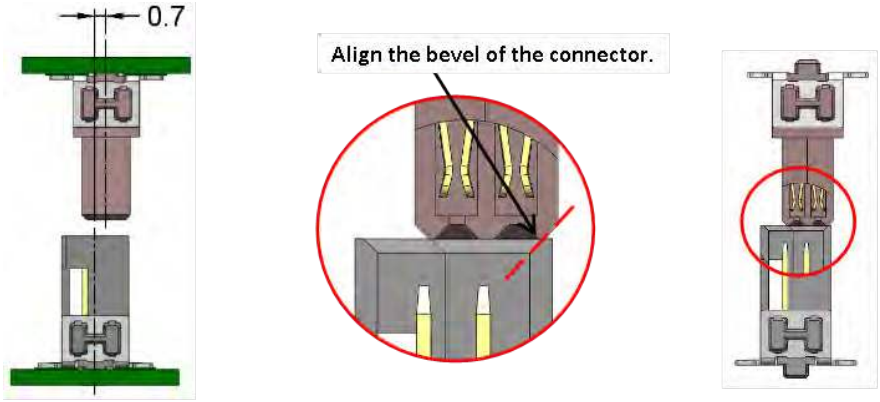
Female Connector	Male Connector	Mating Height (fully mated)
M55-800XX42-XXXXA or M55-820XX42	M55-700XX42R	13.95mm
	M55-701XX42R	15.45mm
	M55-702XX42R	17.05mm

APPENDIX 2 – CONNECTOR MISALIGNMENT

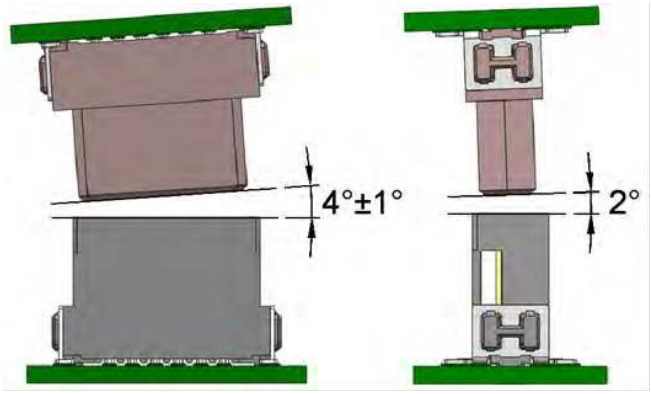
Misalignment tolerance (float) for assembling single connector – front view:



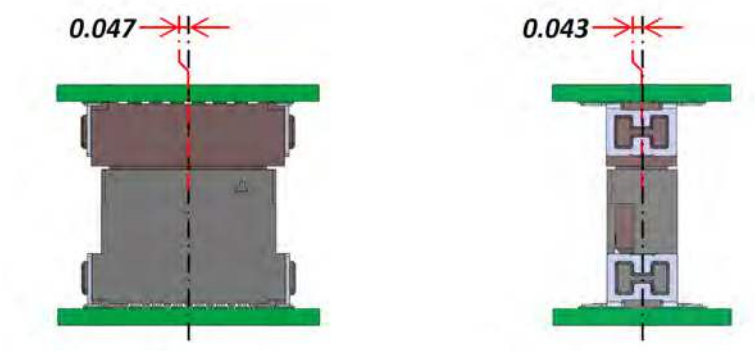
Misalignment tolerance (float) for assembling single connector – side view:



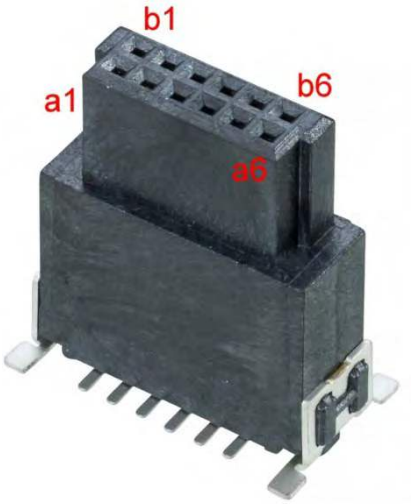
Misalignment angle for assembling single connector:



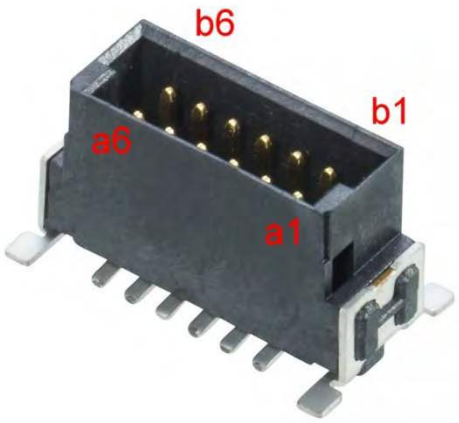
Allowable linear final misalignment for single connector:



APPENDIX 3 – CONTACT NUMBERING



Female Connectors



Male Connectors

APPENDIX 4 – CABLE ASSEMBLY ORIENTATIONS

- All M55-800XX42-XXXXA cable assemblies are supplied in the orientation shown.
- Cable assemblies are female-to-female and use cable connectors M55-820XX42 on both ends.
- Wiring of connector: Contact a1 to Contact a1, Contact b1 to Contact b1, etc.