1.0 OBJECTIVE

This specification provides information and requirements for customer application of the PwrBlade I/O cable receptacle assemblies. It is intended to provide general guidance for application process development. It should be recognized that no single process will work under all customer applications and that customers should develop processes to meet individual needs. However, if the process varies greatly from the recommended one, FCI cannot guarantee acceptable results.

2.0 SCOPE

This specification provides information and requirements regarding application of the PwrBlade I/O cable receptacle assemblies used in power distribution systems.

3.0 APPLICABLE DOCUMENTS

- Applicable FCI product customer drawings
- FCI Product Specification GS-12-474 (PwrBlade ® I/O Cable Assembly)

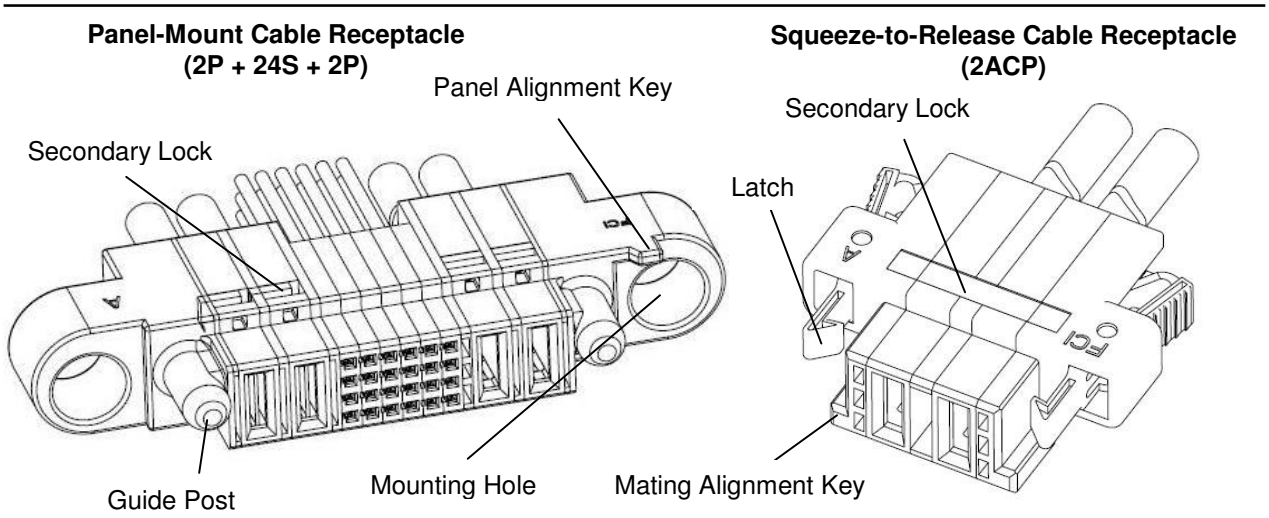
FCI product drawings and specifications are available by accessing the FCI website or by contacting FCI Technical Service. In the event of a conflict between this specification and the product drawing, the drawing takes precedence. Customers should refer to the latest revision level of FCI product drawings for appropriate product details.

4.0 GENERAL CUSTOMER INFORMATION

This document is a general application guide. If there is a conflict between the product drawings and this specification, the drawings take precedence.

4.1. CONNECTOR CONFIGURATIONS

The cable receptacles are offered in panel-mount for panel-mount applications and squeeze-to-release for free-hanging applications (refer to Figure 1).



Note: 'P' stands for power contacts with 6.35mm pitch, 'S' stands for signal contacts, 'ACP' standards for power contacts with 7.62mm pitch

Fig. 1: Cable Receptacle applications

The amount and location of power and signal contacts is customer determined. The cable receptacles are

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available with wire sizes 14 through 8 AWG for power contacts and wire sizes 26 through 22 AWG for signal contacts, the cable receptacle is capable of holding combinations of power contacts and/or signal contacts within a maximum length of 155 mm between guide posts or squeeze latches.

For sequencing applications, the cable receptacles are available with standard mating for signal contacts and two mating lengths for power contacts: standard and make-first-break-last (MFBL). Signal contacts have a centerline spacing of 2.54mm. Power contact centerlines spacing according to wire size is given in Table 1.

Wire		power contact pitch
AWG	**Insulation Diameter (mm)**	
8	5.46 - 6.91	7.62 mm
10	4.47 - 5.46	6.35 mm
12	3.96 - 4.47	6.35 mm
14	3.05 - 3.96	6.35 mm

Table1: Power contact pitch offering with wire size

The panel-mount cable receptacles feature panel alignment key, mounting holes and guide posts. The panel alignment key ensures proper orientation of the cable receptacle to the panel. The mounting holes are used to secure the cable receptacle to the panel. The guide posts provide ease of mating and offset to prevent improper mating of connectors.

The squeeze-to-release cable receptacles feature mating alignment keys to ensure proper orientation of connectors when mating, and squeeze latches to ensure that mating connectors do not separate.

5.0 REQUIREMENT FOR CUSTOMERS

5.1. PANEL

The panel thickness range for the panel-mount cable receptacle shall be 0.79mm through 2.54mm.

The cutout of the panel must refer the dimensions provided on the customer drawing for the specific cable receptacle (refer to Figure 2).

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2P + 24S + 2P Panel-Mount cable Receptacle

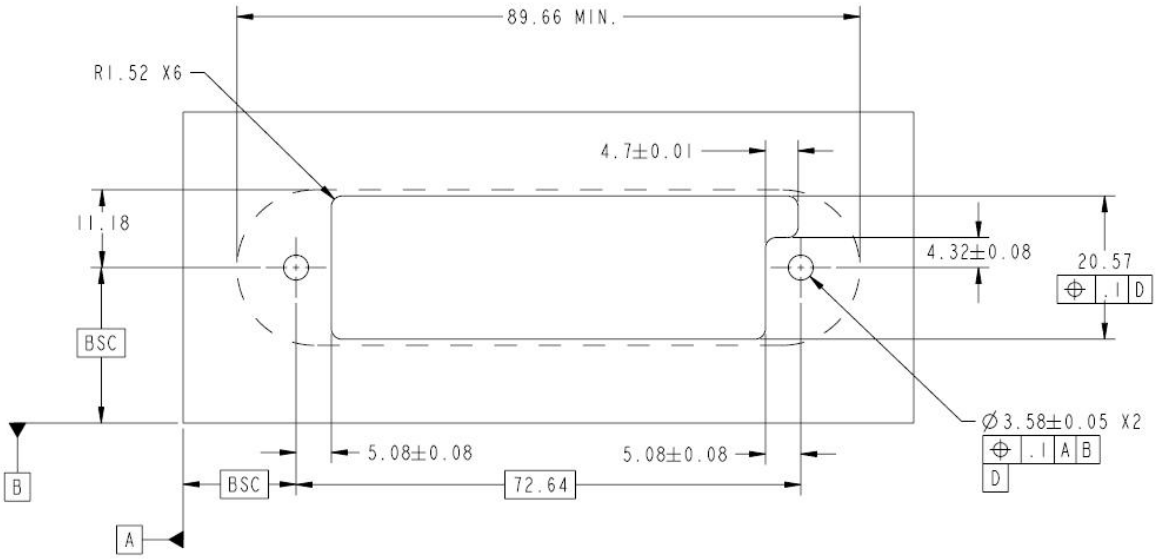

Fig. 2: Sample Recommended Panel Cutout

5.2. Panel Mounting

The panel-mount cable receptacle is designed to be panel mounted by using two shoulder screws, compression springs and flat washers.

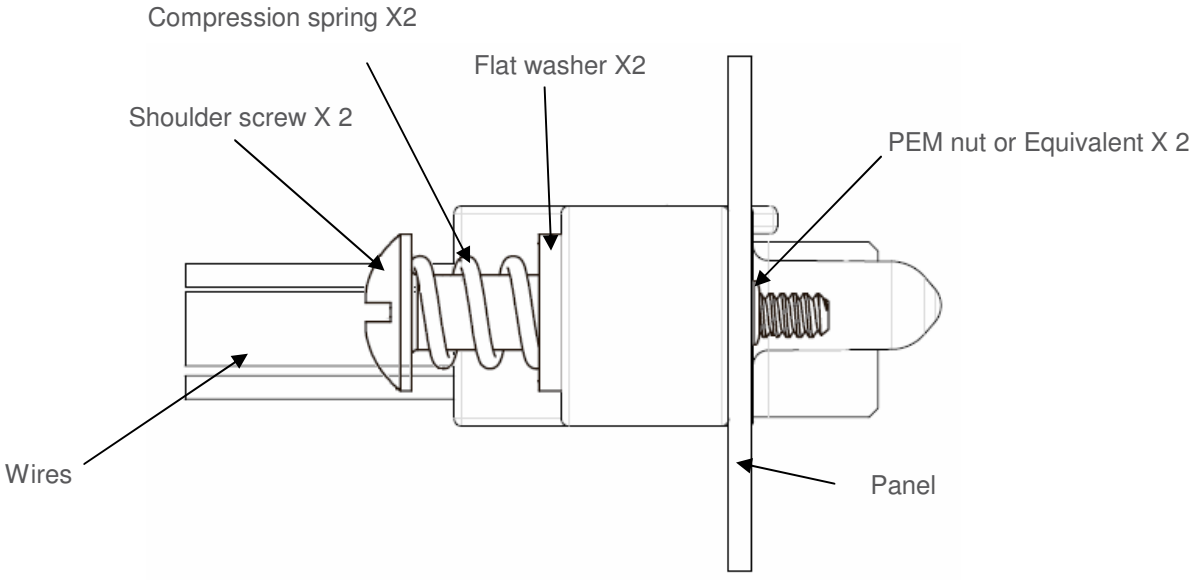

Fig. 3: Panel-Mount Cable Receptacle

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The receptacle is mounted to the panel by matching the panel alignment keys with the vertical notch in the panel cutout. When secured to the panel, the panel-mount receptacle floats in the cutout with ±1.52 mm in horizontal, vertical and back-and-forth directions.

5.3. Mating

5.3.1. Mating/Unmating forces per power/signal contact

	Mating		Unmating	
	Max Allow	Typical	Min Allow	Typical
Contact	N (oz)	N (oz)	N (oz)	N (oz)
Power	6.95 (25)	6.39 (23)	2.22 (8)	5.28 (19)
Signal	0.97 (3.5)	0.44 (1.6)	0.18 (0.64)	0.42 (1.5)

5.3.2. Wipe Length

		Min Wipe Length (mm)
Power	Pre mate	6.15
	Standard	5.18
Signal	Standard	4.72
	Post mate	3.45

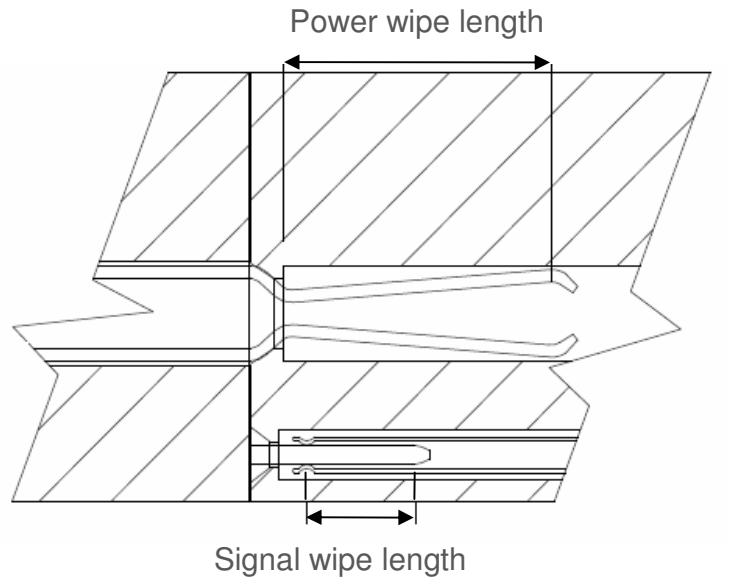

Fig. 4: Wipe Length Configuration

5.3.3. Sequencing

Pwrblade has 3 levels of sequential mating to support hot plugging application. They are:

- Level 1 Pre Mate Power
- Level 2 Standard Mate Power and Signal
- Level 3 Post Mate Signal

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Changing the mating distance of the receptacle power contact and header signal contact as illustrated in figure 5 ~ 8 create two levels of power sequencing and two levels of signal sequencing.

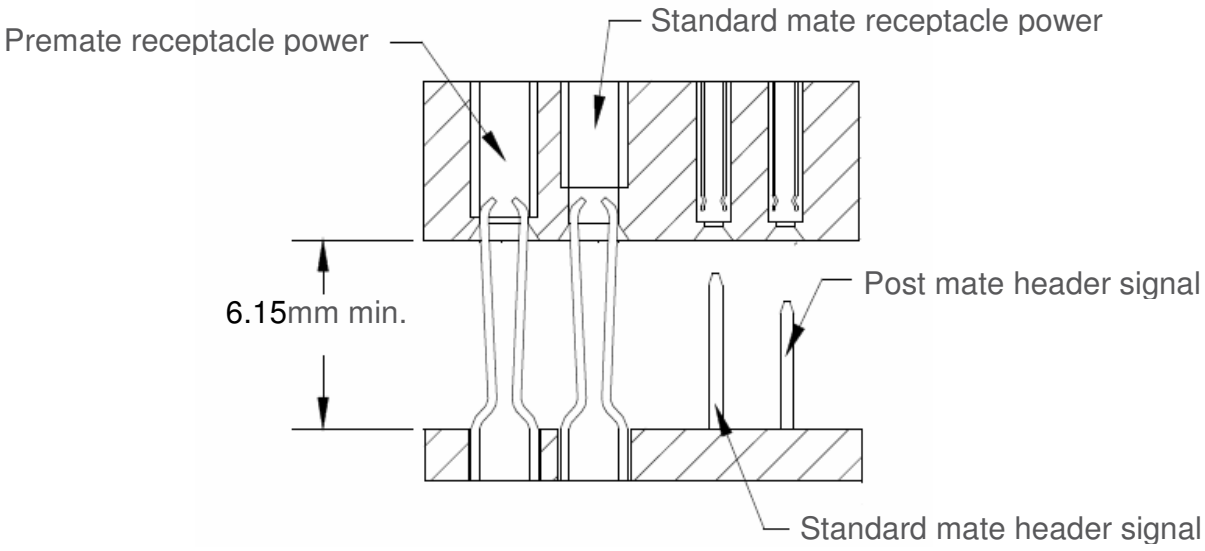

Fig. 5 PreMate Power

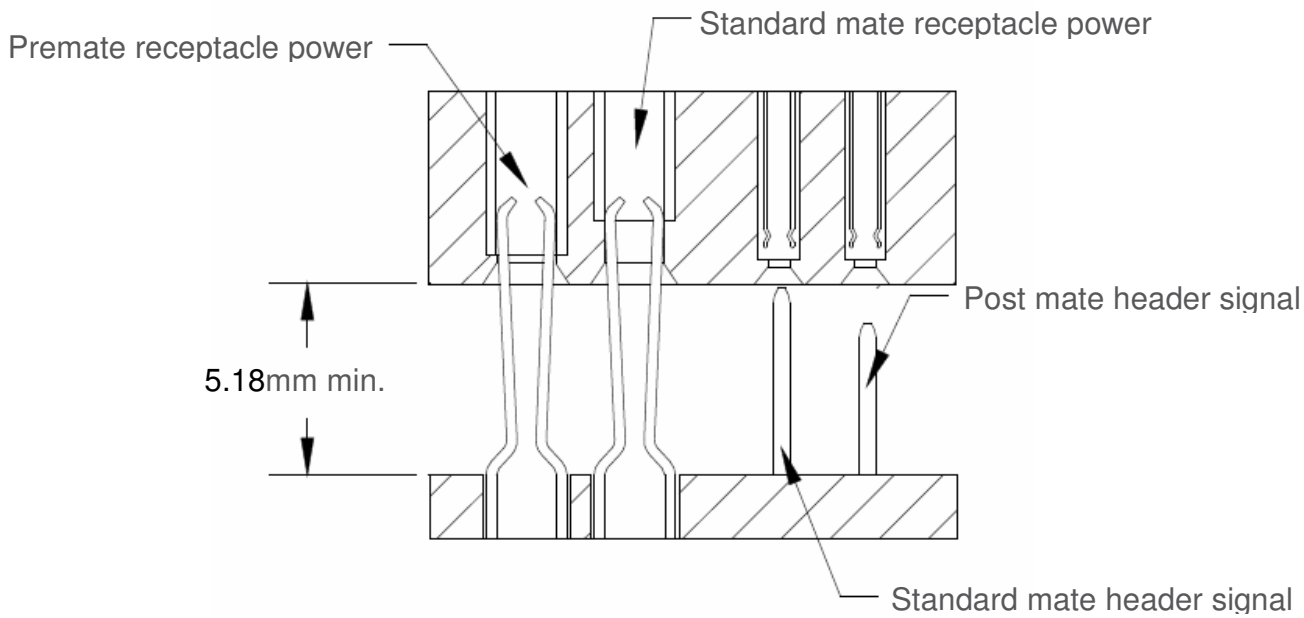

Fig. 6: Standard Mate Power

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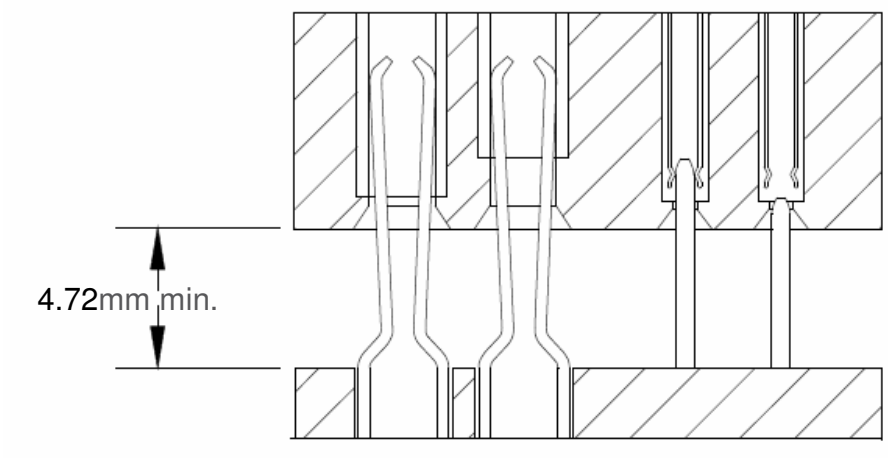

Fig. 7: Standard Mate Signal

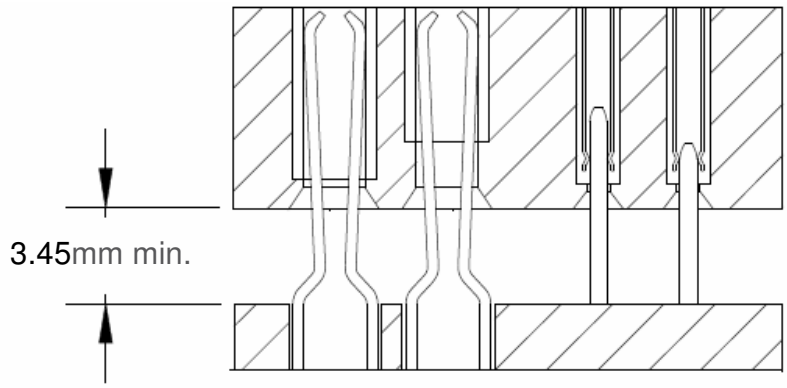

Fig. 8: Post Mate Signal

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5.3.4. Mating Misalignment

5.3.4.1 Blind Mate Guide Ends

The connectors can be radically misaligned by a nominal valve of 1.9mm.

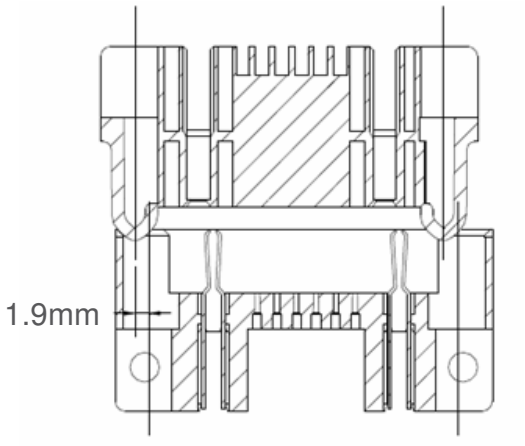

Fig.9: Transverse Misalignment

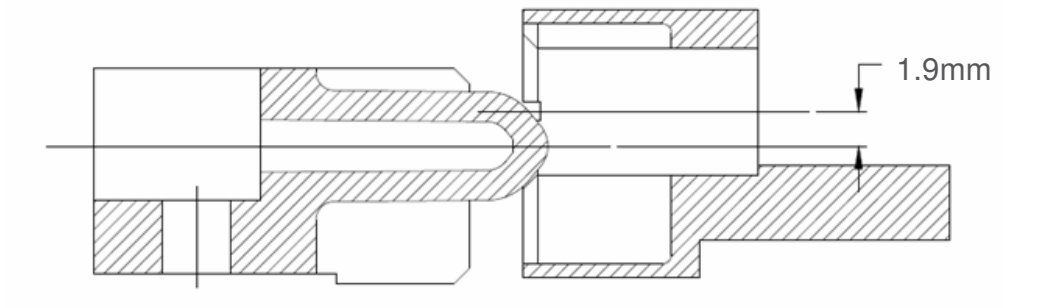

Fig.10: Vertical Misalignment

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5.3.4.2 Guideless Ends

The connectors can be misaligned nominally by +/- 0.25mm in the x direction and +/- 0.56mm in the y direction.

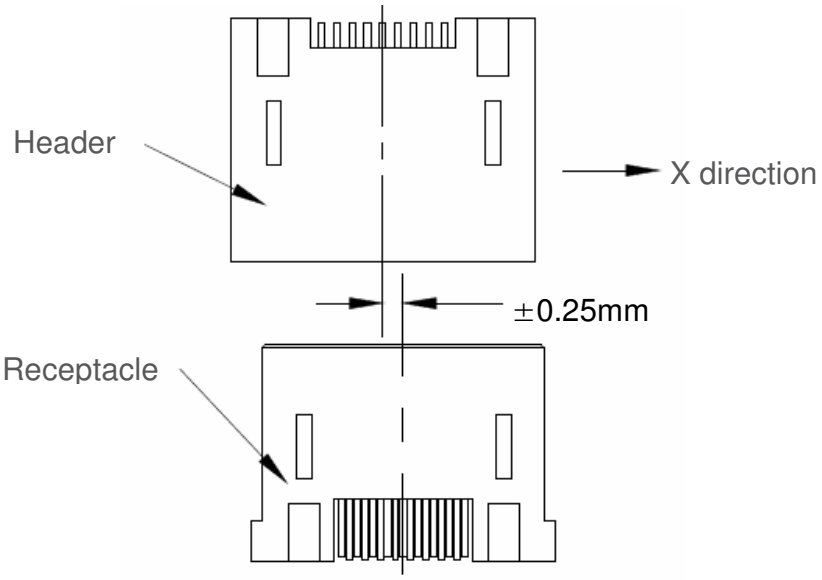

Fig.11 X-direction Misalignment

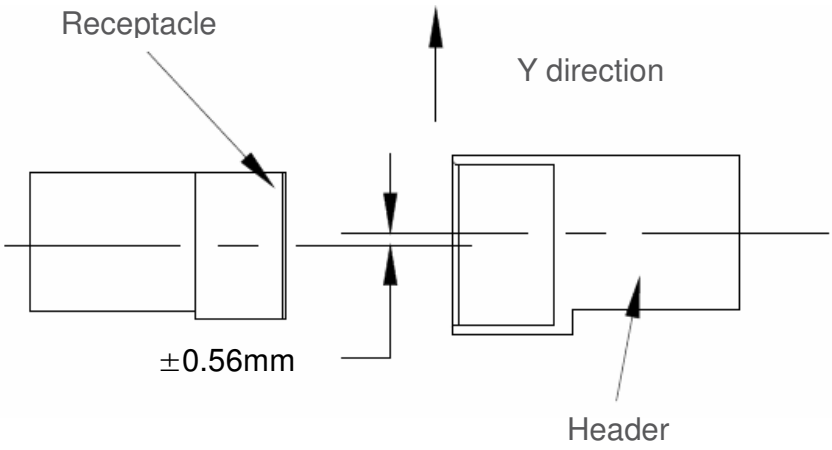

Fig.12: Y-direction Misalignment

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5.3.5. Mating Dimension

The required nominal mating dimension is provided in Figure13~14.

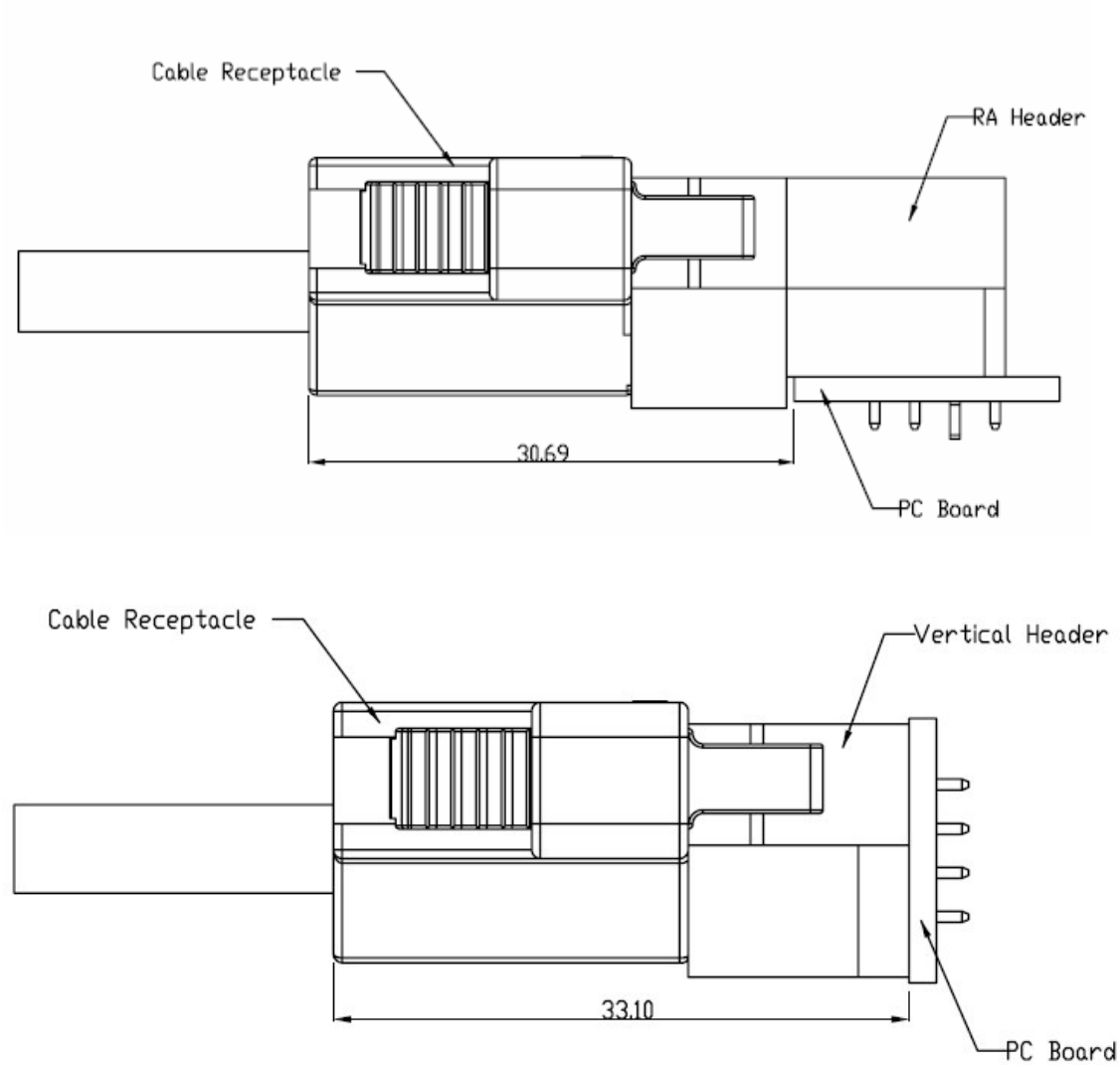

Fig.13: Squeeze-to-release Cable Receptacle

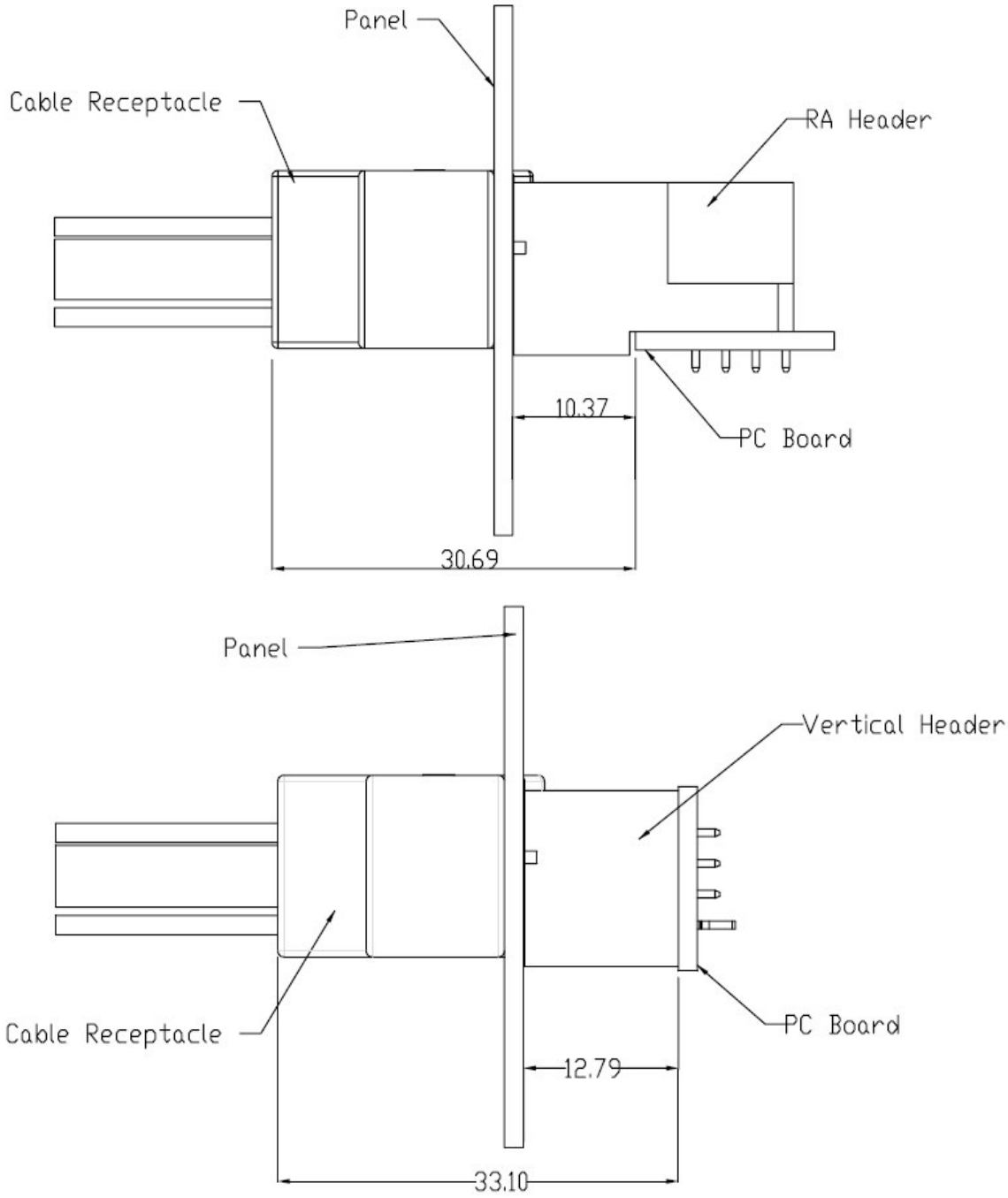

Fig.14: Panel-Mount Cable Receptacle

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5.3.6. Latch Strength

Retention to Housing - Individual latch shall withstand an axial load of 65 N minimum.

Latch strength after cable receptacle connector mating to board connector without contacts shall withstand an axial load of 85 N minimum.

5.4. Recommended spacing

5.4.1. Between adjacent R/A board connectors which can receive cable connectors with latches.

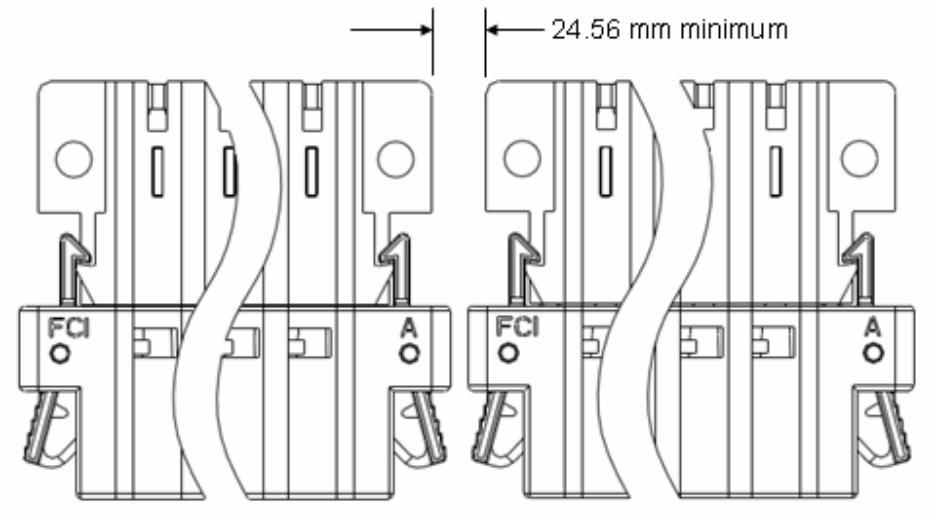

Fig. 15

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REVISION RECORD

Revision	Page	Description	EC #	Date
A	ALL	First issue	DG07-0293	2007/07/20
B	11	Add latch strength to paragraph 5.3.6 Remove Paragraph 6.0	DG08-0027	2008/01/22
C	1 11	Remove REF. document GS-12-377 in sec. 3.0 Add sec. 5.4 - recommended spacing	DG10-0235	2010/06/22

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