



DESIGN GUIDE

Reader Board Design Guide

The Simple Reader

RM-SIM-ETHERNET-V1.2_4-30-2013

Revision 1.0 June 2013 Initial Release

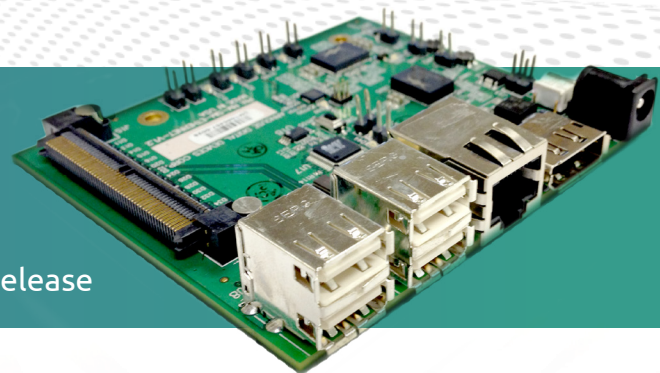
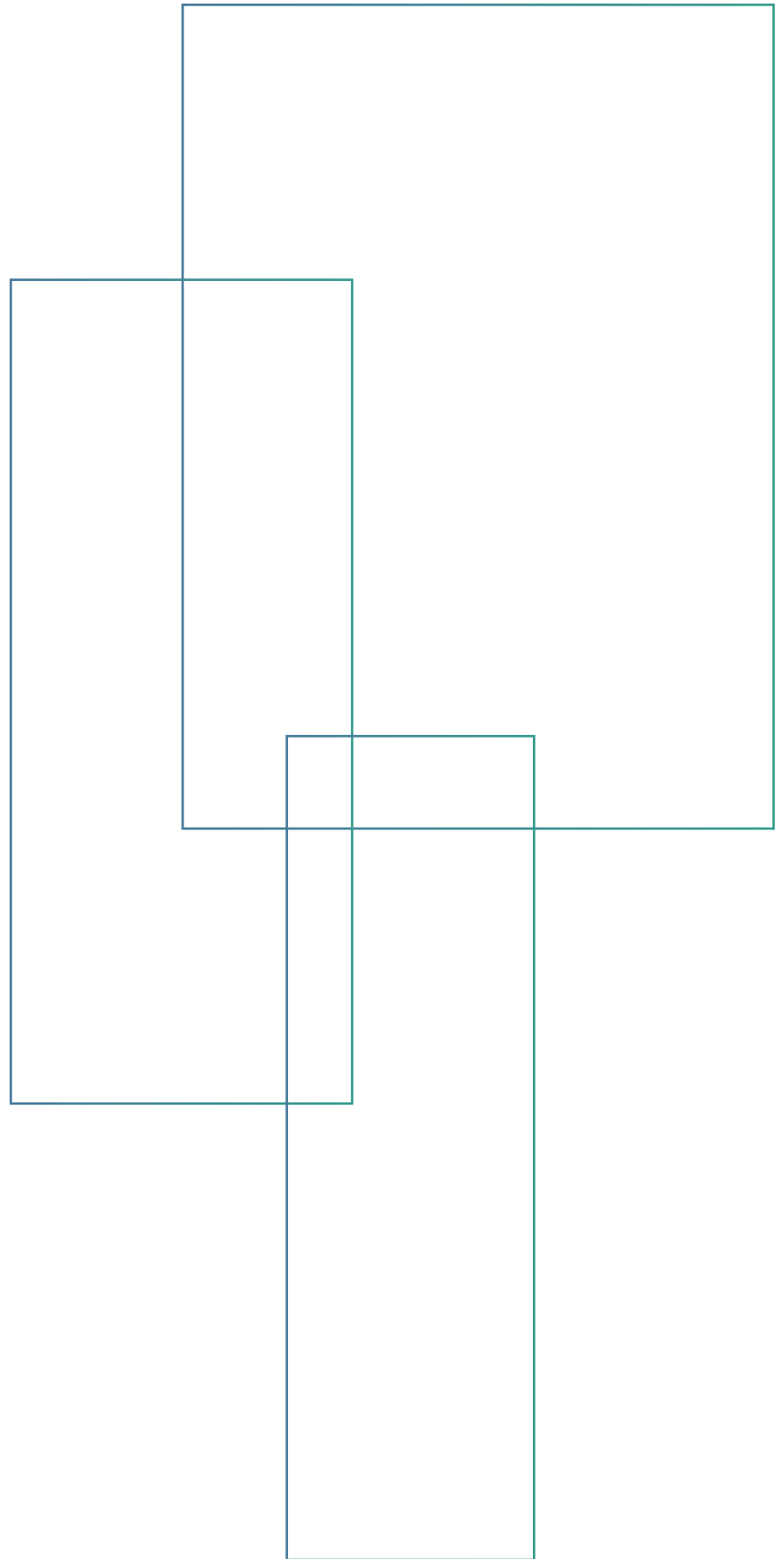


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Introduction

This document is intended for users who want to integrate ADDC's Reader Board into various Industrial designs. The detailed descriptions of pin headers are included; component placement drawings, photos of the real board, and the original schematic is included.



The following Features are specific for Reader: RM-SIM-ETHERNET-V1.2_4-2-2013

Physical Dimension:

3.6 in x 3.2 in x 0.73

The highest component is Dual-Stack USB Connector.
The RJ45 Connector is almost same height as of the dual-stack USB Connector.

Features:

1. 12V DC in Power Jack
2. DP++ Connector
3. USB 2.0 - 4 Ports (Dual-Stack Connector x 2)
4. Wire-Ethernet Connector (RJ45 x1)
5. 100-pin Connector with V5 Input
6. Header Pin for 5V fan (x 2: standard 2.54mm pitch)
7. Header pins for LEDs (x 4: standard 2.54mm pitch)

This version is compatible with existing PC Cards up to V0.22.

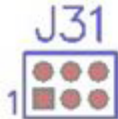
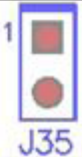
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Pin Headers

The following Pin Headers are specific for Reader: RM-SIM-ETHERNET-V1.2_4-2-2013.

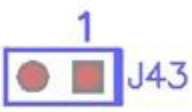
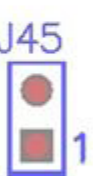
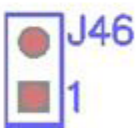
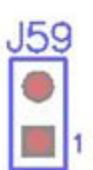
Most of the pin headers were intended for connection of external components. The original components on board could be no load to save components cost.

Header Descriptions:

Header	Descriptions	Pin Diagram
J27	Header 2-pin 1x2 2.54mm pitch for 5V DC Fan Pin-1: V5 Pin-2: GND	
J28	Header 2-pin 1x2 2.54mm pitch for 5V DC Fan Pin-1: V5 Pin-2: GND	
J31	Header 6-pin 3x2 1.27mm pitch for Atmel Micro Controller Programming Pin-1: MISO Pin-2: V3P3-AO (3.3V Power) Pin-3: SCK Pin-4: MOSI Pin-5: RESET-ATMELn Pin-6: GND	
J35	Header 2-pin 1x2 2.54mm pitch for External Green LED (D51 is on Board: SMT Green LED for Power Rail V5 status) Pin-1: LED+ Pin-2: LED-	
J36	Header 2-pin 1x2 2.54mm pitch for External Yellow LED (D42 is on Board: SMT Yellow LED for PC Card Present status) Pin-1: LED- Pin-2: LED+	
J37	Header 2-pin 1x2 2.54mm pitch for External Red LED (D76 is on Board: SMT Red LED for Power Status to Micro Controller) Pin-1: LED- Pin-2: LED+	
J38	Header 2-pin 1x2 2.54mm pitch for External Green LED (D77 is on Board: SMT Green LED for SATA SSD Activity) Pin-1: LED+ Pin-2: LED-	

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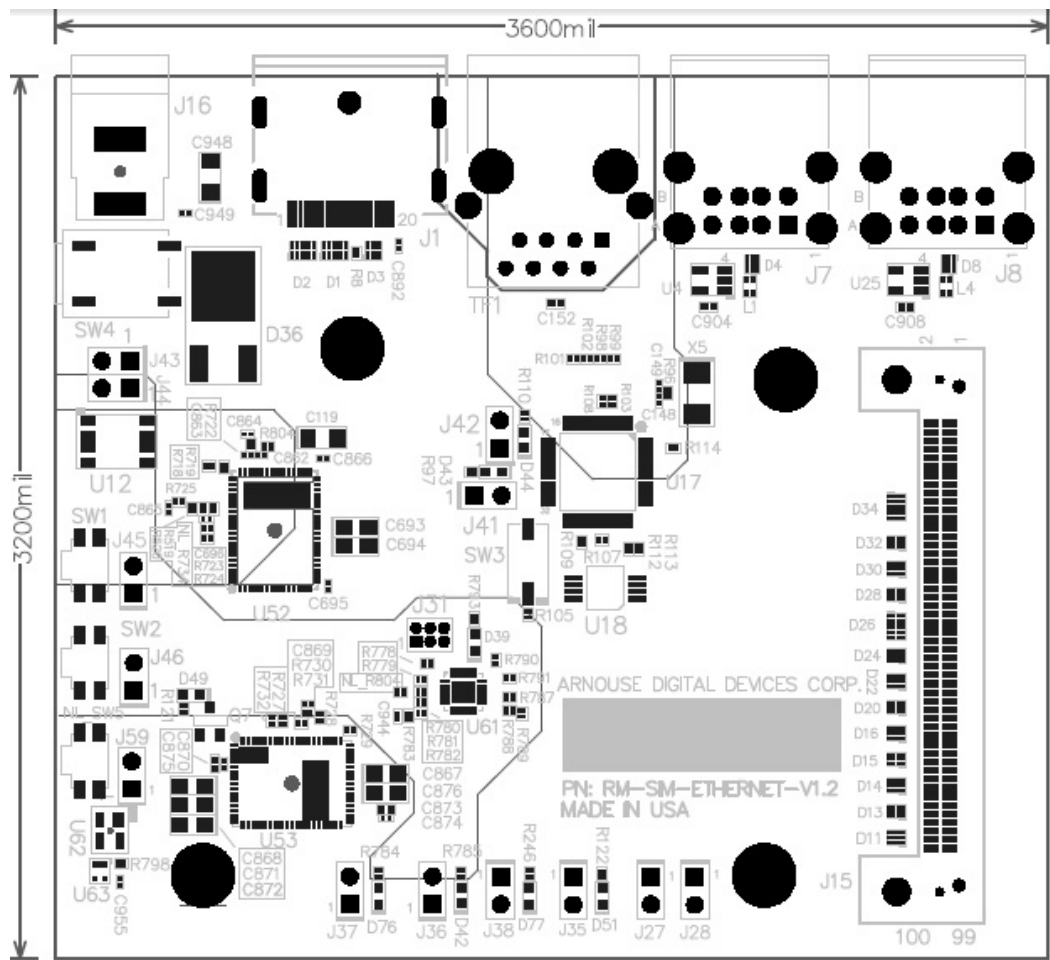
Pin Headers

J41	Header 2-pin 1x2 2.54mm pitch for External Green LED (D43 is on Board: SMT Yellow LED for USB-Ethernet Link Activity) Pin-1: LED+ Pin-2: LED-	
J42	Header 2-pin 1x2 2.54mm pitch for External Green LED (D44 is on Board: SMT Green LED for Ethernet Link Activity) Pin-1: LED- Pin-2: LED+	
J43	Header 2-pin 1x2 2.54mm pitch for External 12V DC In (J16 is on Board: Power Jack) Pin-1: V12-CON (12V DC In) Pin-2: GND	
J44	Header 2-pin 1x2 2.54mm pitch for 12V DC in ON/OFF Switch (SW4 is on Board: Mini-Slide Switch) Pin-1: Switch End-1 Pin-2: Switch End-2 To Turn ON 12V DC to the System short Pin-1 and Pin-2 if SW4 is not loaded.	
J45	Header 2-pin 1x2 2.54mm pitch for External RESET Switch (SW1 is on Board: Push to Reset the whole Board, Power will be cycled) Pin-1: Switch End-1 Pin-2: Switch End-2 To Reset the System short Pin-1 and Pin-2 momentarily if SW1 is not loaded.	
J46	Header 2-pin 1x2 2.54mm pitch for External Power Switch (SW2 is on Board: Push to Turn ON and Hold it to force Shut-Down) Pin-1: Switch End-1 Pin-2: Switch End-2 To Turn ON the System short Pin-1 and Pin-2 momentarily if SW2 is not loaded. To Force Shut-Down the System short Pin-1 and Pin-2 for 4 seconds or longer.	
J59	Header 2-pin 1x2 2.54mm pitch for External Power-On-Reset Switch (NL_SW5 is on Board: not loaded. Power-On-Reset is through U62 Not Loaded) Pin-1: Switch End-1 Pin-2: Switch End-2 This Power-On-Reset is NOT implemented for now. No Load J59.	

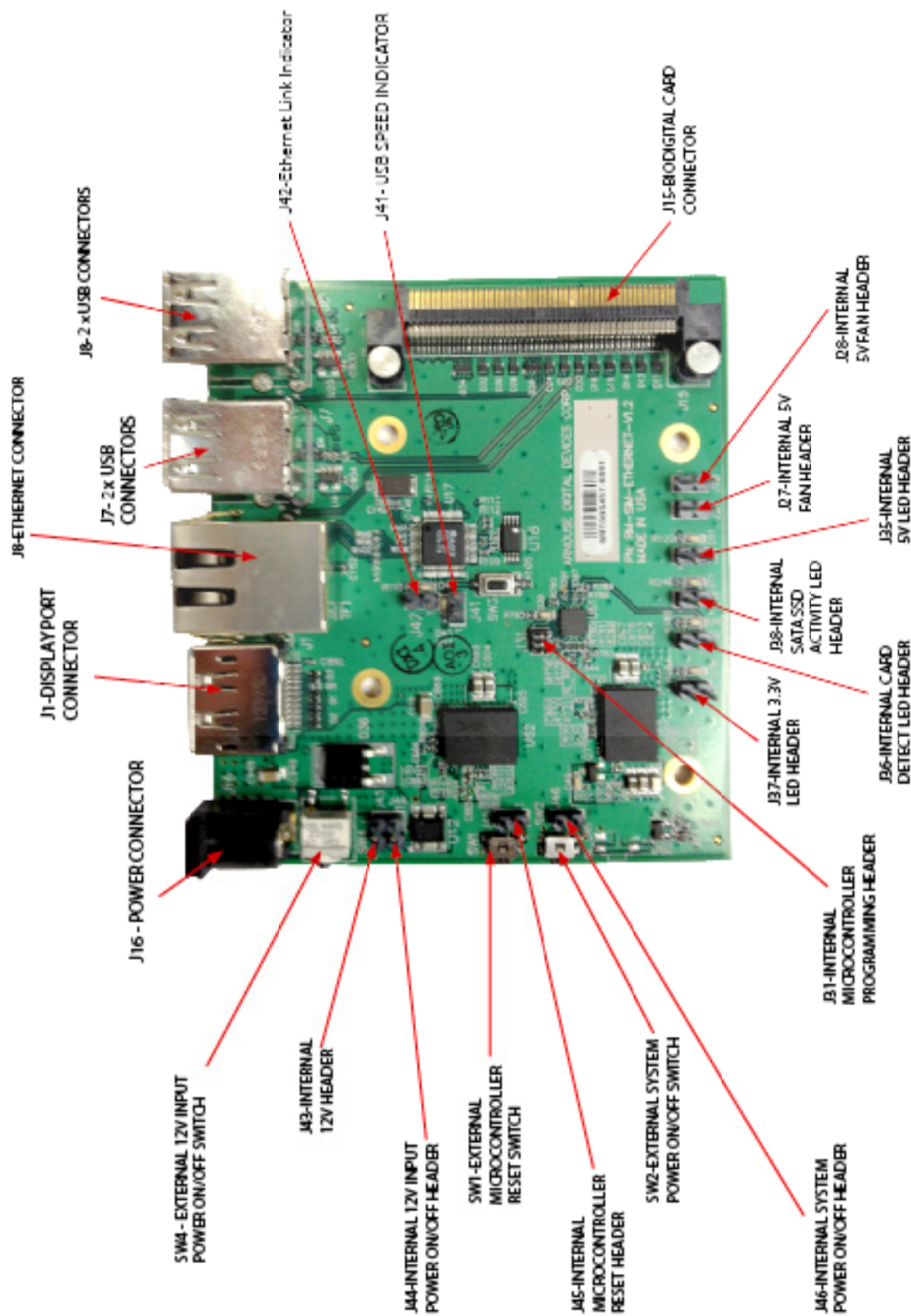
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Component Placement

To help to identify the components on the board, the Assembly Drawing of the Reader: RM-SIM-ETHERNET-V1.2_4-2-2013 is shown here. Only TOP side is shown since most of parts are on the TOP side.



The Simple Reader 5/16/13

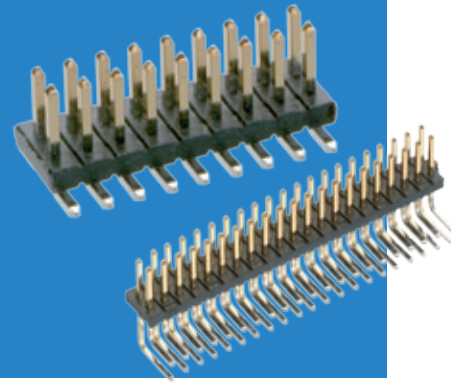


Archer Connectors – M50

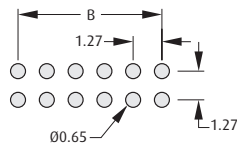
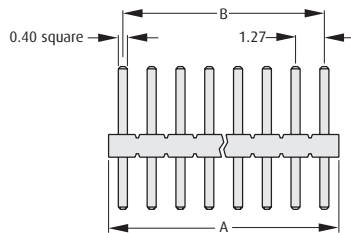
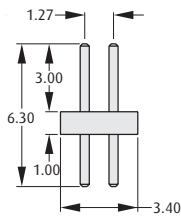


Male Vertical & Horizontal

- Suitable for use with female connectors and jumper sockets on pages 104 to 107.
- Also available with variable dimensions, see page 109.

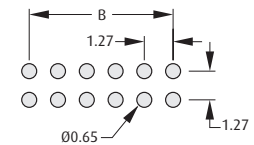
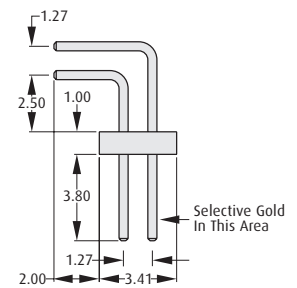
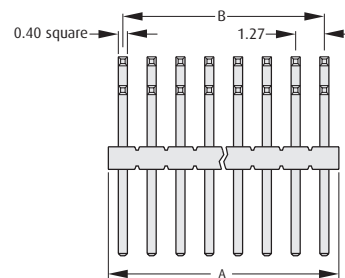


VERTICAL PC TAIL



Recommended PC Board Pattern

HORIZONTAL PC TAIL

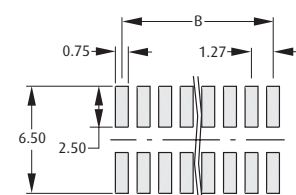
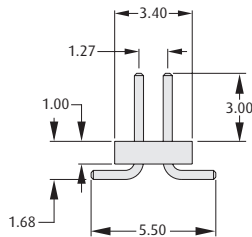
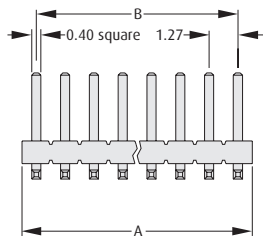


Recommended PC Board Pattern

CALCULATION

A	1.27 x No. of contacts per row
B	1.27 x (No. of contacts per row - 1)

VERTICAL SMT



Recommended PC Board Pattern

HOW TO ORDER

M50 - 3 X 0 XX 42

SERIES CODE

TYPE

5	Vertical PC Tail
6	Vertical SMT
9	Horizontal PC Tail

FINISH

42	Gold + Tin
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NO. OF CONTACTS PER ROW

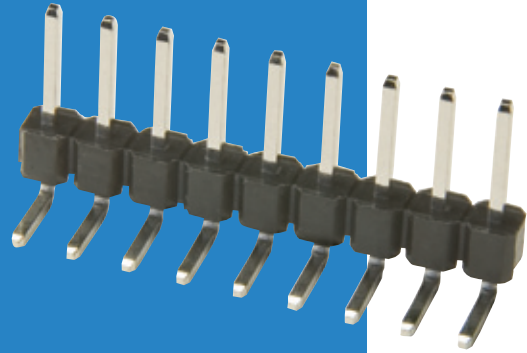
01 to 50

All dimensions in mm.

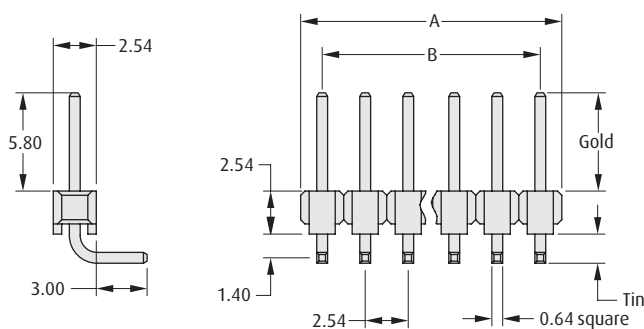
M20 Connectors

Male Horizontal Single Row PC Tail

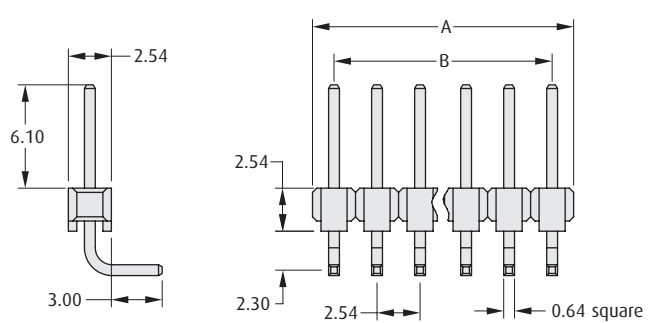
- ❖ Horizontal orientation for 90° board-to-board applications.
- ❖ Pin headers can be cut into smaller sizes.
- ❖ Choice of mating pin lengths or specify your own pin headers (see page 152).
- ❖ Suitable for use with female connectors and jumper sockets shown on pages 140 to 145.



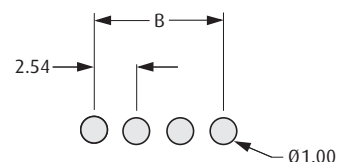
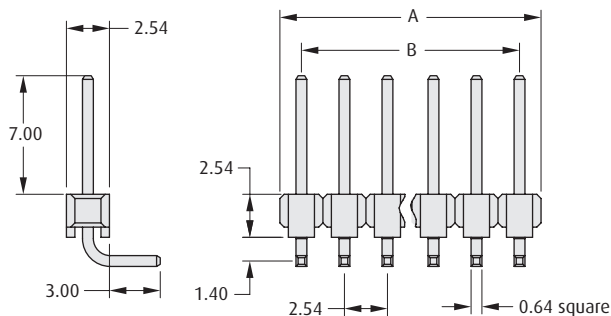
5.8mm



6.1mm



7.0mm



Recommended PC Board Pattern

CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)

HOW TO ORDER

M20 - 9 XX XX XX

SERIES CODE

SIZE

71	7.0mm Mating Height
75	5.8mm Mating Height
96	6.1mm Mating Height

NO. OF CONTACTS PER ROW

02 to 40

FINISH

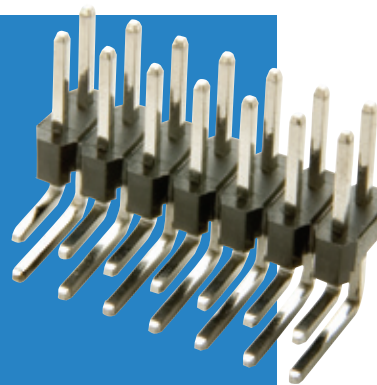
42	Gold + Tin (M20-975)	PG
45	Gold (M20-971, 996)	PG
46	Tin	PG

All dimensions in mm.

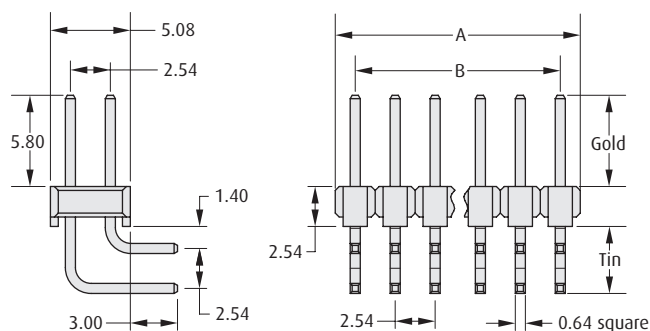
M20 Connectors

Male Horizontal Double Row PC Tail

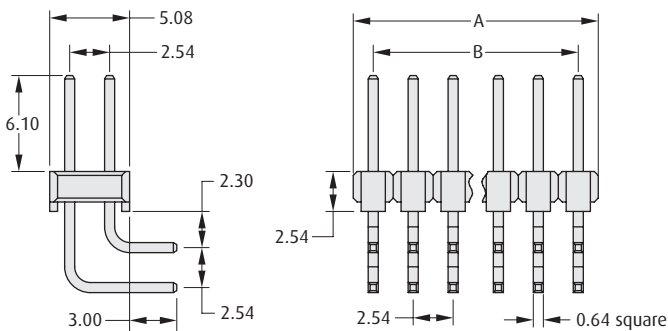
- ❖ Horizontal orientation for 90° board-to-board applications.
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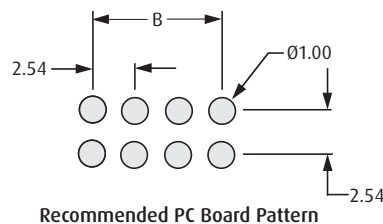
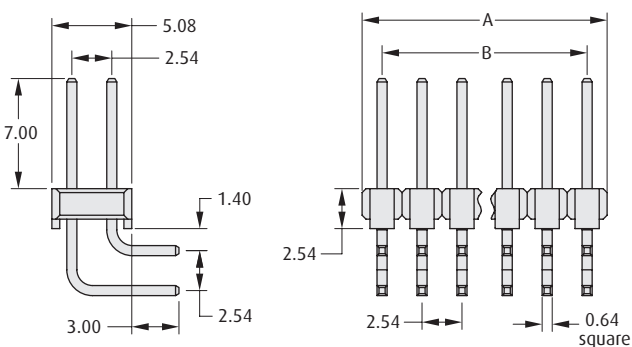
5.8mm



6.1mm



7.0mm



CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)

HOW TO ORDER

M20 - 9 XX XX XX

SERIES CODE

SIZE

70	7.0mm Mating Height
74	5.8mm Mating Height
95	6.1mm Mating Height

NO. OF CONTACTS PER ROW

02 to 40

FINISH

42	Gold + Tin (M20-974)	
45	Gold (M20-970, 995)	
46	Tin	

All dimensions in mm.