Legacy RTU Retrofit Solutions

Using the Orion Automation Platform and Orion I/O

February 2021 Update

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Legacy RTU Retrofits

- Legacy Retrofit Concept
- Telvent Retrofits
- Siemen Telegyr TG5300/TG5700 Retrofits
- Systems Northwest (SNW) Retrofits
- ACS Retrofits
- D20/D200 Retrofits

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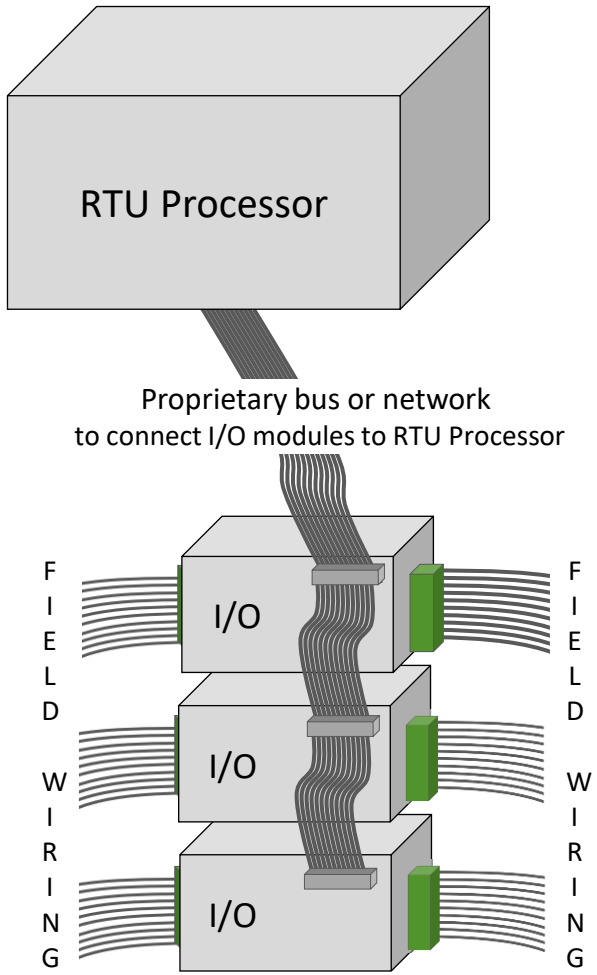
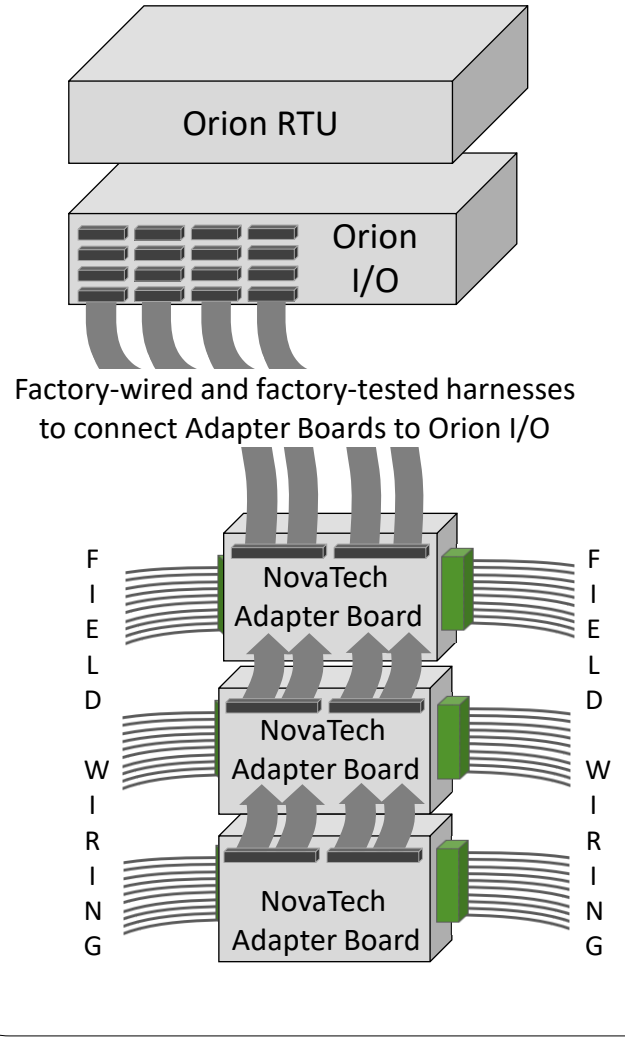
Legacy RTU Retrofit Concept Using Adapter Boards

Legacy



Retrofitted with Orion I/O



Field wiring connectors moved to Adapter Boards.

Field wiring untouched

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Telvent Retrofits

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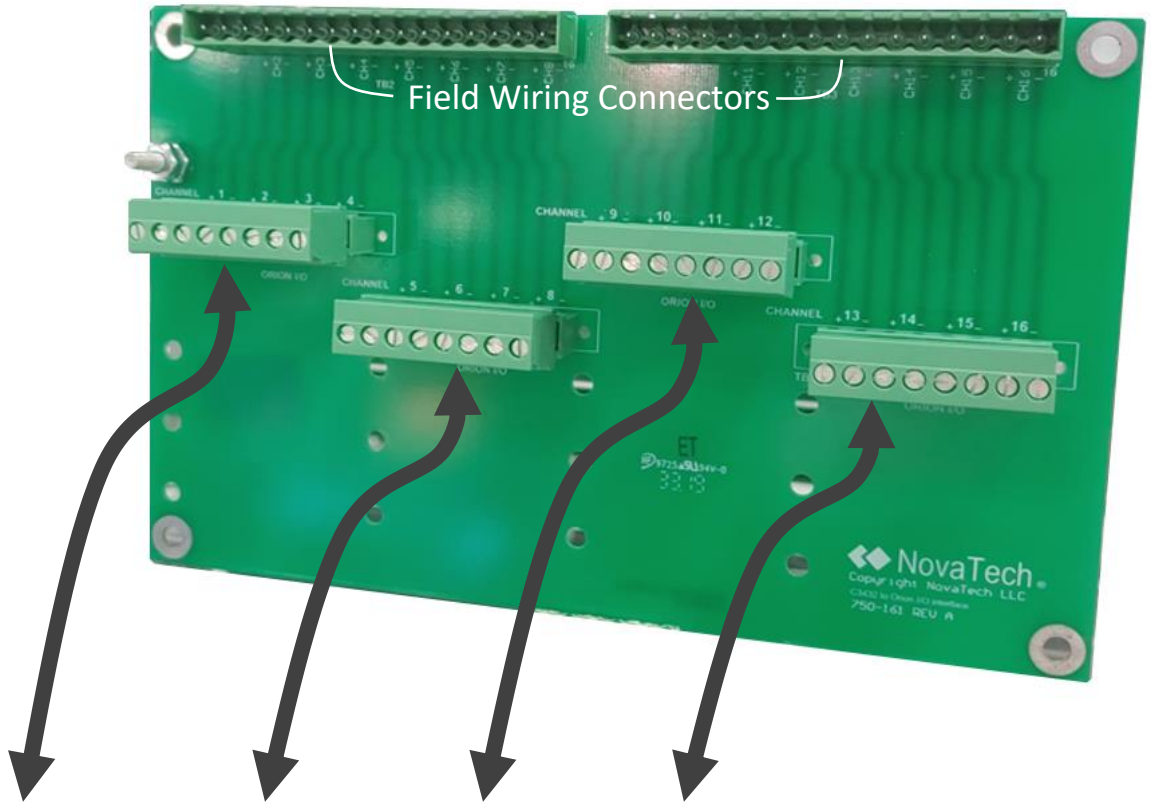
Telvent Retrofit: C3232 Discrete Input Card

Legacy Telvent Input Card

NovaTech Adapter Board



Wire harnesses to Orion I/O Input Card

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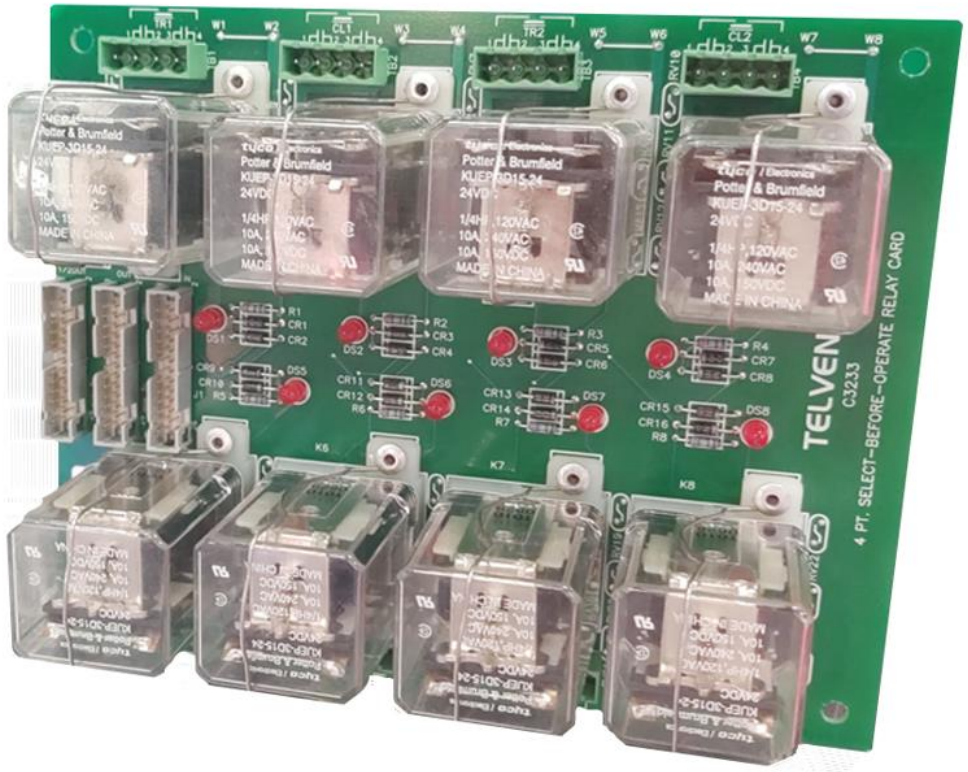
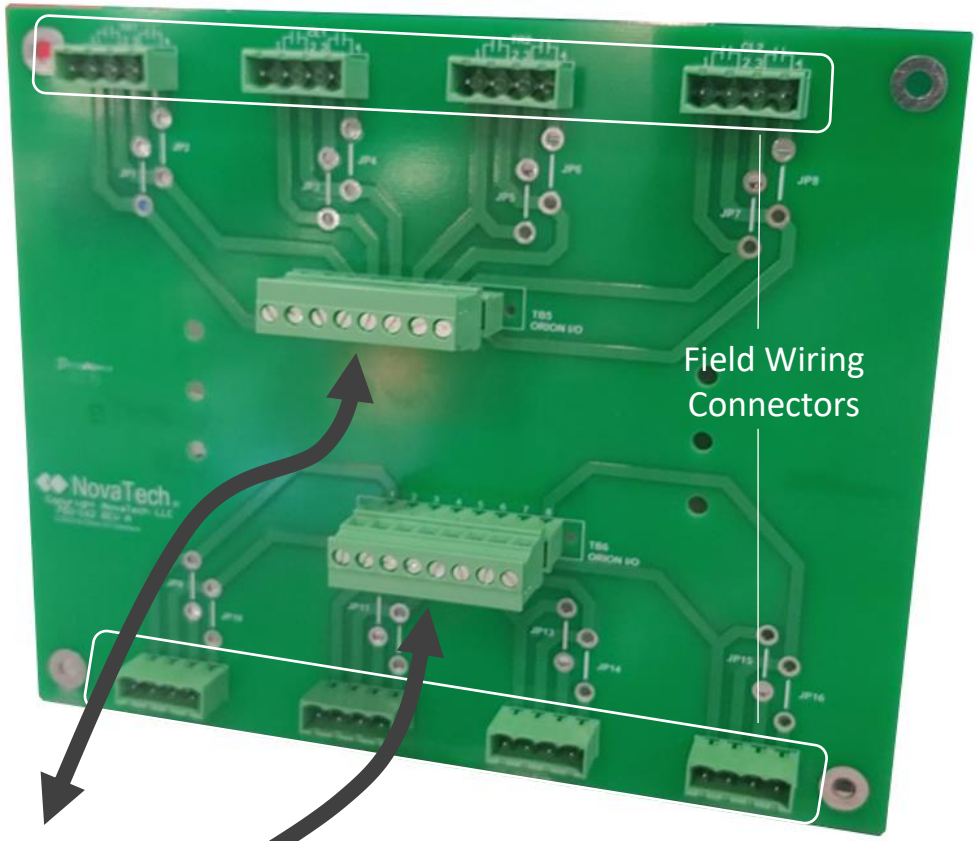
Telvent Retrofit: C3233 Output Card

Legacy Telvent Output Card



NovaTech Adapter Board



Wire harnesses to Orion I/O
High Power Output Card (HPO)

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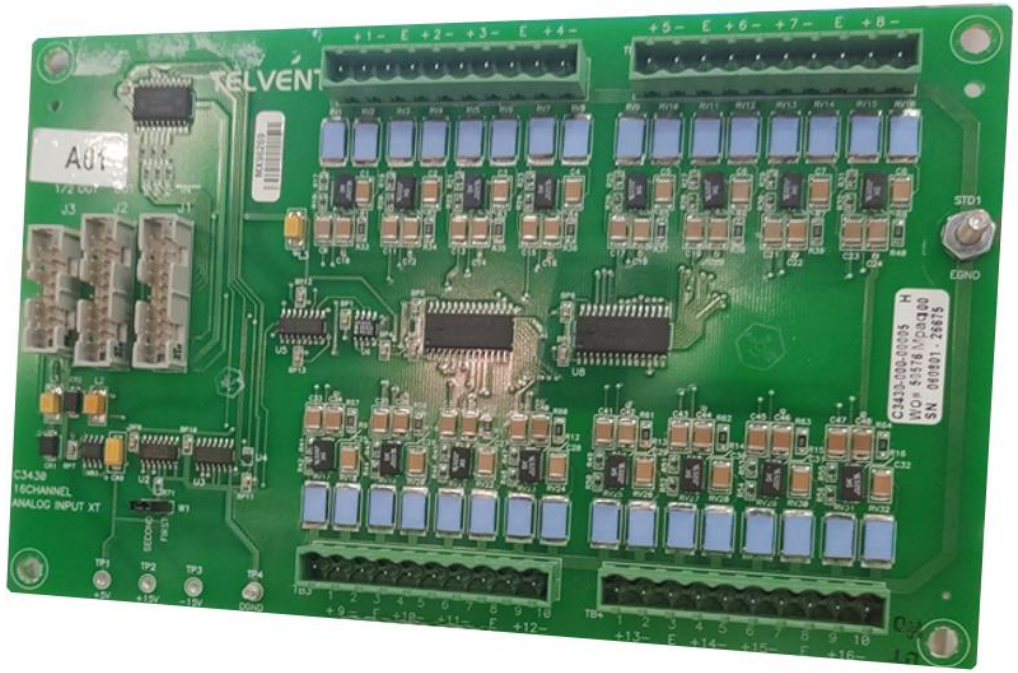
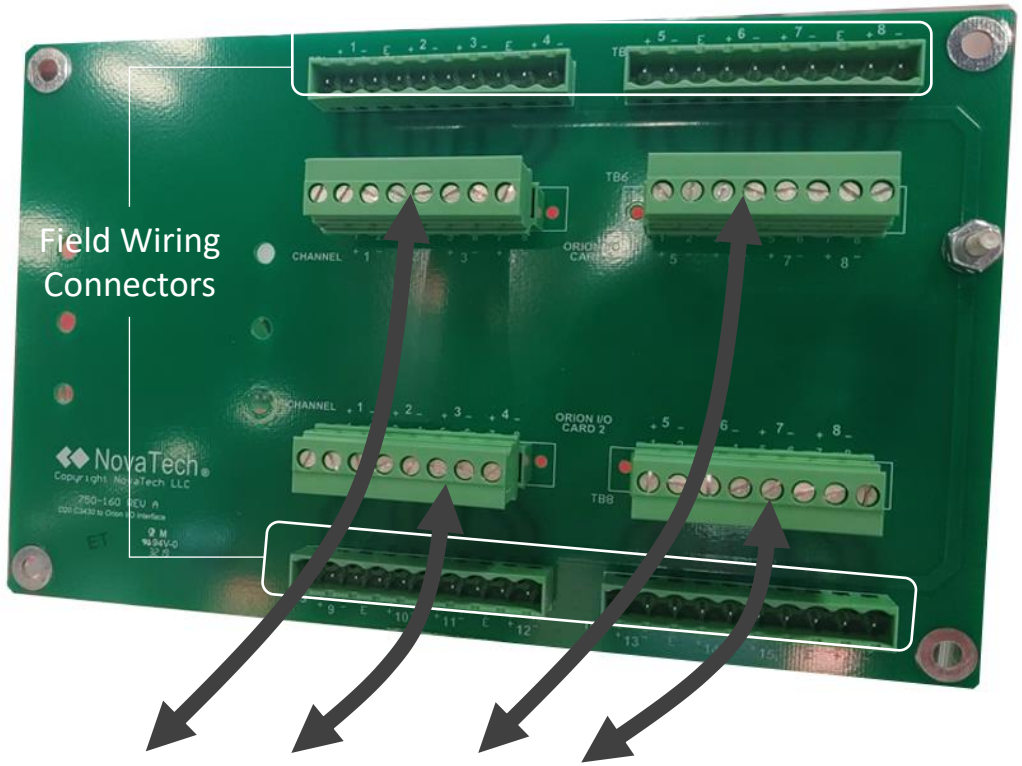
Telvent Retrofit: C3430 Analog Input Card

Legacy Telvent Analog Input Card



NovaTech Adapter Board



Wire harnesses to
Orion I/O Analog Input Card

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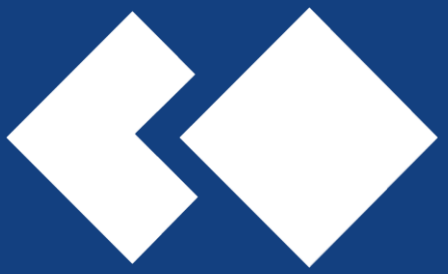
Siemens Telegyr TG5300/TG5700 Retrofits
(Landis & Gyr)



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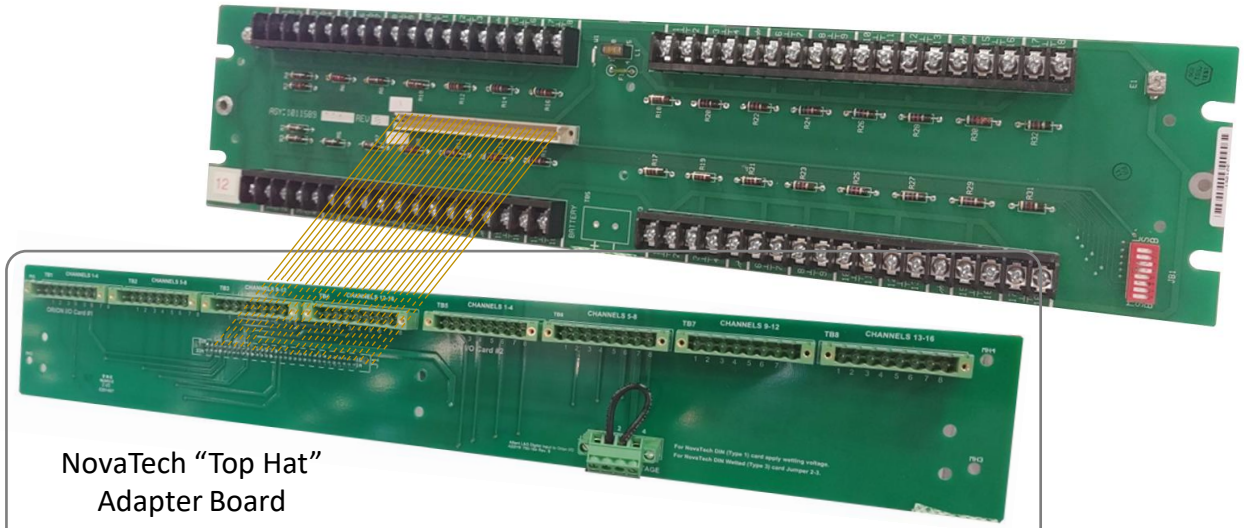
NovaTech Retrofit Solution for Siemens Telegyr TG5700

Telegyr 5700
Output Module
and
Input Module
installed in substation panel

Outputs Retrofit Solution

NovaTech Adapter Board

Inputs Retrofit Solution



NovaTech “Top Hat”
Adapter Board

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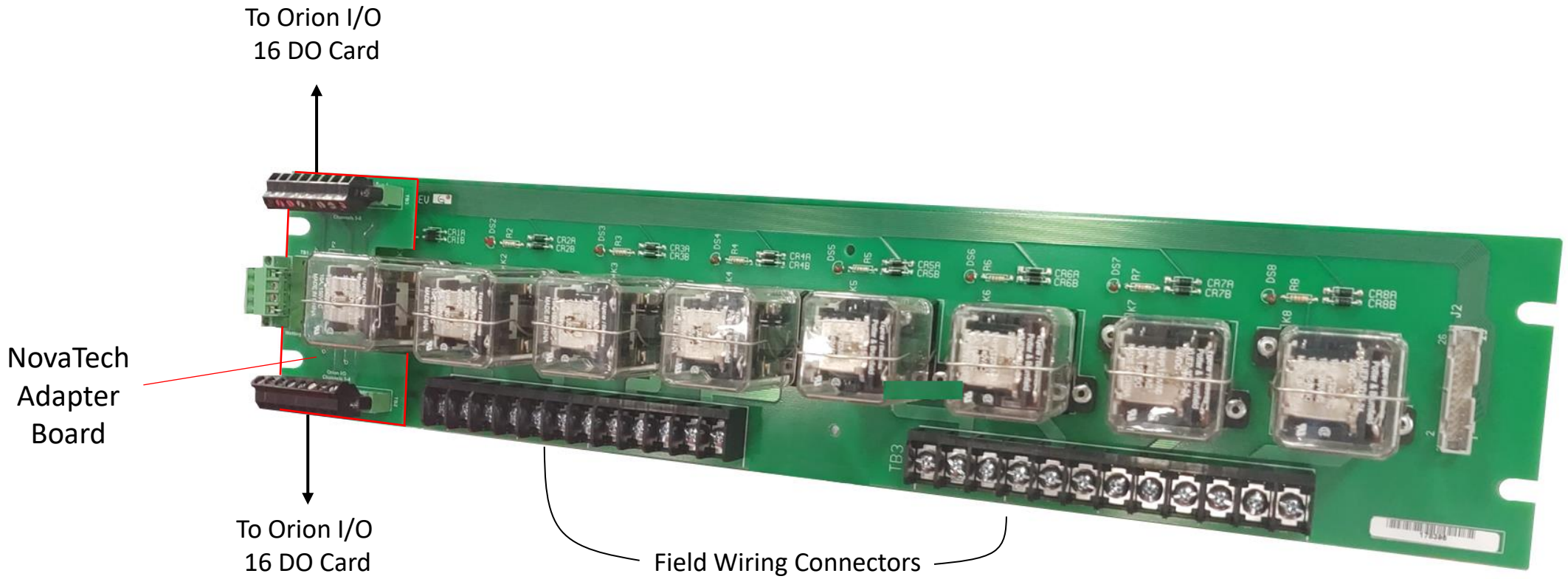
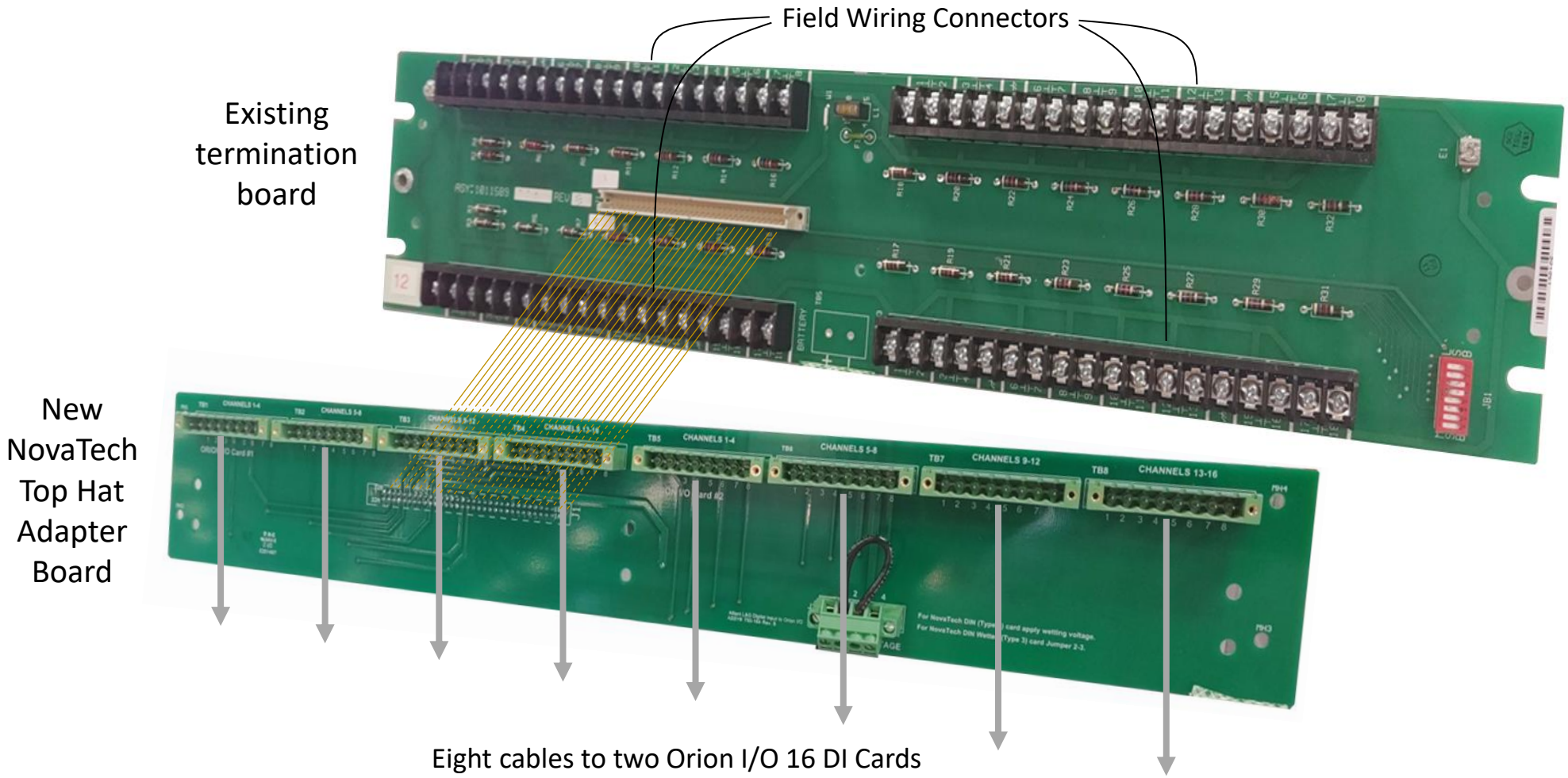
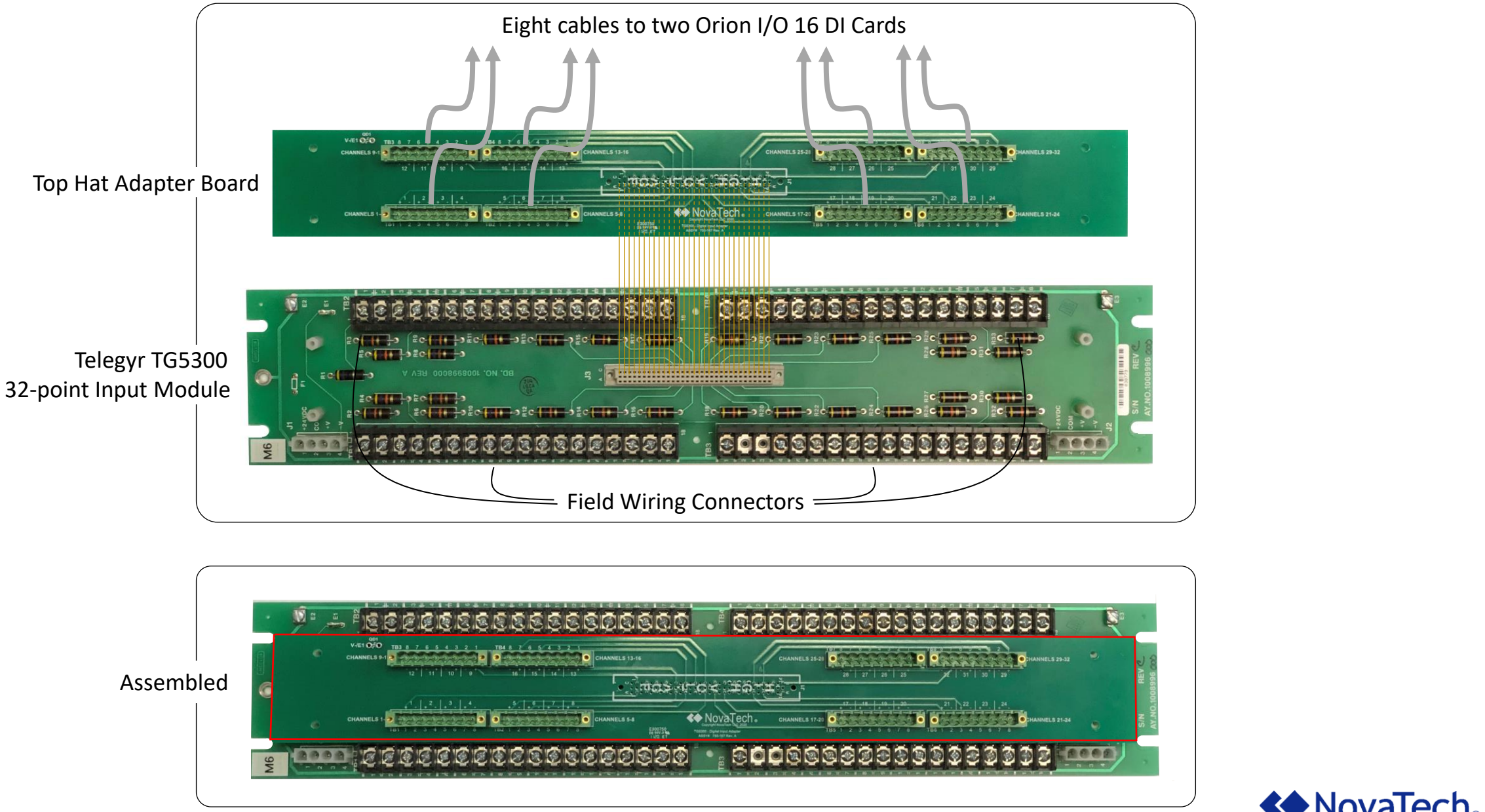
NovaTech Adapter Board for Telegyr TG5700 8-point Output Module



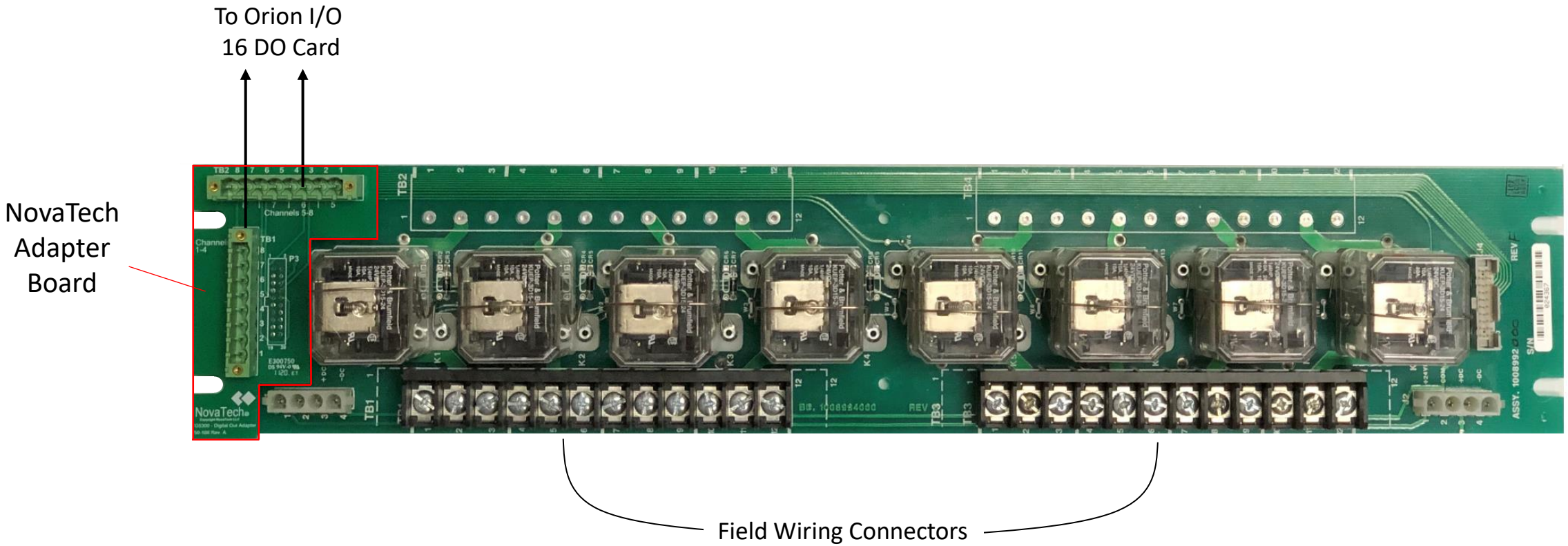
NovaTech “Top Hat” Adapter Board for Telegyr TG5700 32-point Input Module



NovaTech “Top Hat” Adapter Board for Telegyr TG5300 32-point Input Module

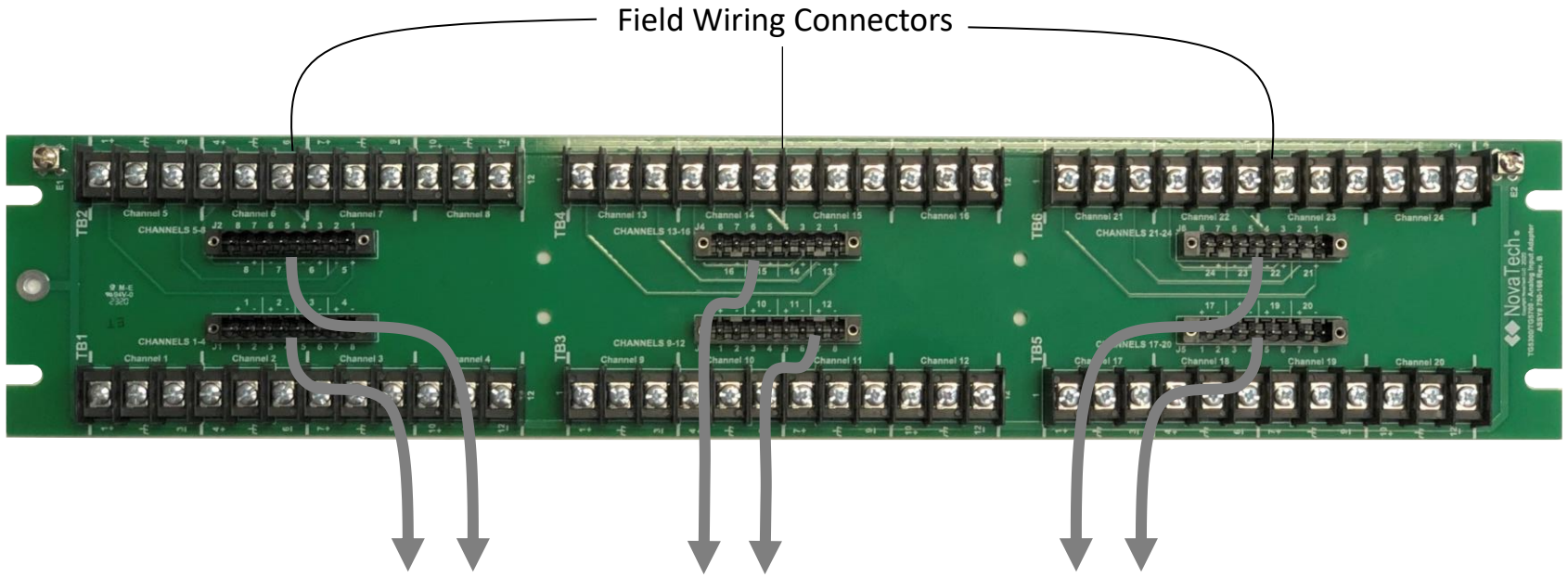


NovaTech Adapter Board for Telegyr TG5300 8-point Output Module



For Telegyr TG5300/TG5700 24-point Analog Input Module

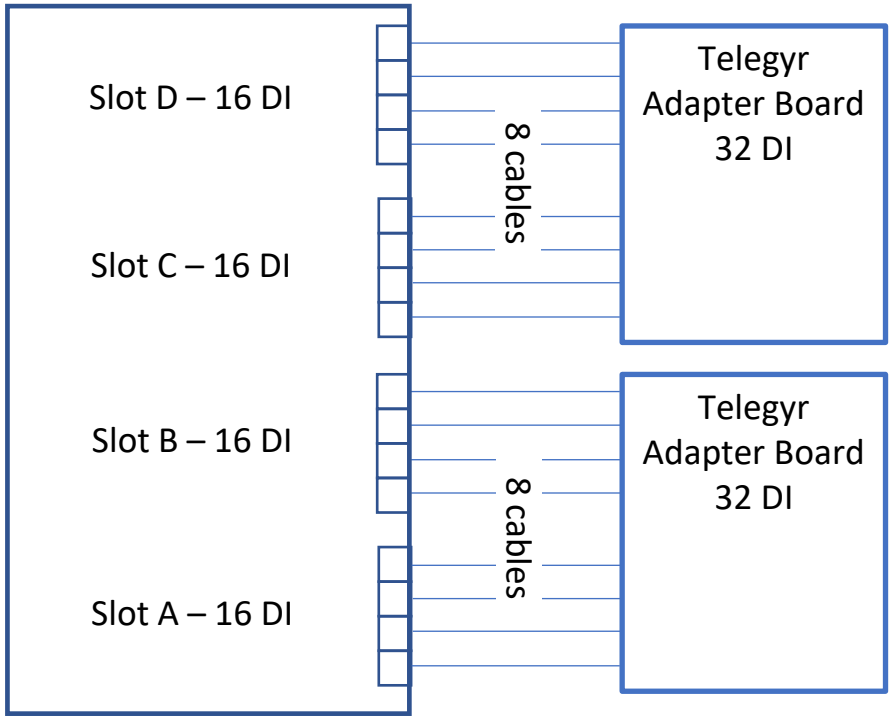
New baseboard
Adapter Board



Example Telegyr 5700 Configurations: 96 DI, 32 DO

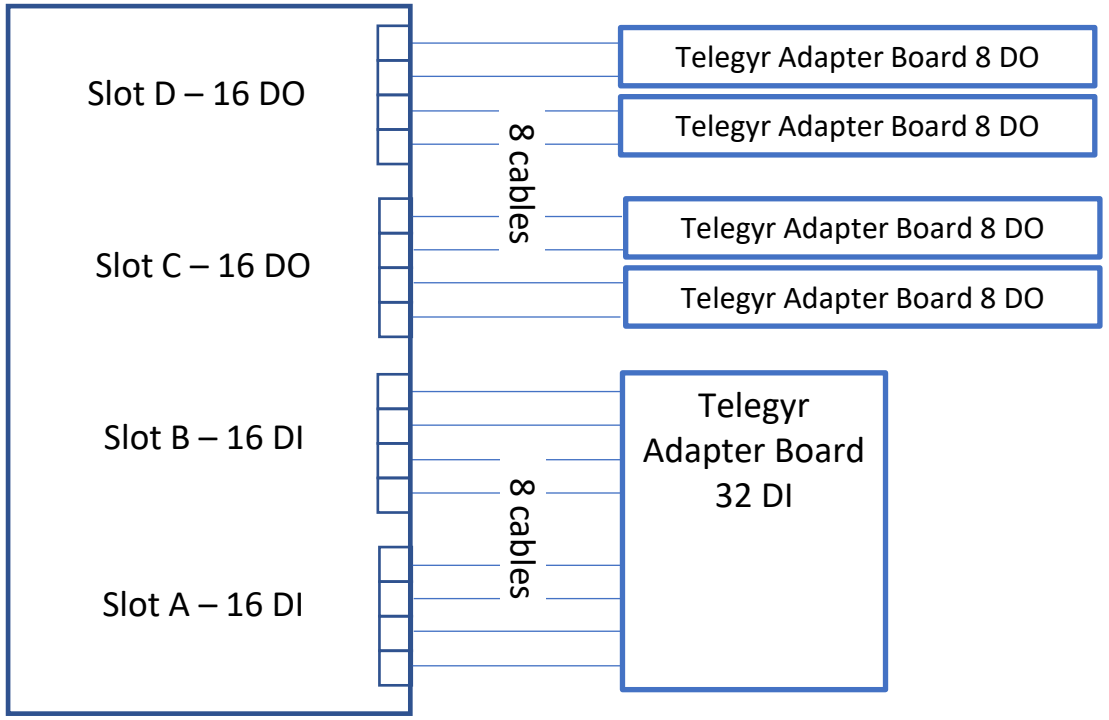
Orion I/O - #1

64 DI



Orion I/O - #2

32 DO, 32 DI



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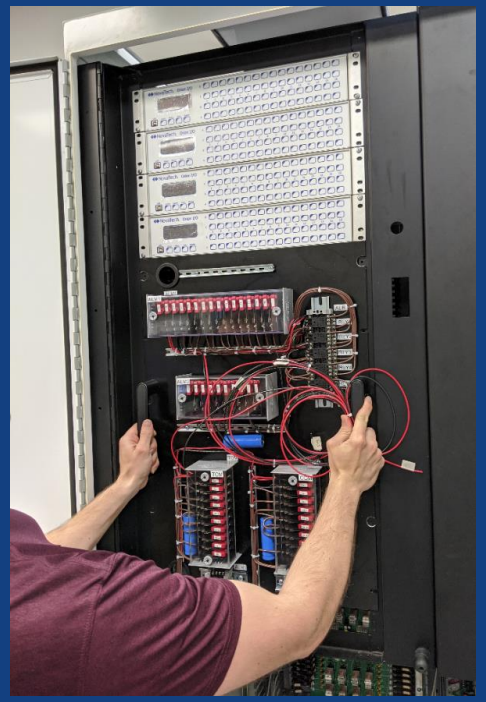

Systems Northwest (SNW) Retrofits

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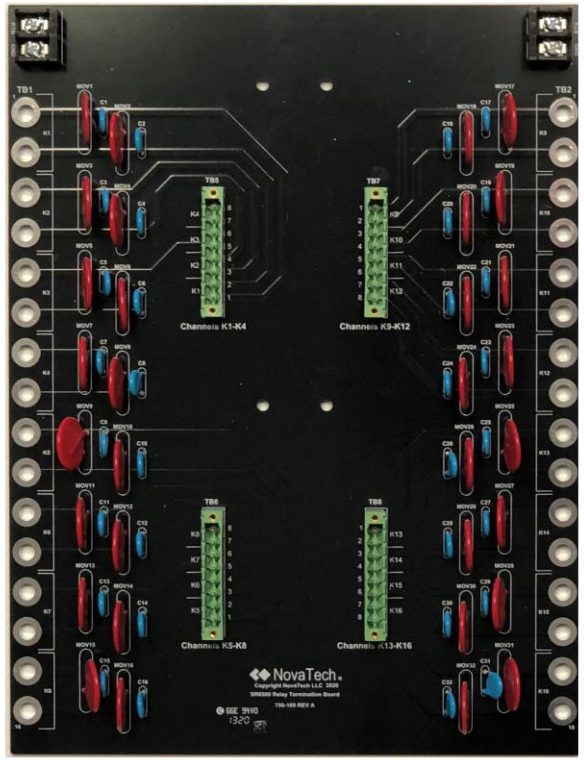
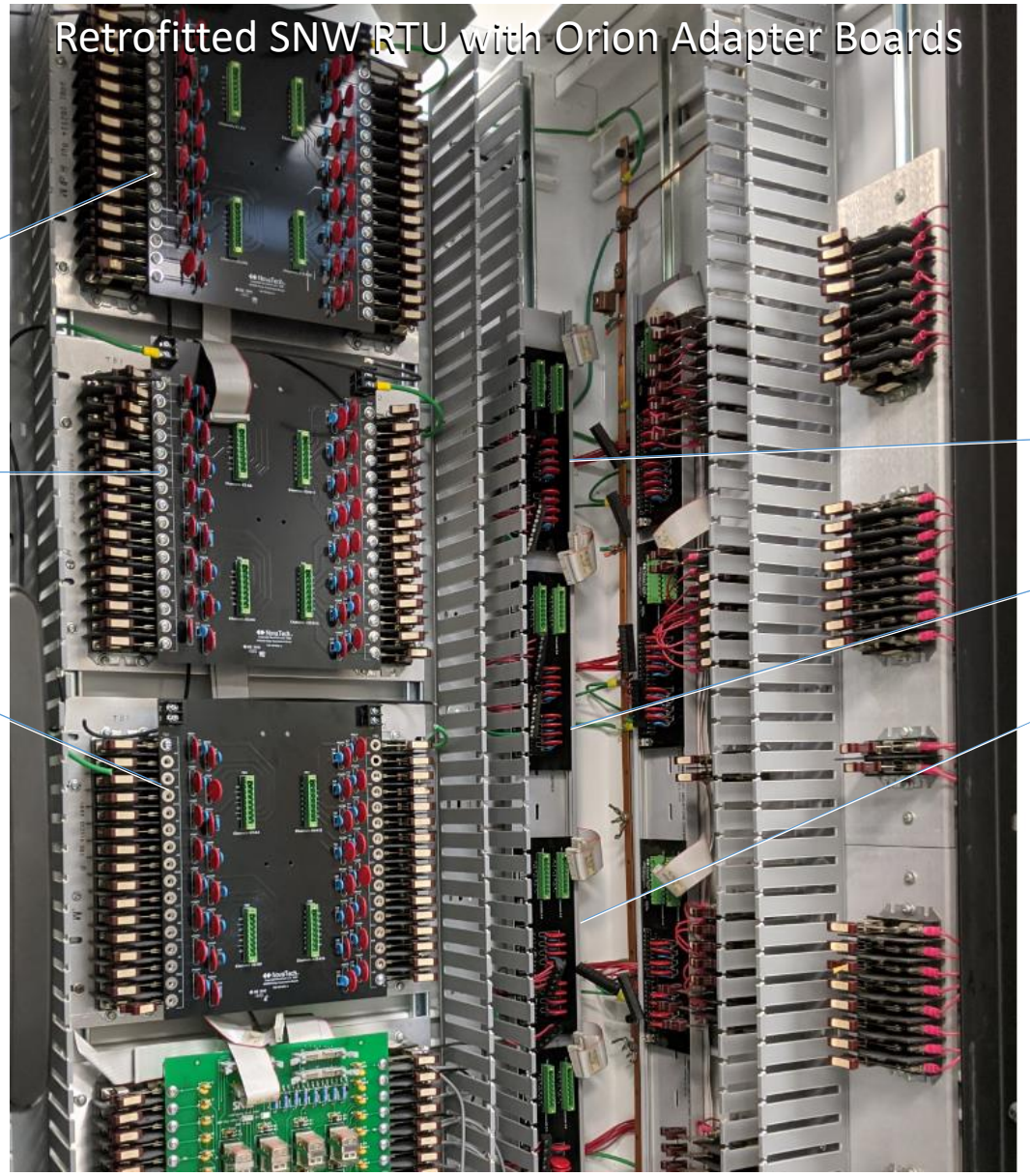
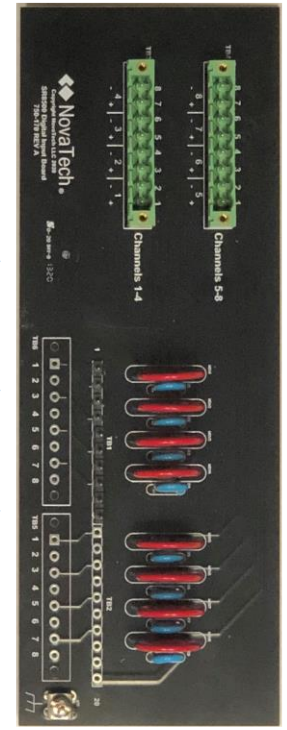
Systems Northwest Retrofit (SNW) Solution



Output Adapter Board





Input Adapter Board

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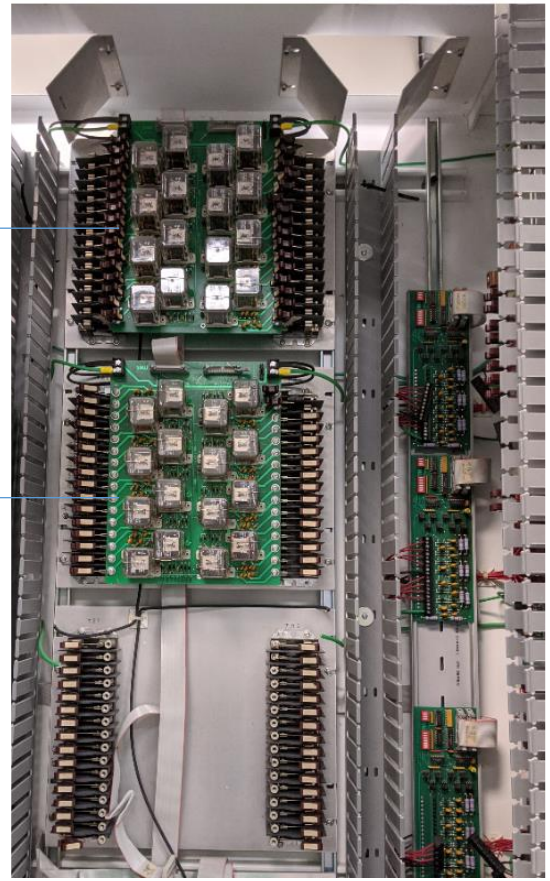
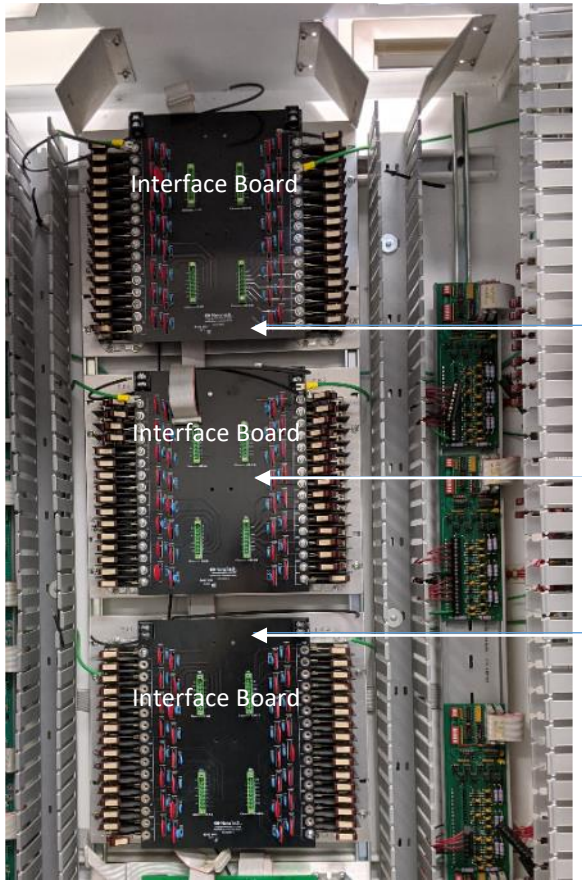
NovaTech SNW Adapter Board to Replace Interposing Relays

Legacy

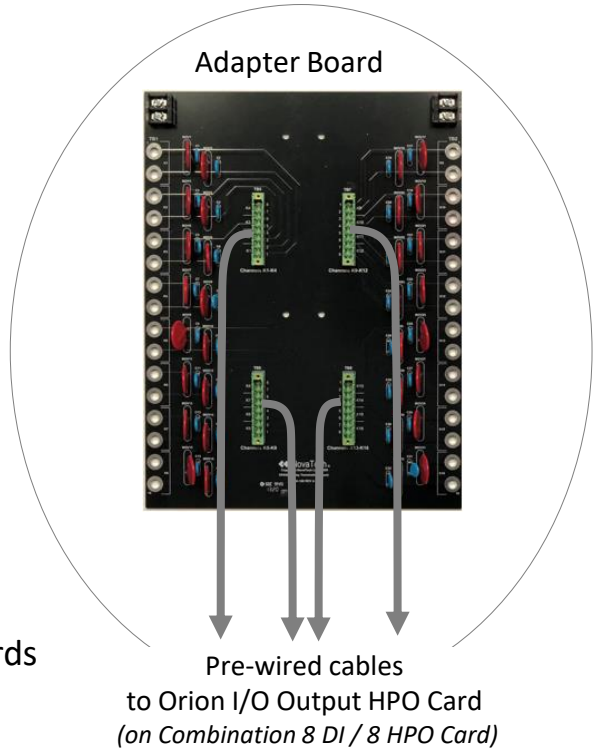


Legacy 16-point interposing relay output cards

Retrofitted



New NovaTech Adapter Boards screwed into place.



- Field wiring (behind card) remains untouched
- Isolation knife switches remain
- Orion HPO (High Power Output) replaces interposing output relays

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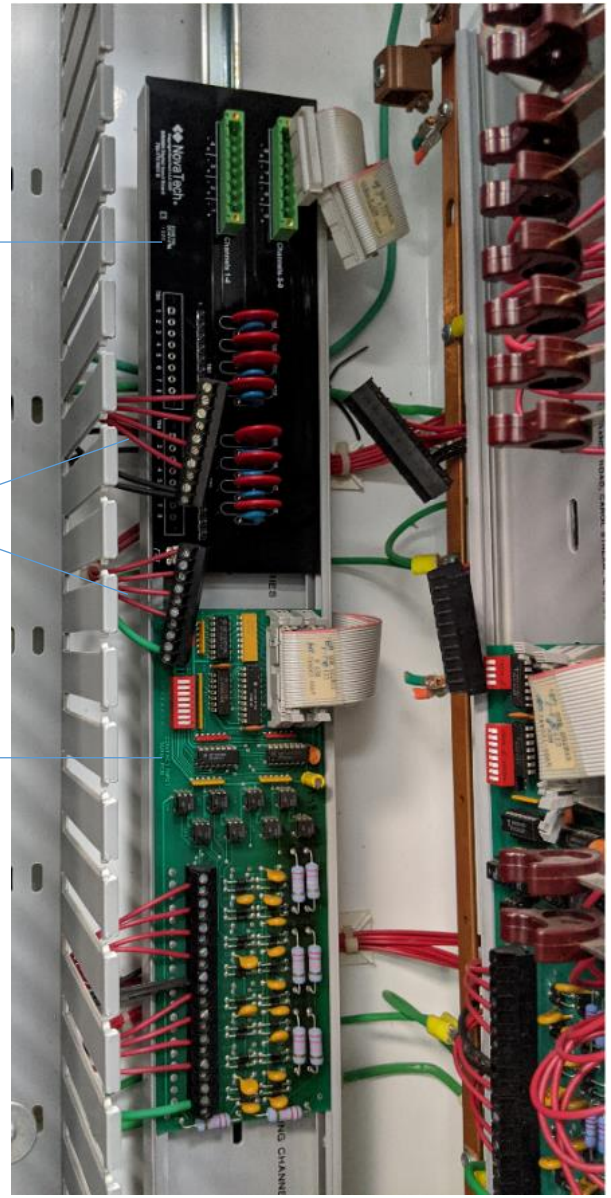
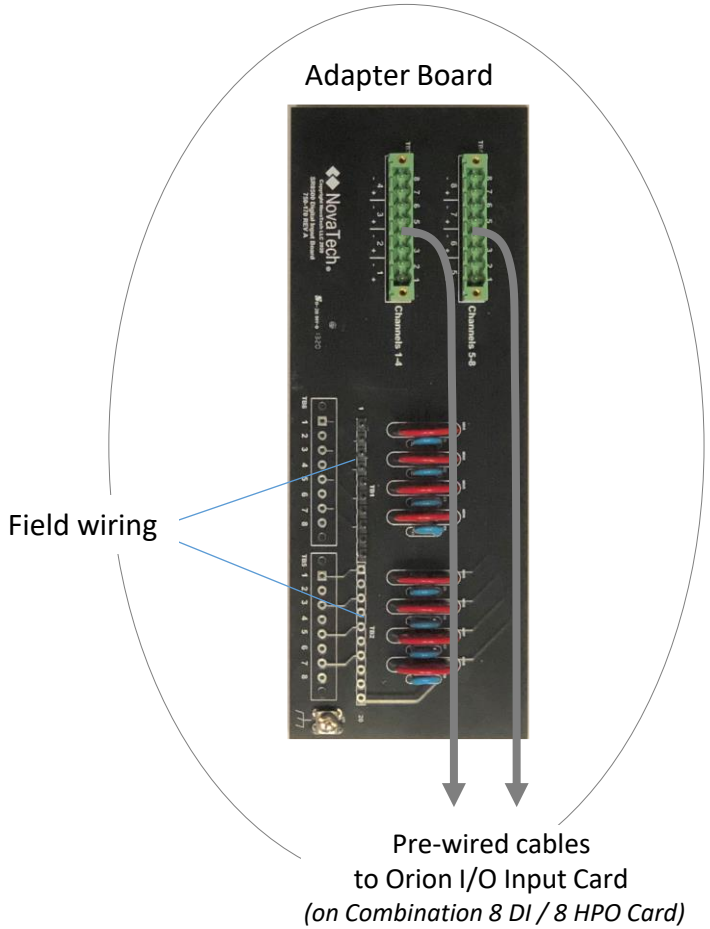
NovaTech SNW Adapter Board to Replace Discrete Input Cards

New NovaTech Adapter Board

Field wiring

Legacy Discrete Input Card





ACS Retrofits

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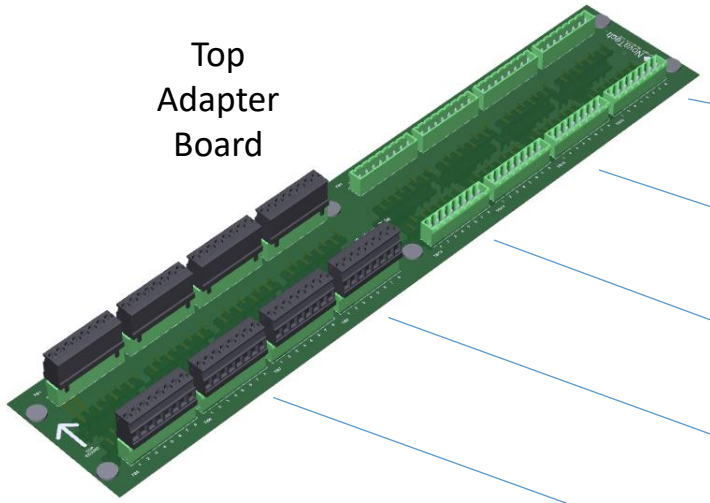
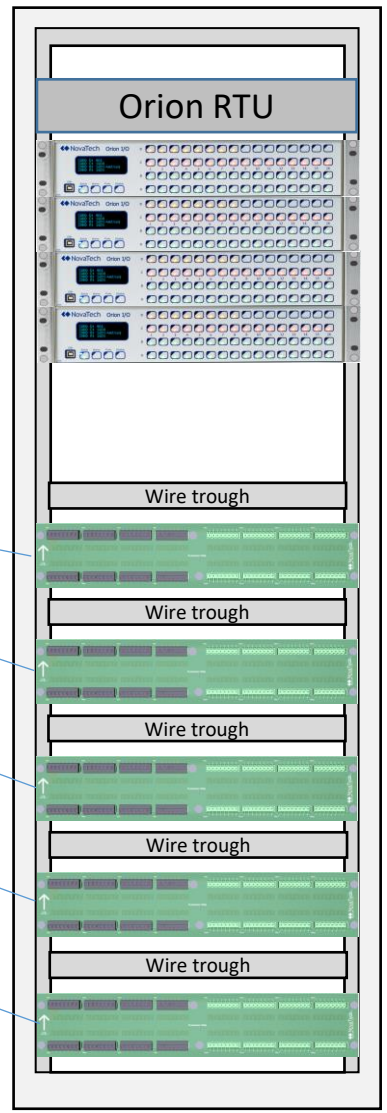
Panel Concept with Adapter Boards for ACS 7530 Retrofit

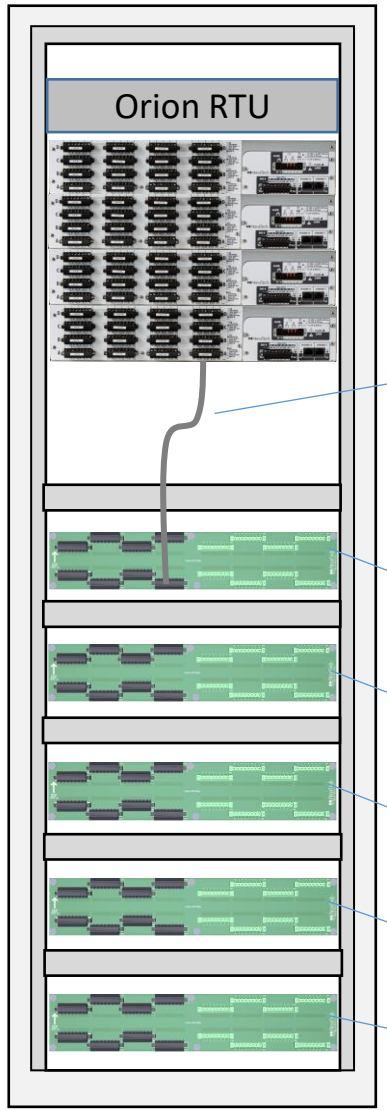


Top Adapter Board

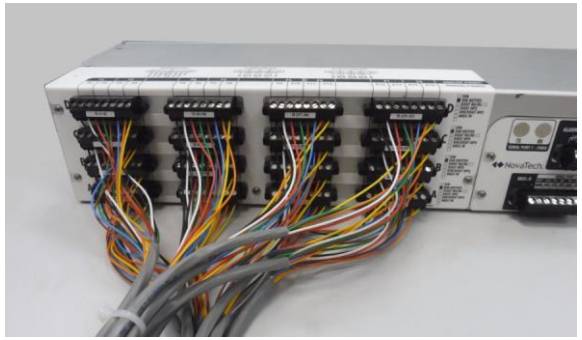
Top Adapter Board matches ACS I/O connectors and connects to field wiring



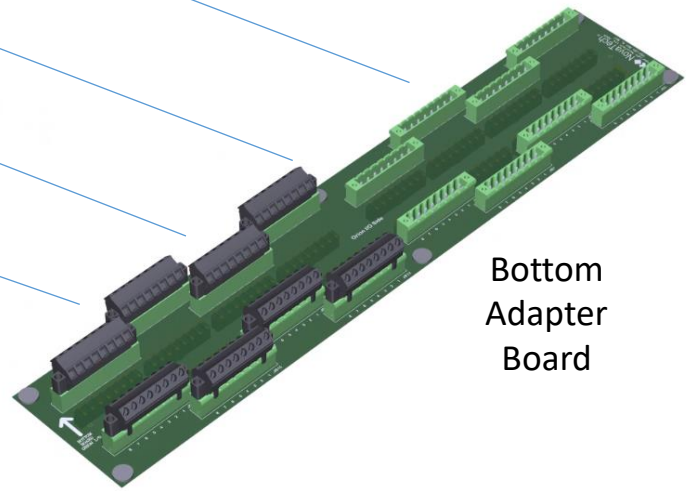
Panel Front



Panel Rear



Factory pre-wired wire harnesses between Orion I/O and Bottom Adapter Board



Bottom Adapter Board

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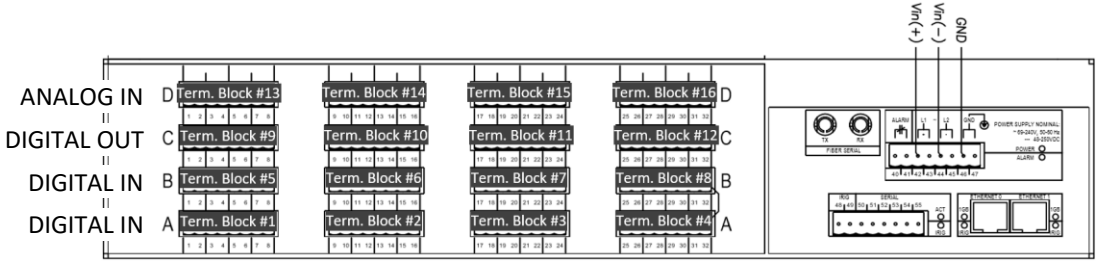
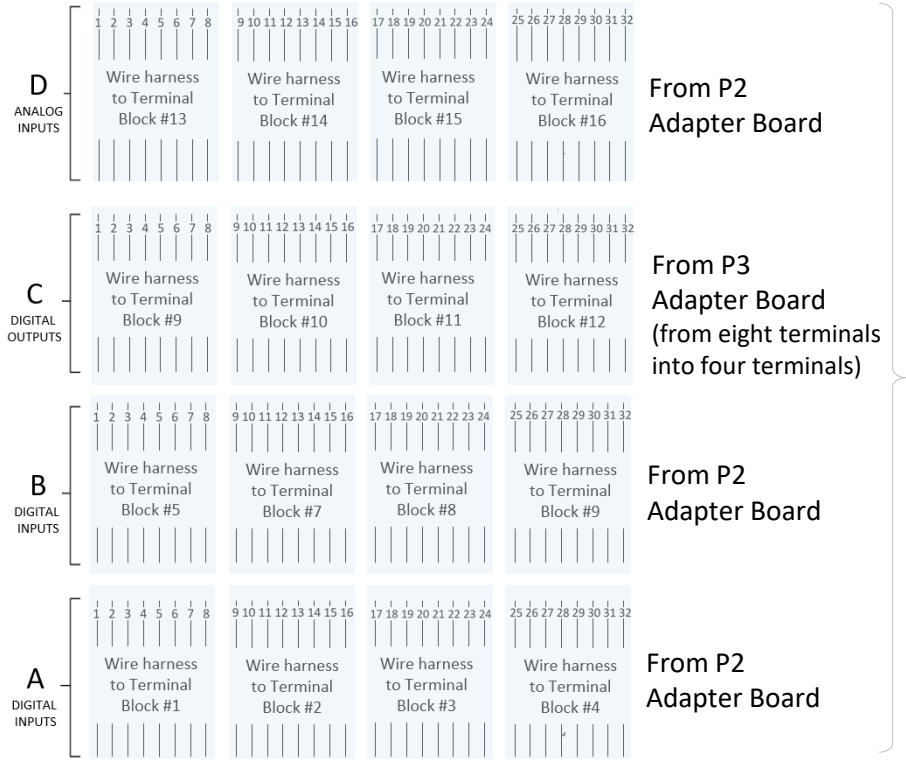
Design Concept for 32 DI, 16 DO and 8 AI

ACS 7530 Retrofit



Orion I/O



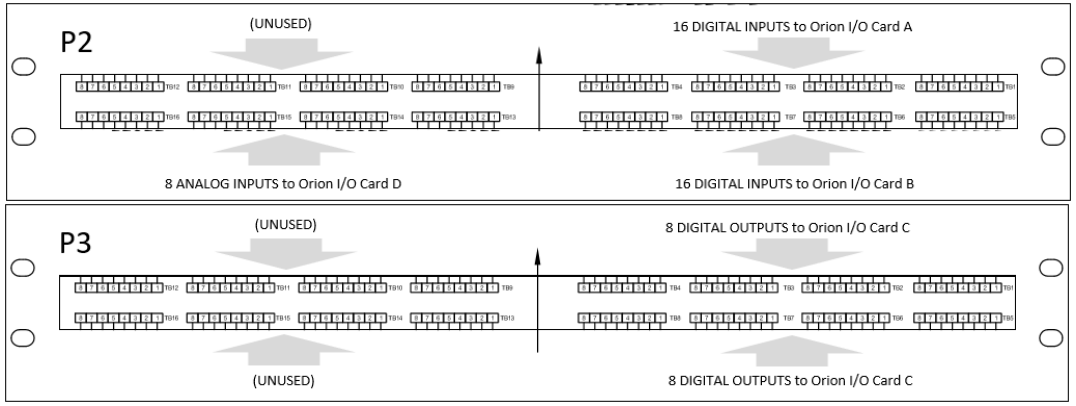
From P2 Adapter Board

From P3 Adapter Board (from eight terminals into four terminals)

From P2 Adapter Board

From P2 Adapter Board

Pre-wired harnesses from Adapter Boards to Orion I/O



Adapter Boards

D20/D200 Retrofits

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D20 I/O Retrofit

- Uses the high-density Orion I/O modules factory wired with D20-Style connectors

- Available for:
  - D20A 32 AI
  - D20S 64 DI
  - D20K 32 DO TRIP/CLOSE
  - D20C Combination: 16 DI, 16 DO (8 TRIP/CLOSE) and 16 AI

- The Orion I/O retrofit solution uses the same 3RU panel space as the D20 modules.

- For both 19” rack mount applications and surface mount applications.

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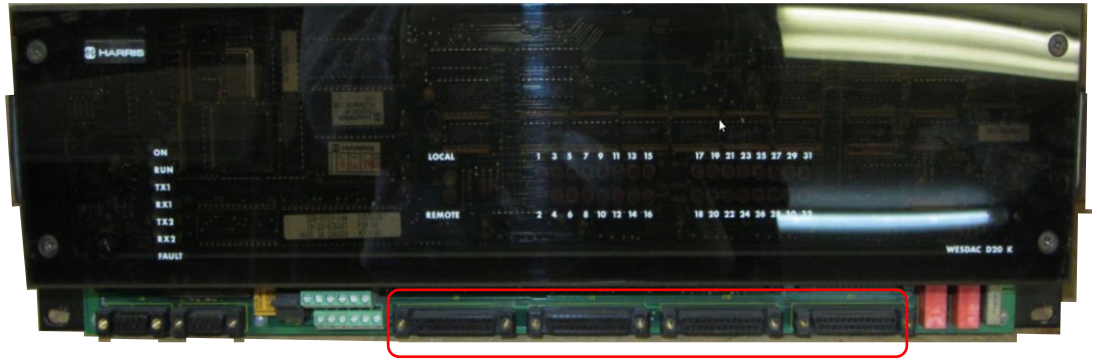
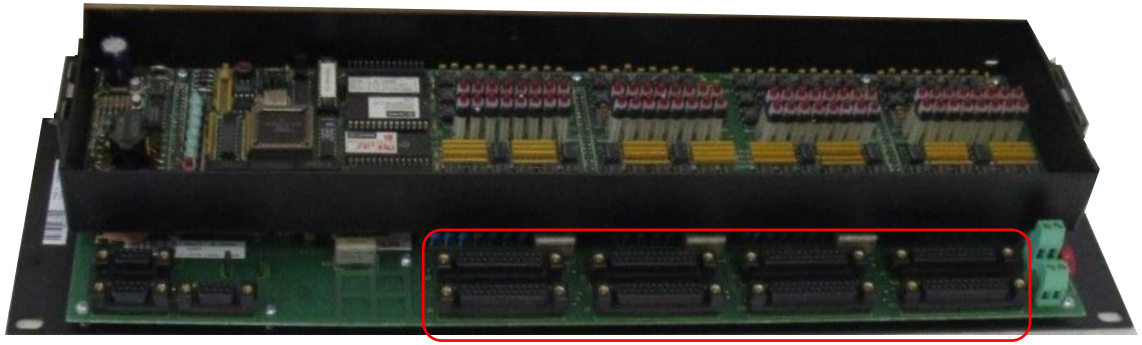
Example: D20 Modules with DB25 Connectors

D20AD 32 AI
with (4) DB25F connectors



D20KR 32 DO
with (4) DB25F connectors



D20SD 64 DI
with (8) DB25F connectors

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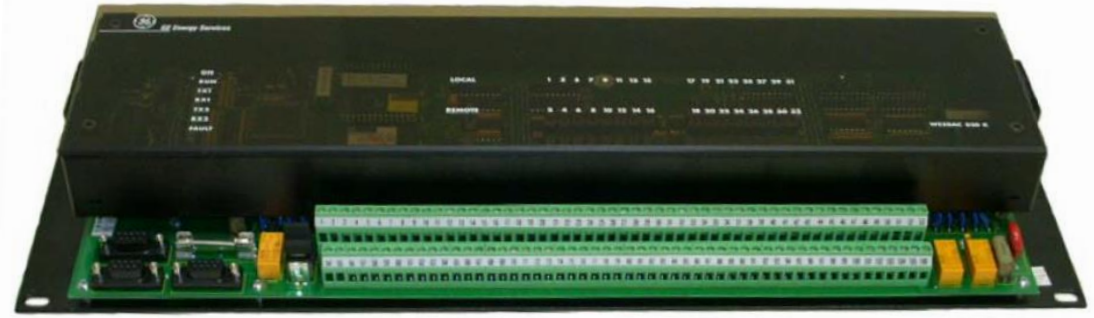
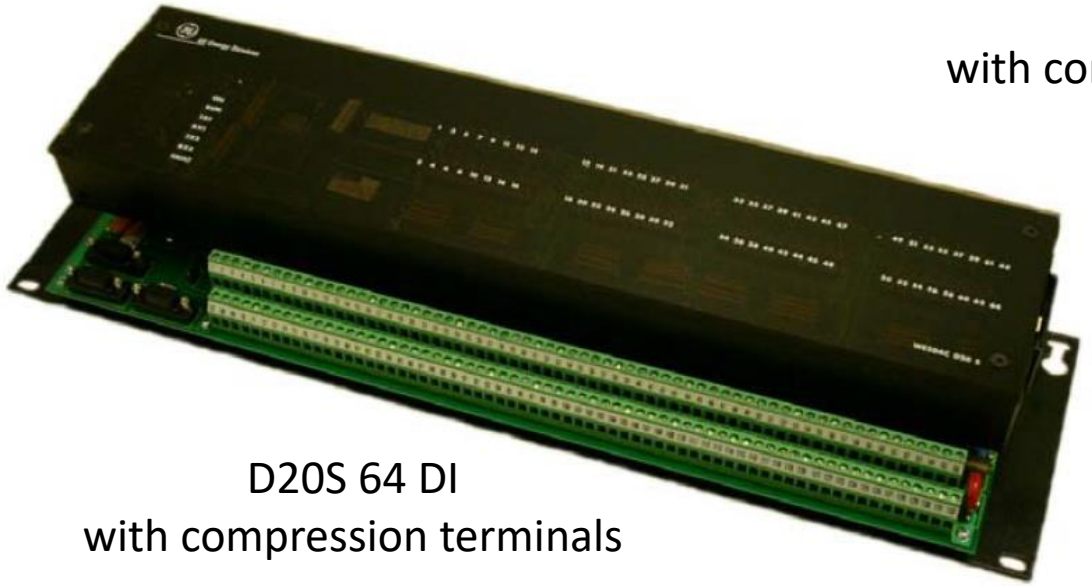
Example: D20 Modules with Compression Terminals (removable or non-removable)

D20A 32 AI
with compression terminals



D20K 32 DO
with compression terminals



D20S 64 DI
with compression terminals

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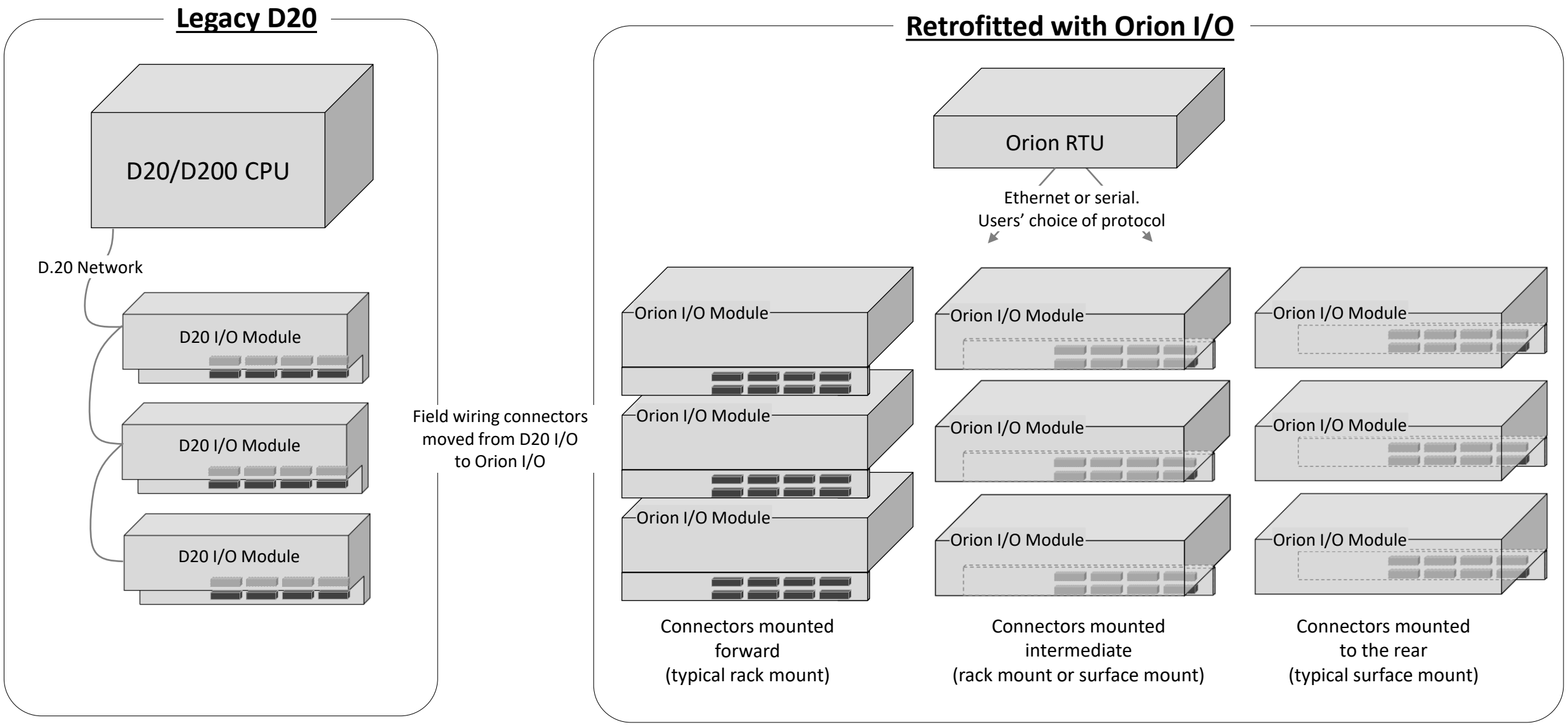
D20 RTU Retrofit Concept



D20 Retrofit Assemblies in 19” Rack

Replaces D20CD “Combination” card
Orion I/O shown with Advanced User Interface.

Replaces D20SD “Status” Input card.
Orion I/O shown with Advanced User Interface.

Replaces D20KR “Output” card
Orion I/O shown with Standard Faceplate.

D20SD Status Input Card

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Advanced Point Status and Diagnostics

Retrofit Assembly for:

Model	Connector(s)	Mounting
D20C	Compression to Inputs DB25 to outputs thru interposer panel	Surface

Discrete inputs
and
Analog Inputs

Low energy Discrete Outputs
to D20KI/KI2 interposer panel

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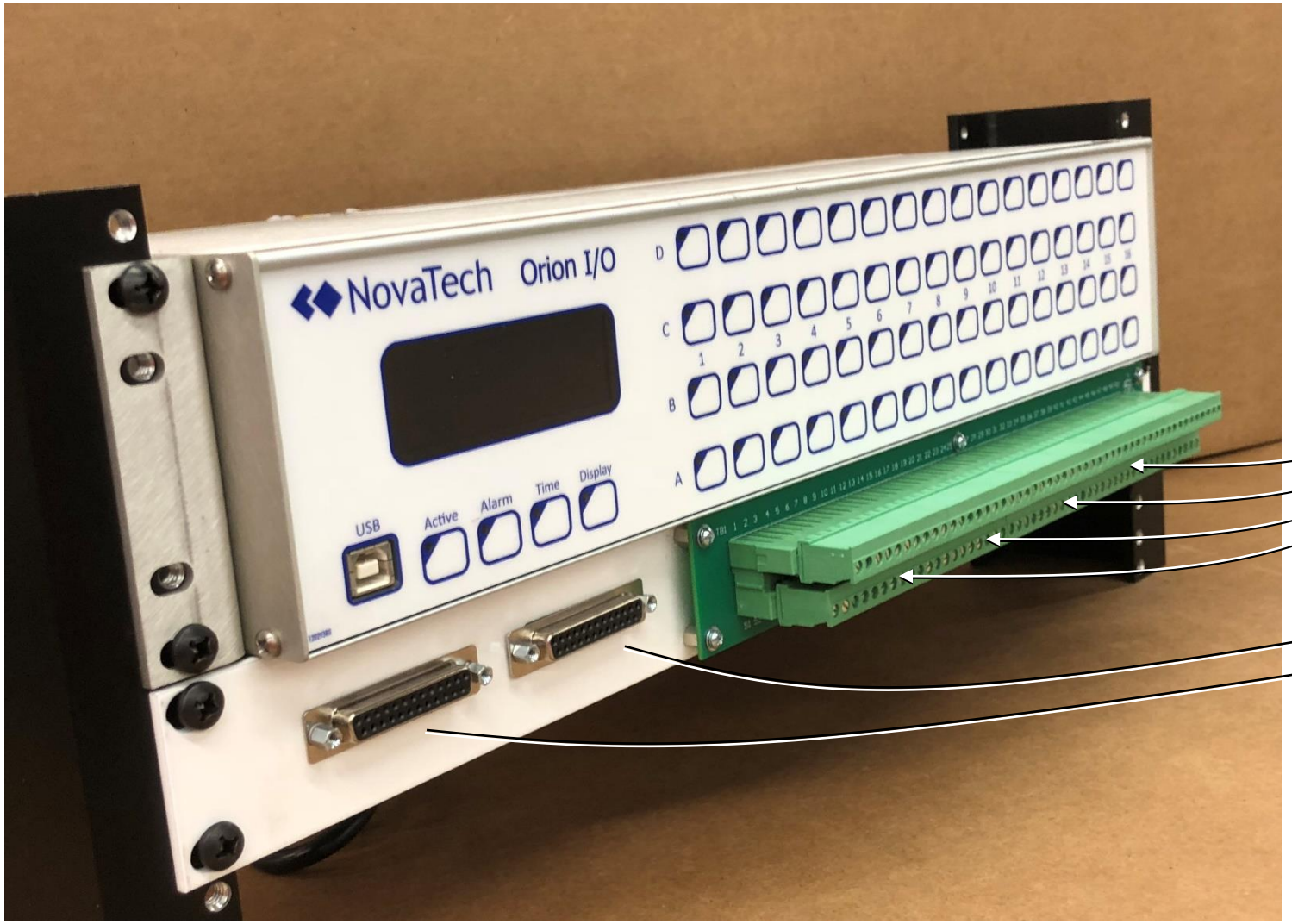
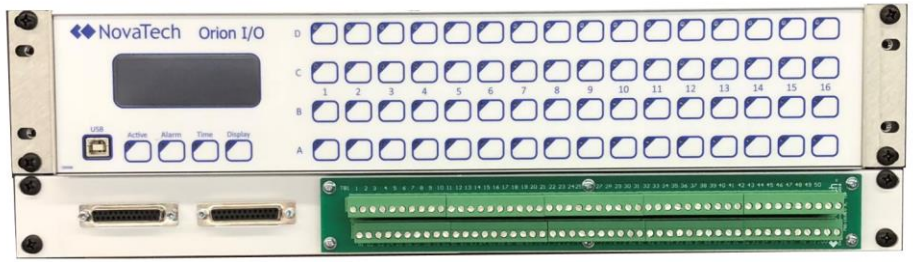
Retrofit Assembly for:

Model	Connector(s)	Mounting
D20C	Compression to Inputs DB25 to outputs thru interposer panel	19” Rack





Discrete inputs
and
Analog Inputs

Low energy Discrete Outputs
to D20KI/KI2 interposer panel

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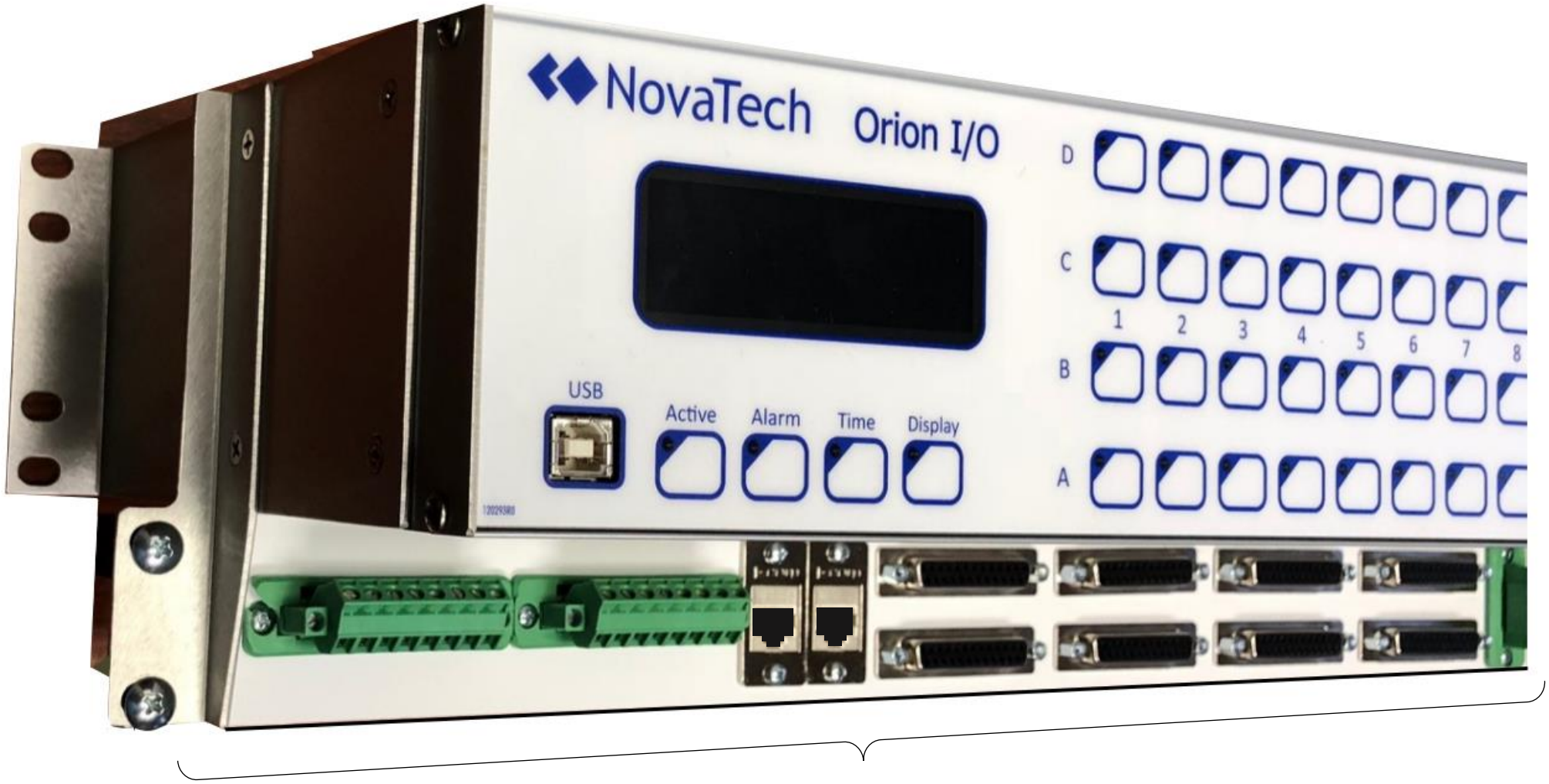
Retrofit Assembly for:

Model	Connector	Mounting
D20S	DB25	Surface



All wiring connections, power connections, serial connections and Ethernet connections made from the front

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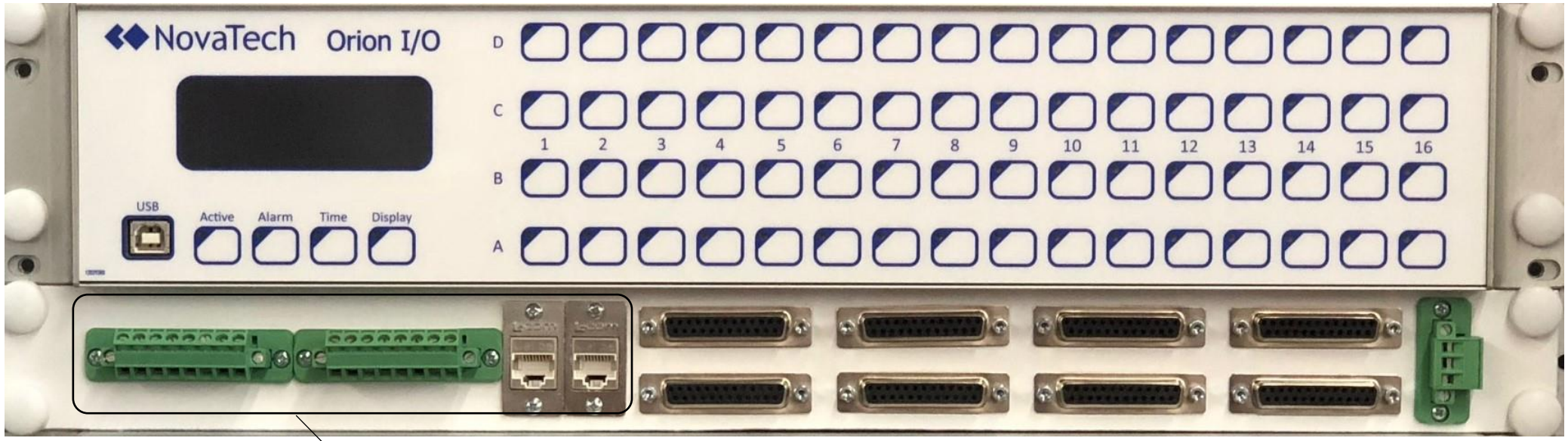
Retrofit Assembly for:

Model	Connector	Mounting
D20S	DB25	19” Rack

In 19” rack



Note that these connectors are built in but not populated on this 19” rack design.
These connectors are populated in the surface mount model

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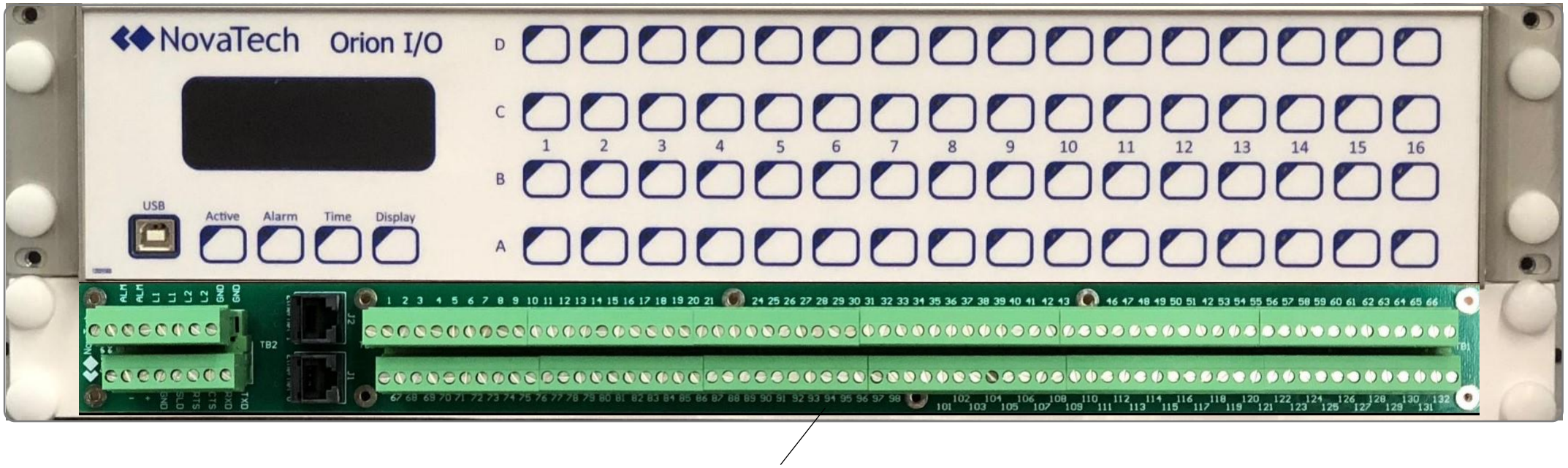
Retrofit Assembly for:

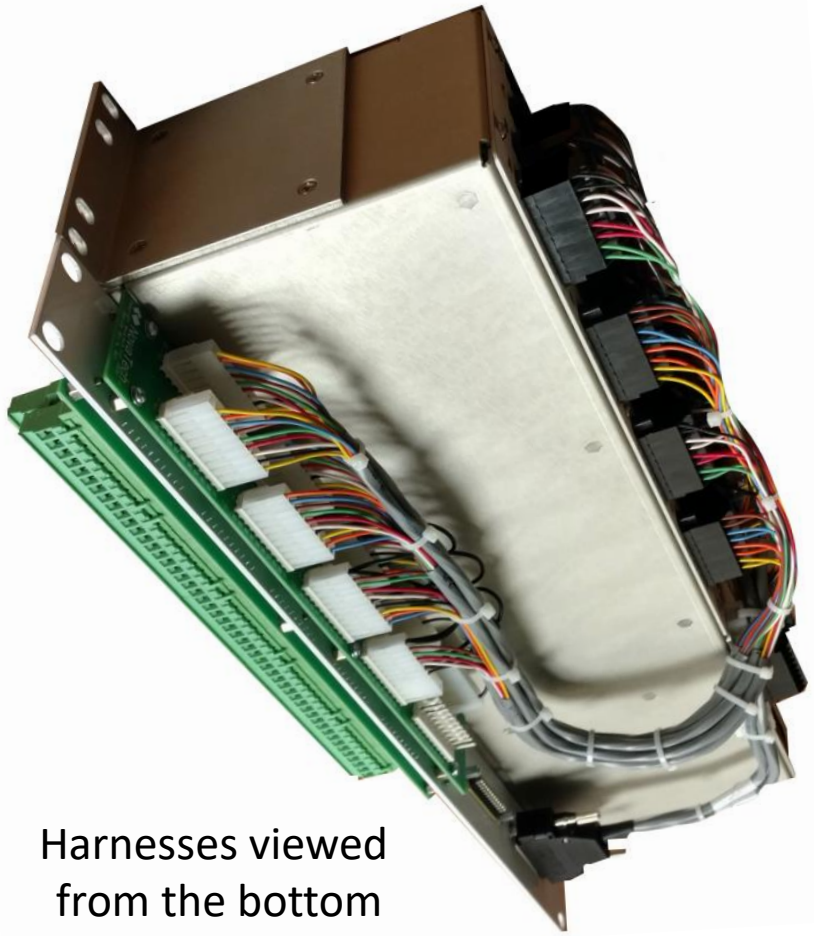
Model	Connector	Mounting
D20S	Compression	19” Rack



Standard-sized connectors for I/O wiring (5.08mm pitch)

Typical Factory-Built Wire Harnesses

Harnesses viewed from the top



Harnesses viewed from the bottom

NovaTech®

Hinge-mounting Surface Mount Option

Orion I/O with standard faceplate on hinged mount.
Engineering prototype in testing (September 2020)

NovaTech®

Thank You

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