



**THE DATASHEET OF  
M20-6102045**





# HARWIN

## Component Specification

**C03907**

PC/104 and PC/104 Plus Connectors  
June 2023

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## 1. DESCRIPTION OF CONNECTOR AND INTENDED APPLICATION

PC/104 and PC/104 Plus connectors are an industry-standard connector system used in PC/104 Embedded PC module stack applications. The PC/104 module stack is designed to use less space and at a lower cost than an equivalent backplane system, by utilising stackthrough connectors to interconnect PC boards within a stack. Standard height between module boards is 0.6" (15.24mm).

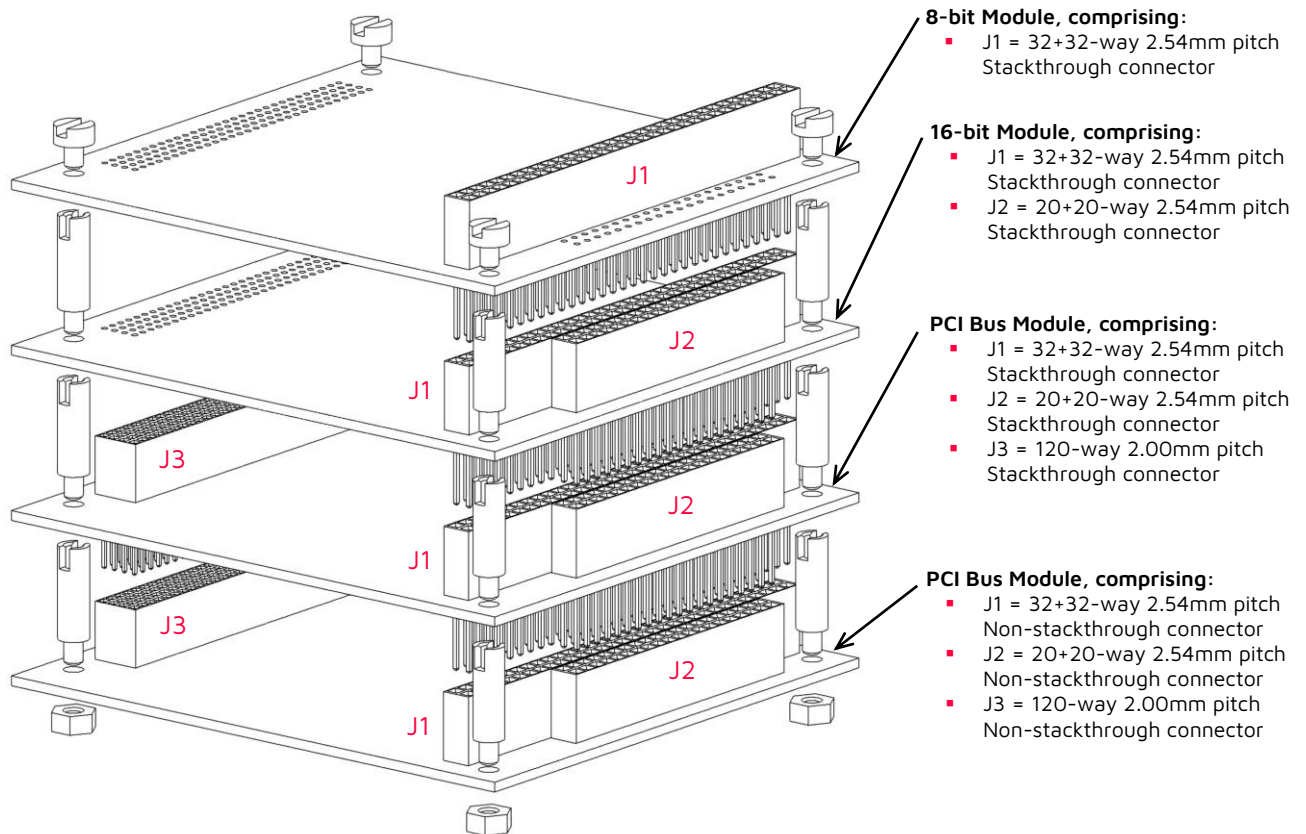


Figure 1 – PC/104 Stack

PC/104 connectors are 2.54mm pitch, either 32+32 or 20+20 ways. PC/104 Plus connectors are 2.00mm pitch, 4 x 30 (120) ways. The sockets have a tuning-fork style of contact. Solder or press-fit tail options are available, as are accessories for the range.

## 2. RATINGS

### 2.1. Materials

Housing:

PC/104 Solder Tail connectors (M20) .....	Nylon 6T, UL94V-0, black
PC/104 Plus Solder Tail connectors (M22) .....	Nylon 6T, UL94V-0, black
Press-fit Tail connectors (M20/M22) .....	PPS, UL94V-0, black
PC/104 Plus Shroud (M22-604) .....	PBT, UL94V-0, black

Contact:

Female.....	Phosphor Bronze
Male .....	Brass

Finish:

Solder Tail connectors .....	0.08µm Gold over Nickel
Press-fit Tail connectors .....	0.25µm Gold over Nickel

## 2.2. Electrical Characteristics

Current (per contact through all contacts, 20°C ambient):	
PC/104 Solder Tail connectors (M20) .....	3A max
PC/104 Plus Solder Tail connectors (M22) .....	1A max
Press-fit Tail connectors (M20/M22) .....	1A max
Voltage Rating .....	12V DC
Dielectric Strength:	
PC/104 connectors (M20) .....	1,000V AC for 1 minute
PC/104 Plus connectors (M22) .....	800V AC for 1 minute
Contact Resistance:	
Initial .....	30mΩ max
After conditioning .....	50mΩ max
Insulation Resistance (1,000V AC for 1 minute) .....	5,000MΩmin

## 2.3. Environmental Characteristics

Temperature Range:	
PC/104 connectors (M20) .....	-55°C to +105°C
PC/104 Plus Solder Tail connectors (M22) .....	-55°C to +105°C
PC/104 Plus Press-Fit Tail connectors (M22-605/606).....	-40°C to +85°C

## 2.4. Mechanical Characteristics

Durability of Mating Contacts .....	10 operations
Durability of Press-fit Section into PCB .....	3 operations
Contact Retention in Housing .....	5N min
Insertion Force (individual contact mating):	
PC/104 connectors (M20), 0.64mm square gauge.....	2.0N max
PC/104 Plus Solder Tail connectors (M22), 0.50mm square gauge.....	2.0N max
PC/104 Plus Press-Fit Tail connectors (M22-605/606), 0.50mm square gauge .....	1.2N max
Withdrawal Force (individual contact mating):	
PC/104 connectors (M20), 0.64mm square gauge .....	0.25N min
PC/104 Plus Solder Tail connectors (M22), 0.50mm square gauge.....	0.3N min
PC/104 Plus Press-Fit Tail connectors (M22-605/606), 0.50mm square gauge .....	0.2N min
Press-fit Insertion Force (to PCB):	
PC/104 – individual contact.....	80N max
PC/104 – 40-way connector .....	3,000N max
PC/104 – 64-way connector.....	4,000N max
PC/104 Plus – individual contact.....	59N max
PC/104 Plus – 120-way connector .....	7,840N max
Press-fit Withdrawal Force (to PCB):	
PC/104 – individual contact.....	20N min
PC/104 – 40-way connector .....	800N min
PC/104 – 64-way connector.....	1,280N min
PC/104 Plus – individual contact.....	15N min
PC/104 Plus – 120-way connector .....	1,764N min

**APPENDIX 1 – PRESS FIT PLATED THROUGH HOLES****A1.1. PC/104 Connectors (M20 Series)**

- Drill hole in epoxy board to  $\text{Ø}1.15\pm0.02\text{mm}$ .
- Plate hole with 25-75 $\mu\text{m}$  Copper (150 Knoop max hardness), 3 $\mu\text{m}$  min Nickel/Gold.
- Final plated hole diameter must be  $\text{Ø}1.09\text{-}1.00\text{mm}$ .



**A1.2. PC/104 Plus Connectors (M22 Series)**

- Drill hole in epoxy board to  $\text{Ø}1.000\pm0.025\text{mm}$ .
- Plate hole with 25 $\mu\text{m}$  min Copper (150 Knoop max hardness), 2.5-5.0 $\mu\text{m}$  Nickel, 0.05-0.2 $\mu\text{m}$  Gold.
- Final plated hole diameter must be  $\text{Ø}0.94\text{-}0.85\text{mm}$ .



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