RPR EN4165-Style Interconnect Solutions for Commercial Aerospace
Introducing ITT Cannon’s RPR EN4165-Style Connector with PCB Contacts for Commercial Aviation Applications

Innovative ARINC 809-Compatible Interconnect for High Speed Data Transfer Offers an Ideal Solution for Today’s In-Flight Entertainment / Connectivity (IFE/C) and Navigation Systems

The Challenge
The comfort and convenience of high speed data to support improved passenger experience is driving the demand for more advanced, higher speed data transfer rates in commercial aerospace applications. To keep pace, manufacturers are pushing the interconnect industry to adapt and evolve, requiring more cost-effective, lightweight and reliable connector solutions.

The Solution
ITT Cannon’s RPR EN4165-Style Connector with PCB Contacts offers innovative design and cost efficiency while retaining high speed data transfer performance in commercial aircraft systems. This lightweight modular rectangular interconnect uses various sizes of PCB contacts in both straight and right angle configurations, and offers additional accessories for LRU applications. It also features Precision PCB tail alignment and is front-release, rear removable with a Cannon-designed latching mechanism.

Key Product Features
- Compact & Lightweight - Our RPR EN4165-Style PCB Connector features a composite construction that is ideal for ultimate weight savings
- Cost Effective - Housing a monoblock insulator and integral PCB Contacts, this is the new cost effective solution for PCB applications and panel mounts
- Intermateable - The Cannon RPR PCB Connector is intermateable with other EN4165 plugs from current suppliers

The CANNON Difference
- Committed partner for off-the-shelf or custom interconnect solutions
- Ideal for high-speed Ethernet and PCB Applications
- Durable and reliable, even in the harshest environments

In-Flight Entertainment / Connectivity
Avionics Systems
Our RPR EN4165-Style Connector with PCB Contacts Features Innovative Front-Release, Rear Removable Insert with Proprietary Latching Mechanism

Precision PCB Tail Alignment - A modular rectangular connector housing a monoblock insert allows for a cost-effective solution with added reliability and prevention of splayed PCB contacts.

Step 1
Insert the removal tool in to the front of the RPR Receptacle Shell

Step 2
Once insert removal tool is fully inserted, pull back on RPR Receptacle shell while pulling the insulator from the rear of the shell

Front Release, Rear Removable Insert with Highly-Engineered Latching Mechanism - Service, repair and maintenance are made easier through front release, rear removable inserts. The addition of a latch mechanism allows for front release and rear removal of the insert from the shell after PCB/Panel mounting. This enables access to or removal of electronics from the equipment panel as opposed to a rear release mechanism inside the box, which is frequently inaccessible. One of the first of its kind in market, our proprietary latching mechanism is an option on all of Cannon’s RPR receptacles.

Material / Finish

Product Testing & Results

<table>
<thead>
<tr>
<th>Test Performed</th>
<th>Test Method</th>
<th>Performance / Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Retention:</td>
<td>ARINC 800, Part 2, Section 4.1.3.34</td>
<td>Contact sizes 16, 22, and 24 all passed the contact retention loads of 24.7 lbf (110 N), 10.0 lbf (44 N), and 4.0 lbf (18 N) respectively.</td>
</tr>
<tr>
<td>Insert Retention and Durability:</td>
<td>ARINC 800, Part 2, Section 4.1.2.5.13 and 4.1.3.16</td>
<td>Measurements indicated that the inserts met the 56.2 lbf (250 N) retention force.</td>
</tr>
<tr>
<td>Temperature Cycling:</td>
<td>EN 2591-305</td>
<td>The temperature TA was 175°C and the temperature TB was -55°C. The connectors passed visual examination.</td>
</tr>
<tr>
<td>Dielectric Withstanding Voltage (DWW):</td>
<td>EN 2591-207 at sea level.</td>
<td>Tested arrangements 16-02 and 20-22 passed without breakdown or flashover at indicated voltage.</td>
</tr>
<tr>
<td>Insulation Resistance (IR):</td>
<td>EN 2591-206 at ambient temperature</td>
<td>Unmated connector arrangements 16-02 and 20-22 passed 5000 MΩ insulation resistance required.</td>
</tr>
<tr>
<td>Intermateability:</td>
<td>MIL-STD-202, Method 107, 5 Cycles at -65, +150°C, 15 minutes dwell</td>
<td>The receptacle housings loaded with 20-22 arrangement module, pin and socket, were mated/unmated with EN4165 connectors. Visual examination of keyways polarization, electrical contact engagement, sealed interface compression, and connector latching mechanism indicated all connectors passed successfully.</td>
</tr>
<tr>
<td>Plating Adhesion:</td>
<td>MIL-STD-202, Method 107, 5 Cycles at -65, +150°C, 15 minutes dwell</td>
<td>At the conclusion of the final cycle, and after the housings return to room ambient condition, the housings were examined for blistering, peeling, or separation of the plating from the composite substrate. All receptacle housings passed the requirements.</td>
</tr>
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### Descriptive Part Number

<table>
<thead>
<tr>
<th>Series</th>
<th>RPR</th>
<th>24</th>
<th>N</th>
<th>01</th>
<th>K</th>
<th>S</th>
<th>T</th>
<th>V</th>
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<tbody>
<tr>
<td>Shell Style</td>
<td>24</td>
<td>Receptacle</td>
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<td></td>
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<tr>
<td>Shell Keying</td>
<td>N</td>
<td>N-Normal</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
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<tr>
<td>Latching Mechanism</td>
<td>01</td>
<td>01-Front and Rear Release</td>
<td>Blank-Rear Release only</td>
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<td>K</td>
<td>K-Coding Plate</td>
<td>Blank-without Coding Plate</td>
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<td>Sealing Gasket</td>
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<td>Blank-without Sealing Gasket</td>
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<td></td>
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<tr>
<td>Nut Plate</td>
<td>T</td>
<td>T-Nut Plate</td>
<td>Blank-without Nut Plate</td>
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<tr>
<td>Dust Cap</td>
<td>V</td>
<td>V-Red (Standard)</td>
<td>W-Black (Conductive)</td>
<td>Blank-without Dust Cap</td>
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</table>

### Standard Receptacle Shell Dimensions (For Reference Only)

#### Descriptive Part Numbers (Normal Keying)

<table>
<thead>
<tr>
<th>Component Part Numbers</th>
<th>Description</th>
<th>Shell Part Numbers</th>
<th>Polarization (Clocking)</th>
<th>Front Release Option</th>
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<tbody>
<tr>
<td>RPR24N-01</td>
<td>348-9550-100</td>
<td>N</td>
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<td>RPR24A-01</td>
<td>348-9550-101</td>
<td>A</td>
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<td>RPR24B-01</td>
<td>348-9550-102</td>
<td>B</td>
<td>Y</td>
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<tr>
<td>RPR24C-01</td>
<td>348-9550-103</td>
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<td>RPR24D-01</td>
<td>348-9550-104</td>
<td>D</td>
<td>Y</td>
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<td>RPR24N</td>
<td>348-9550-000</td>
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<td>RPR24B</td>
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<td>B</td>
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<td></td>
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<tr>
<td>RPR24C</td>
<td>348-9550-003</td>
<td>C</td>
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<tr>
<td>RPR24D</td>
<td>348-9550-004</td>
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</table>

### Free Mounting Panel Cutout Dimensions

#### Component Part Numbers:

- 272-9000-000: Nut Plate
- 075-1198-000: Sealing Gasket
- 025-9000-000: Dust Cap (Red)
- 025-9000-001: Dust Cap (Black)
- 274-1008-000: Front Release Tool

#### Coding Plate Part Numbers:

- 253-0051-006: Black
- 253-0051-007: Red
- 253-0051-008: Blue
- 253-0051-009: Green
- 253-0051-010: Yellow
RPR PCB Connector for Commercial Aviation

How to Order | Insert

Descriptive Part Number

<table>
<thead>
<tr>
<th>Series</th>
<th>Layout 20-22</th>
<th>Gender P P - Pin</th>
<th>S - Socket</th>
<th>Keying</th>
<th>N N - Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight PCB</td>
<td>AS</td>
<td>RPRM</td>
<td>AS - .430” tail length* (± .015)</td>
<td>BS - .539” tail length* (± .015)</td>
<td>20-22, 16-02, 99-01, 12-20, 08-16, 04-12, and 30-23 will be available late 2018.</td>
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<tr>
<td>Right Angle PCB</td>
<td>BR</td>
<td>RPRM</td>
<td>.384” tail length* (± .015)</td>
<td>PCB Contacts are pre-loaded in the insert when ordered.</td>
<td></td>
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</table>

* Please add .05” to obtain dimension from rear flange to end of PCB tail.

20-22, 16-02 arrangements are available for release; 99-01, 12-20, 08-16, 04-12, and 30-23 will be available late 2018.

Pin Engaging face shown on all layouts.

Dimensions shown in inches
Specifications and dimensions subject to change

20-22
20 #22 Contacts

16-02
6 #16 Contacts
2 #22 Contacts
8 #24 Contacts

30-23
30 #23 Contacts

08-16
8 #16 Contacts

12-20
12 #20 Contacts

04-12
4 #12 Contacts

99-01
6 #16 Contacts
5 #22 Contacts

Insert Removal Tool
274-1008-000

<table>
<thead>
<tr>
<th>Descriptive Part Number</th>
<th>Contact Arrangement</th>
<th>Contact Type</th>
<th>Insert Part Number</th>
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<tbody>
<tr>
<td>RPRM99-01PNAS</td>
<td>99-01</td>
<td>P</td>
<td>143-8174-020</td>
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<tr>
<td>RPRM30-23PNAS</td>
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<td>P</td>
<td>143-8177-020</td>
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<td>RPRM20-22PNAS</td>
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<td>P</td>
<td>143-8170-020</td>
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<td>RPRM16-02PNAS</td>
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<td>RPRM04-12PNAS</td>
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<td>RPRM04-12PBR</td>
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<td>RPRM12-20SNAS</td>
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<tr>
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<td>143-8173-080</td>
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</tbody>
</table>
Connect with the experts

From the invention of rack-and-panel and D-subminiature, to the latest fiber-optic and miniature circular connectors, Cannon has been synonymous with innovation, reliability and quality for more than 100 years. Today, we continue to innovate on behalf of our valued customers worldwide. Because amazing things happen when great things connect.

Why ITT
ITT is a focused, multi-industrial company that designs and manufactures highly engineered critical components and customized technology solutions. ITT Cannon is a leading global manufacturer of connector products serving international customers in the aerospace and defense, industrial and medical end markets. We design and engineer a variety of interconnect solutions that make it possible to transfer data, signal and power in an increasingly connected world.

Connect with your ITT Cannon representative today or visit www.ittcannon.com