DECS-2100

Digital Excitation Control System

Basler Now Part of Littelfuse®

Always Innovating. Always Evolving.

DECS-2100

The DECS-2100 is a powerful and flexible excitation platform. Its multifaceted and customizable design allows it to operate in a wide range of applications providing excitation currents up to 10,000 Adc. BESTCOMS*Pro* software complements the DECS-2100 by including many time-saving tools such as programmable logic, integrated simulator, and system monitoring.

Features

- Single, redundant, or dual with supervisor ECM-2 controllers
- Single, parallel, or redundant power converters
- Power cubicles feature redundant fans
- Field discharge resistor
- AC Power disconnect
- Field flashing contactor and resistors
- Touch screen HMI
- Fiber Optic communications

Modules

- Excitation Control
- Bridge Control
- Analog Input/Output
- Digital Input/Output
- Isolation Transducer
- Field Ground Detector
- De-Excitation/Crowbar
- Interactive Display Panel
- Voltage/Current Sensing

DECS-2100 Legacy

ECS2100

In 2006 Basler expanded our excitation product line to include the ECS2100, whose beginnings trace back to the Westinghouse WTA first released in 1962.

Shortly after this acquisition, we created the DECS-2100, leveraging the architecture of the ECS2100 while updating and modernizing every aspect of the system, from circuit boards to software. The DECS-2100 can meet the requirements of the largest and most demanding applications.

DECS-2100

Westinghouse WTA
(1962-1986)

WTA-300 (1984-1994)
WTA-300B (1992-2000)

WDR-2000
(1993-2000)

ECS2100
(2000-2011)

DECS-2100 System Examples

Custom Cubical Systems

DECS-2100 System rated for 1400 Adc
with dual Compact Rectifier Bridges

DECS-2100 System with N+1 redundancy
rated for 3,100 Adc and a Basler BE1-11

Static Excitation Systems

DECS-2100 System Examples

Power & Performance

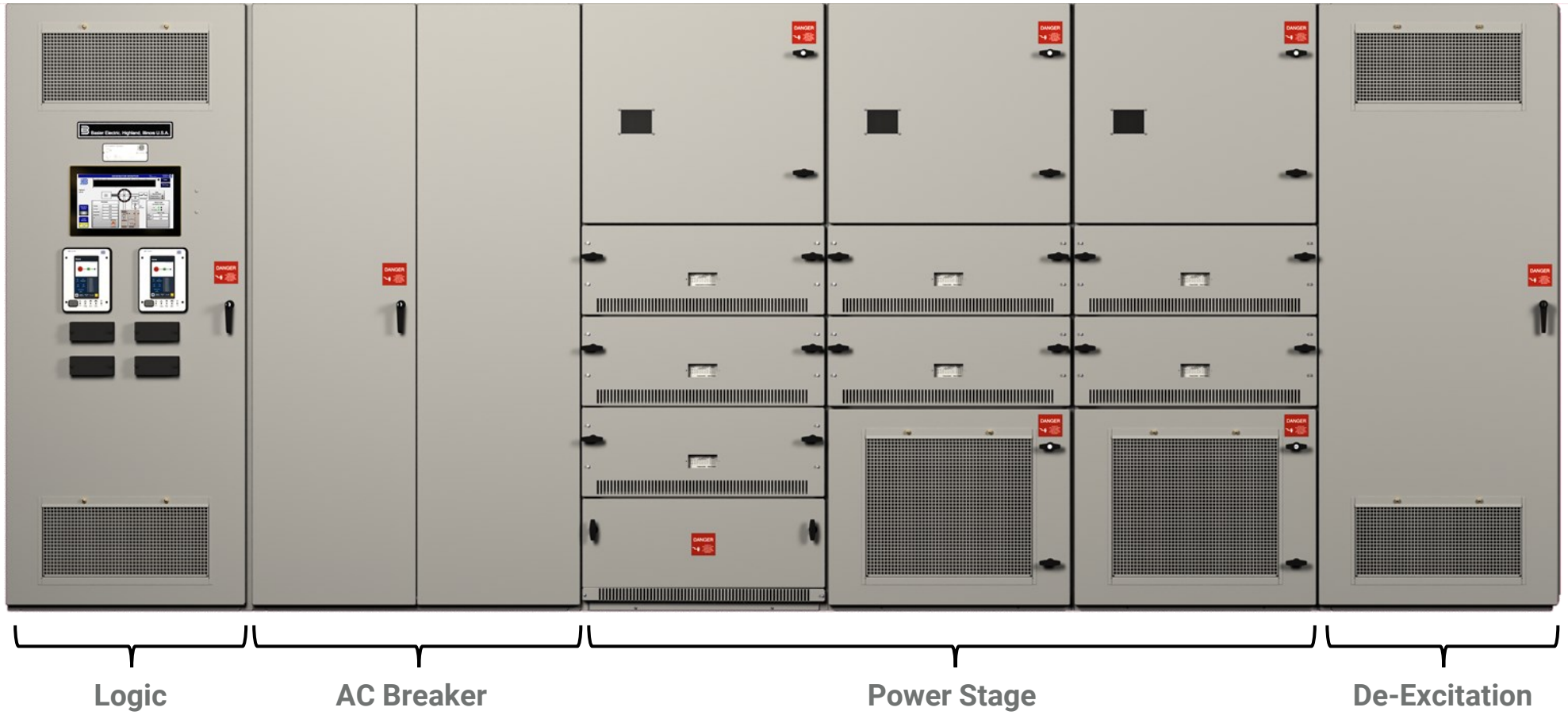
The system below is an example of a large DECS-2100 configuration. This specific system provides up to 8,140 amps of excitation current to the main field of a 970 MVA generator in the Midwestern US. The project included conversion of the generator from rotary to static excitation for increased performance and reduced maintenance. This DECS-2100 uses 14 parallel power drawers and can continue full load operation with up to two power drawers out of service.

DECS-2100 System

DECS-2100 System Examples

Typical Layout

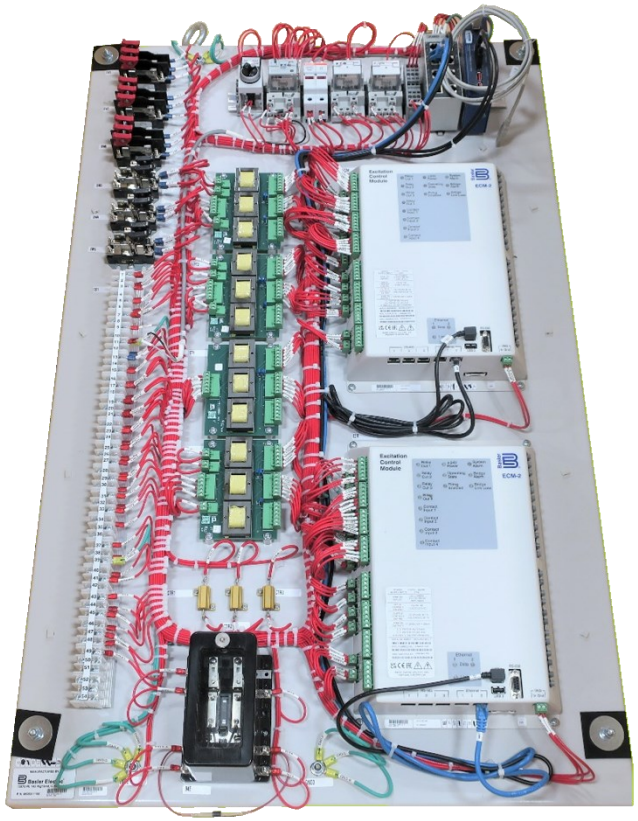
Systems using Power Drawers have a standard depth of 60” and require rear access. Shallow depth solutions using the Compact Rectifier Bridge or SSE-N family of rectifier bridges can depth as little as 36”. Systems can be designed to match existing bus and cabling and can include shipping splits for easy installation

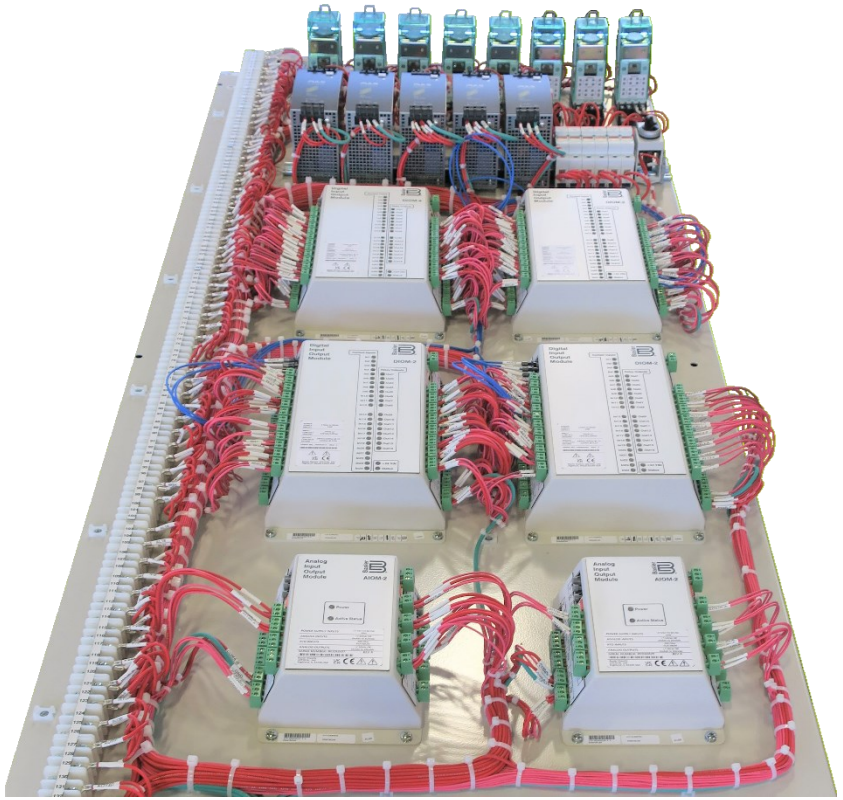


DECS-2100 System Examples

DECS-2100 Front-End Retrofit Kits

Most beneficial to users with large exciters where existing controls are obsolete or no longer supported by the original OEM.





DECS-2100 front-end retrofit panels

Less Time

DECS-2100 Front-End Retrofit kits come as custom pan chassis assemblies for a tailored fit in your existing control panels, saving installation time and effort.

Less Risk

Other OEMs obsolete and discontinue support for legacy excitation systems, sometimes considerably sooner than industry expectations. Basler has a long history of supporting products and providing upgrade paths when original components are no longer available.

A retrofit kit reduces the risk of a long term unplanned outage that comes from being forced to replace an entire system when only the controls fail.

Less Cost

Reusing the long-lasting power components of the excitation system reduces overall project cost, allowing for critical controls updates when a completely new system isn't financially justifiable.

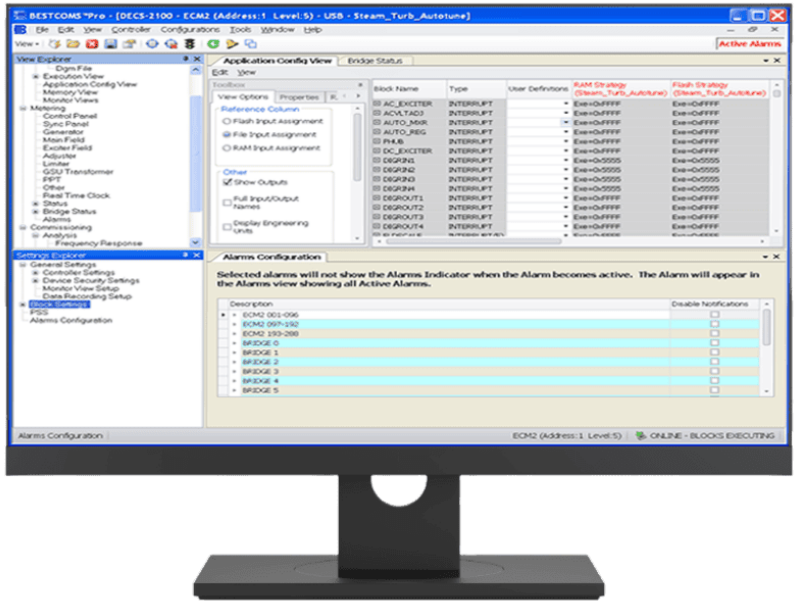
BESTCOMS*Pro*

Configuration Software

BESTCOMSPro configuration software is the primary tool used for initial setup and commissioning of ECS2100 and DECS-2100 systems. It is free to use and combines powerful tools for testing, monitoring, and operation.

BESTCOMS*Pro* Features

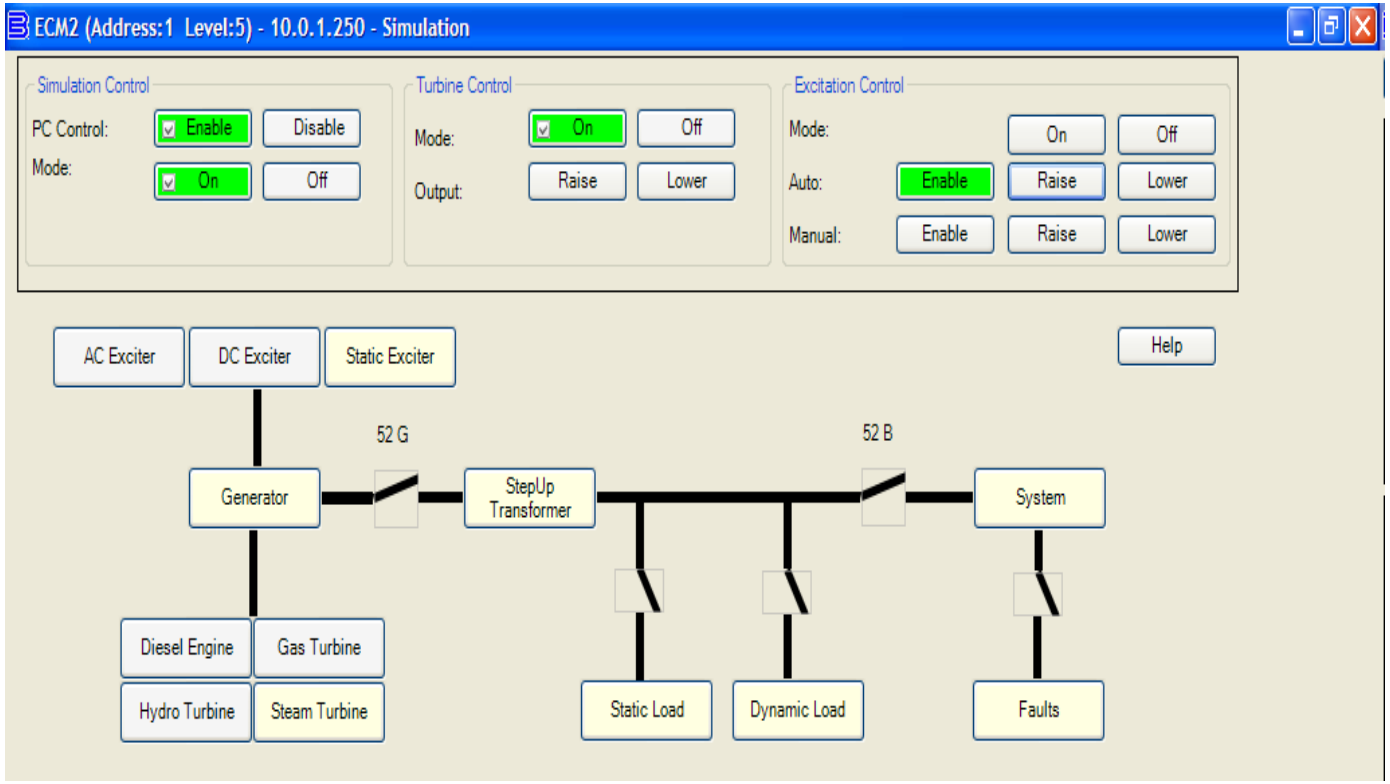
- "Easy screens" streamline setup and testing
- Built in generator simulator
- Commissioning tools
- Real Time chart recorder
- Access control levels
- Multiple ways to view settings
- BESTspace allows for multiple views
- Microsoft Windows compatible
- Replacement for ccTools and compatible with ECS2100

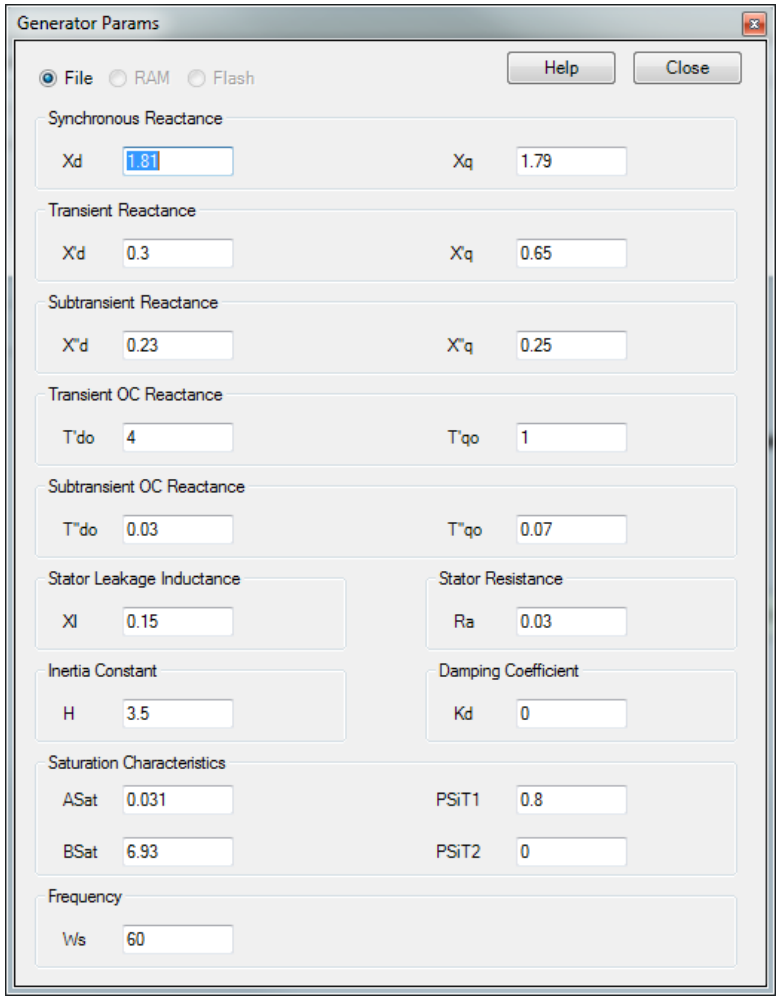


BESTCOMS*Pro*

Generator Simulator

The integrated generator simulator allows you to get a head start on commissioning and tuning before turning on your machine. It has adjustable parameters for a variety of machine types and load transients.

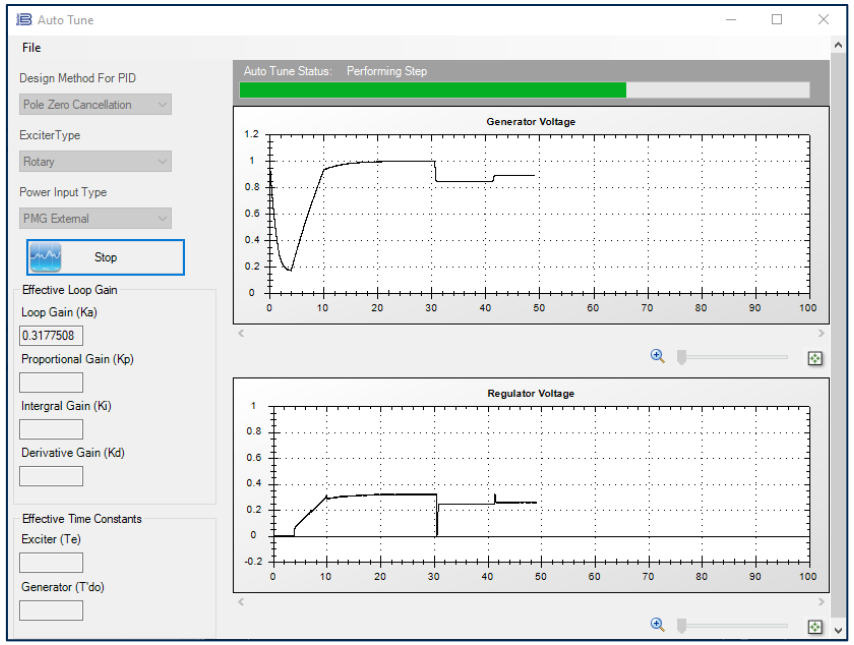




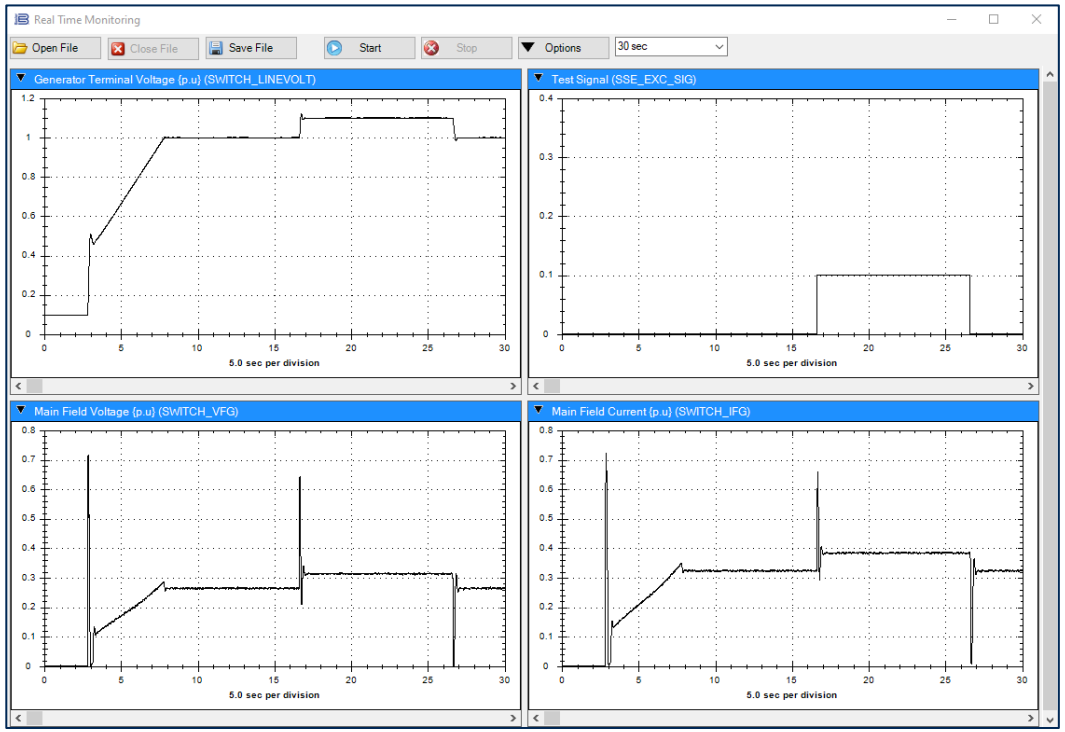
BESTCOMS*Pro*

Commissioning Tools

BESTCOMS*Pro* offers a number of tools to streamline commissioning. Autotuning can identify initial gains and generator time constants while real time monitoring and the step/time response tool allows for manual gain adjustment. The frequency response of the system can be found with either the frequency sweep or white noise tools.



Auto Tuning



Real Time Monitor

Commissioning Tools

- Auto Tuning
- Step Response
- Frequency Response
  - Frequency sweep
  - White noise Generator
- Real Time Monitoring of up to 6 parameters

BESTCOMS*Pro*

System Views

BESTCOMS*Pro* offers a diagram view with interconnected logic blocks, clearly showing how a system is configured. An execution view is also available, showing the same data in a more condensed format for experienced users needing quick access.

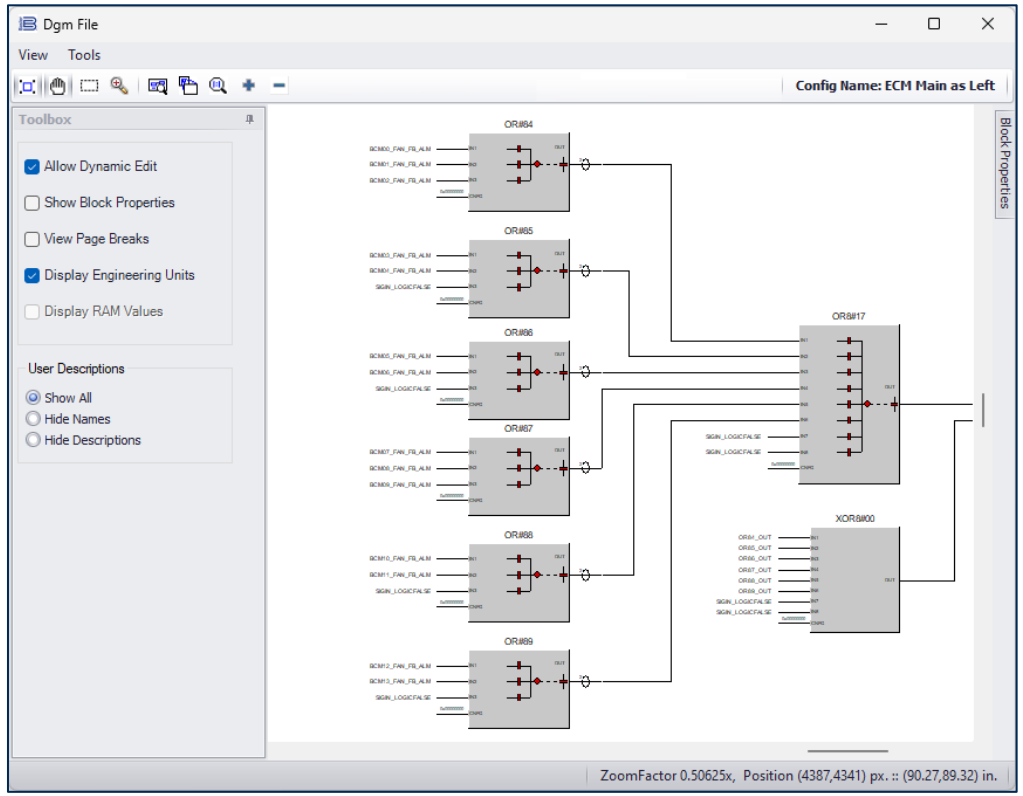
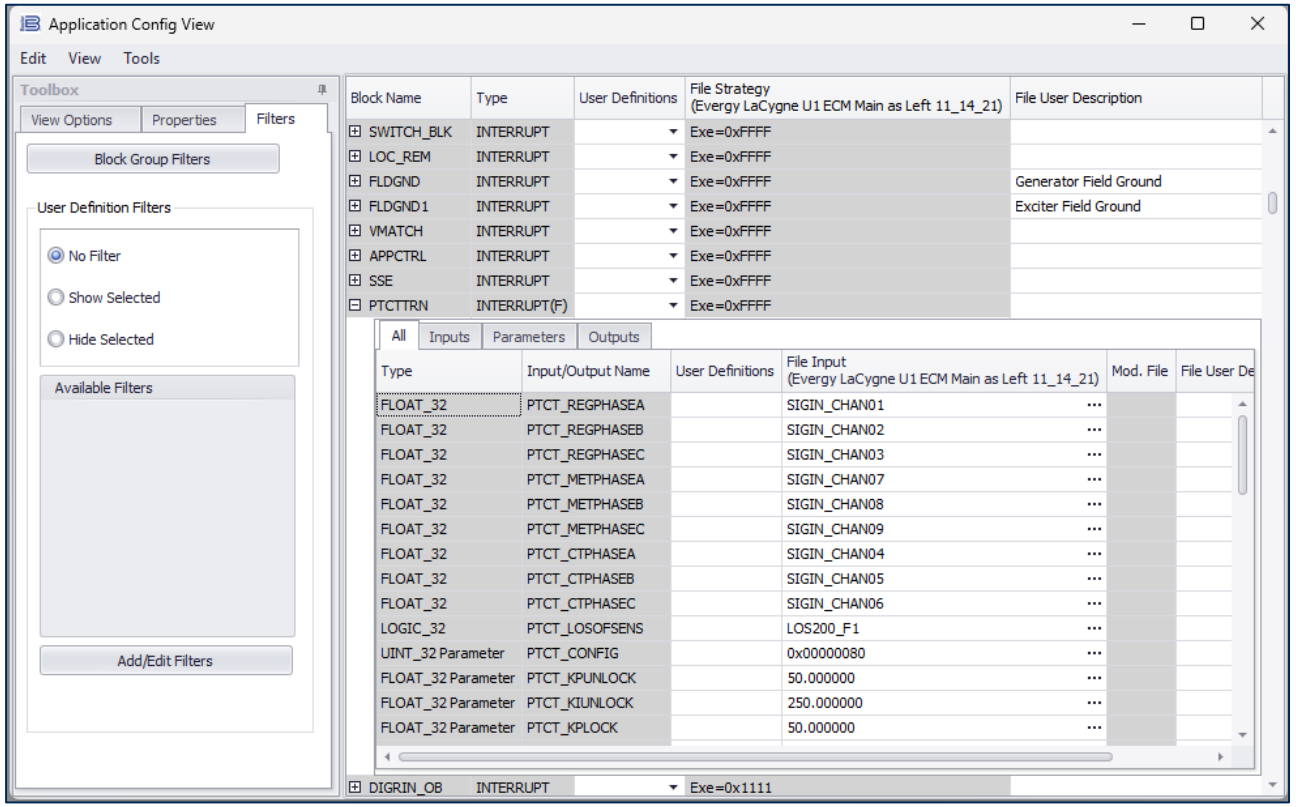


Diagram View

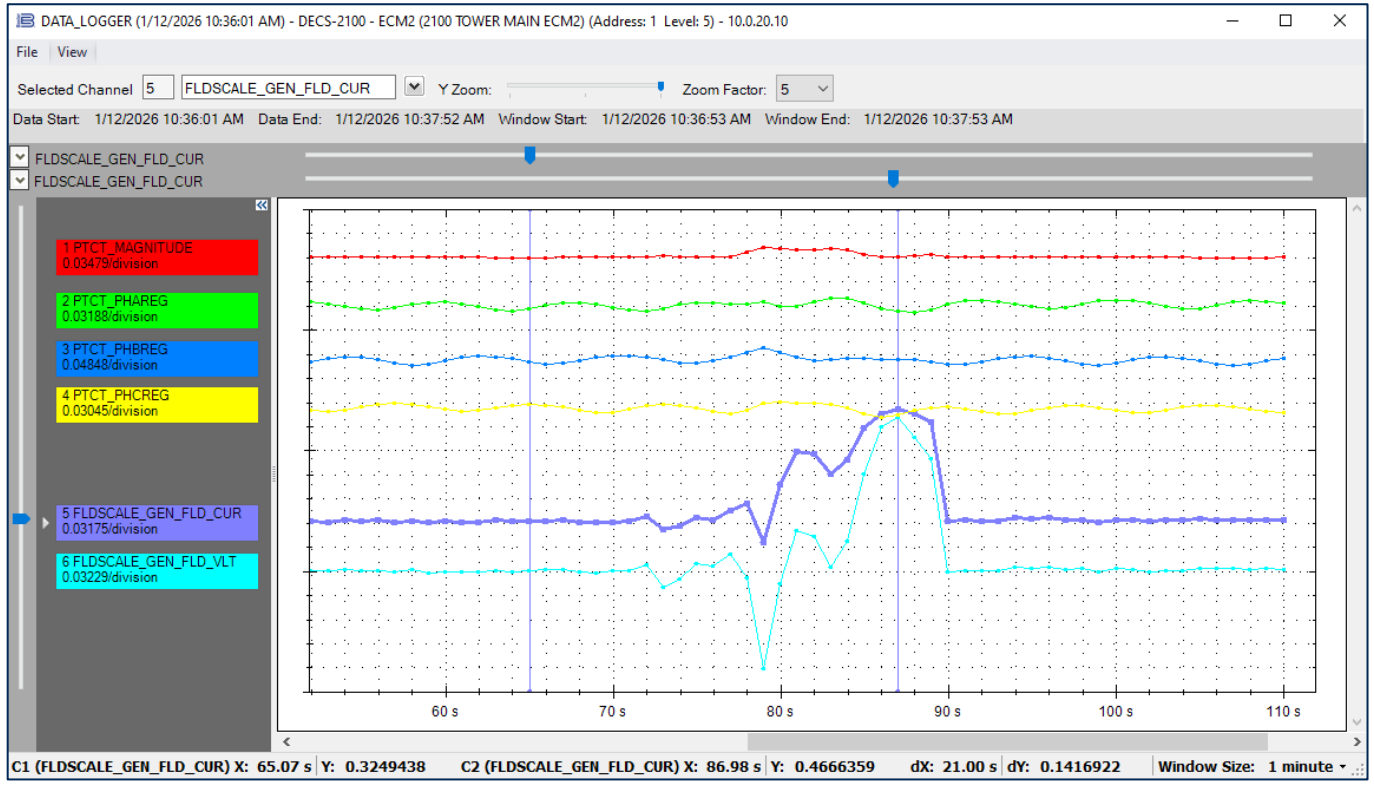


Execution View

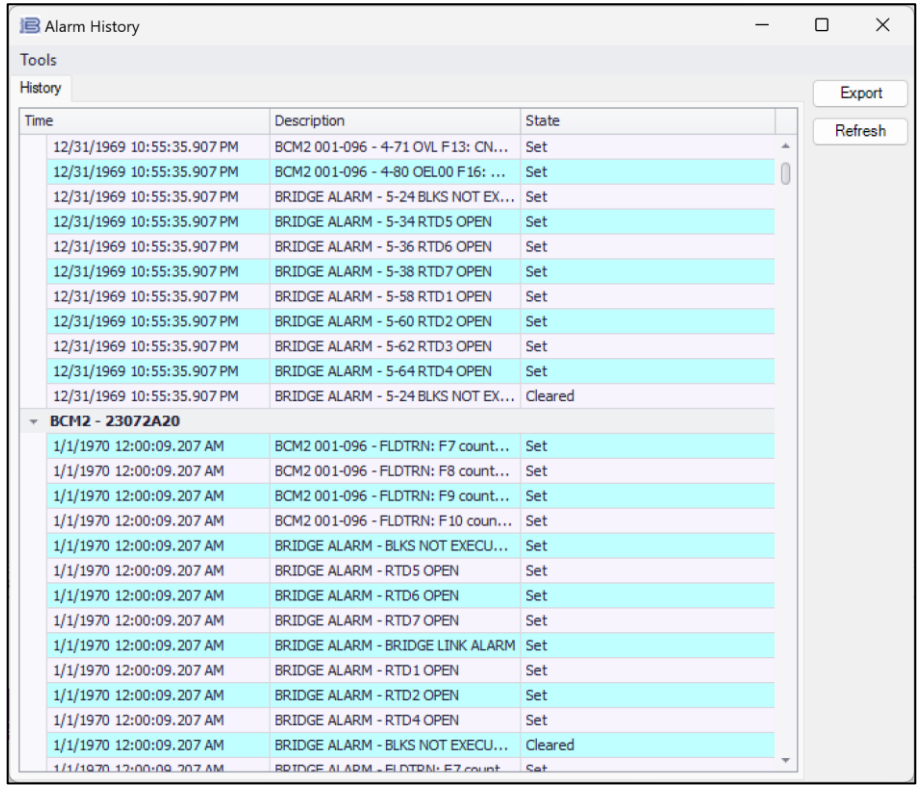
BESTCOMS*Pro*

Troubleshooting Tools

Sequence of Events, Trending and Event Data logging captured by the DECS-2100 are all accessible and viewable within BESTCOMS*Pro*.



Data Log Viewer

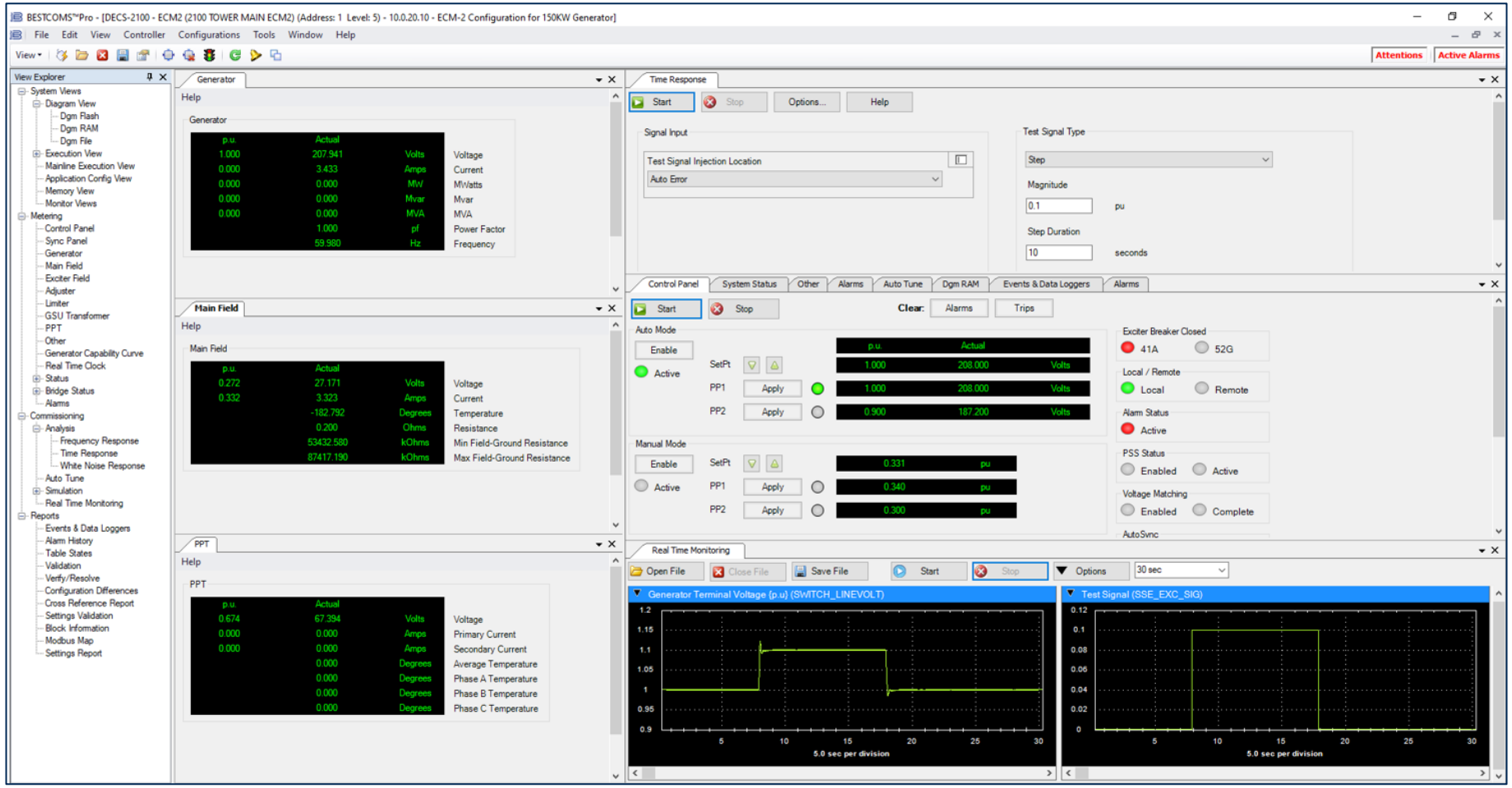


Sequence of Events / Alarm History

BESTCOMS*Pro*

BESTspace

The tabbed interface and drag-able elements allow BESTCOMS*Pro* to be customized as needed. The “BESTspace” layout can be saved and reused to make every interaction more familiar.



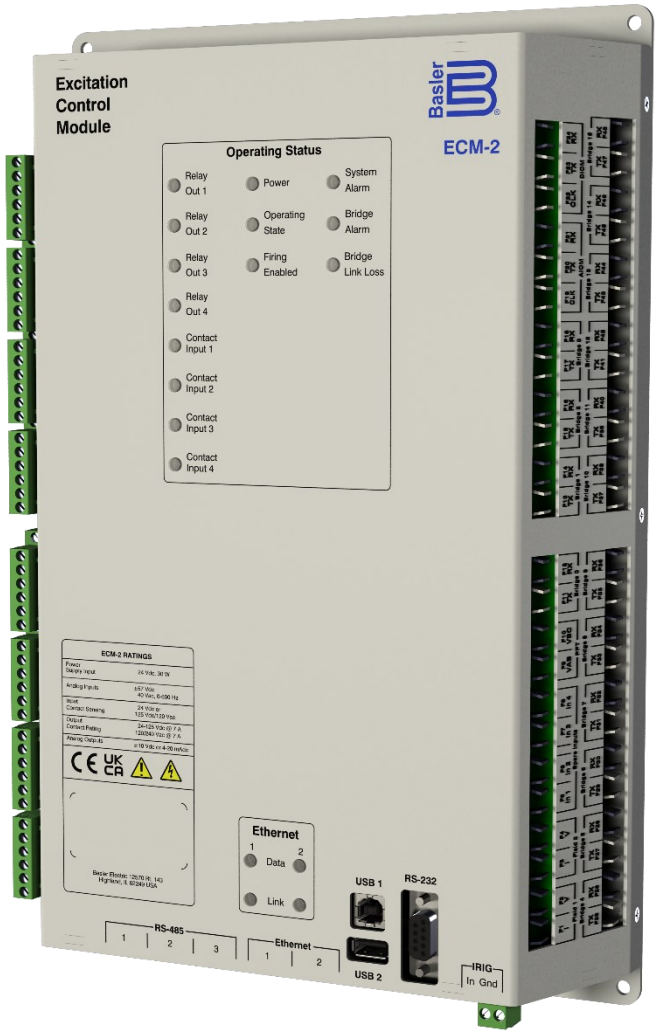
Excitation Control Module

ECM-2

The ECM-2 Excitation Control Module provides the core functions of regulation, generator sensing, protection and thyristor firing control in a DECS-2100 Digital Excitation Control System.

ECM-2 Ratings

- **Control Power:** (2) 24 Vdc
- **Contact Inputs:** (4) ± 24 Vdc or 125Vdc/120Vac
- **Relay Outputs:** (4) 7.0 A Carry
- **Analog Inputs:** (24) 57 Vdc / 40 Vac
- **Analog Outputs:** (2) 4-20 mA or ±10 Vdc



Communications

- **USB** Device (1), Host (1)
- **Ethernet** (2)
- **RS-232** (1)
- **RS-485 Modbus** (3)
- **IRIG** (1)

Fiber Optic Channels

- **Bridge Control** (up to 16 modules)
- **Digital I/O** (up to 2 modules)
- **Analog I/O** (up to 2 modules)
- **Isolation Transducers** (5 modules)

Ordering Information

- **Up to 4 Rectifier Bridges** 9411300100
- **5-16 Rectifier Bridges** 9411300101

Excitation Control Module

ECM-2

Features and Functions

The ECM-2 offers a plethora of control and protection features and functions suitable for any application.

Control Modes

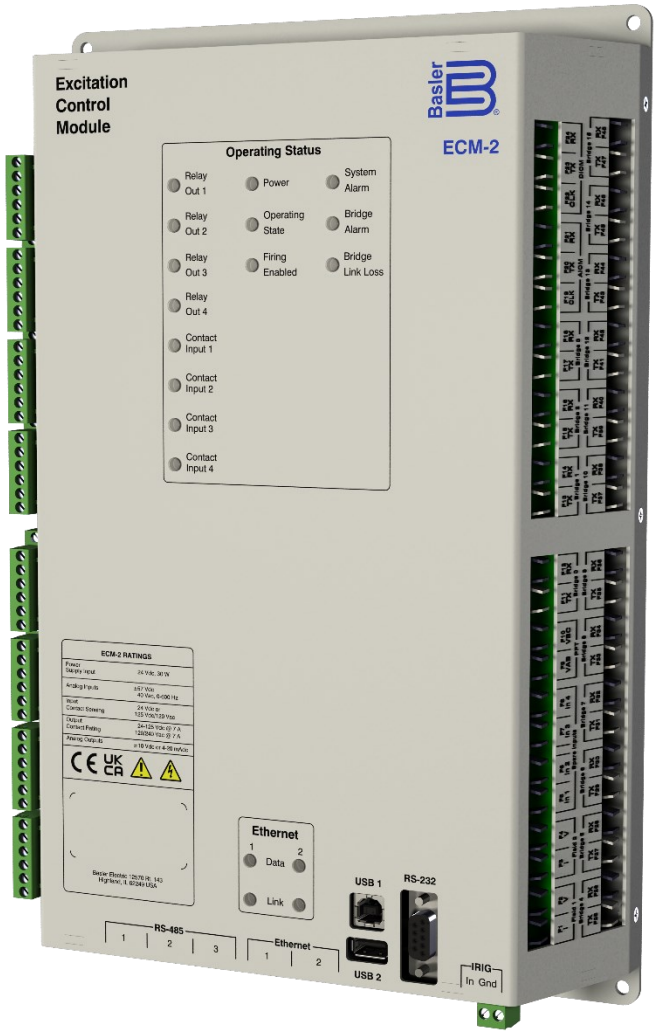
- **Automatic Voltage Regulation**
- **Field Current Regulation**
- **Field Voltage Regulation**
- **Var Regulation**
- **Power Factor Regulation**
- **Droop & Line Drop Compensation**
- **Network Load Sharing**

Protection

- **Over/Undervoltage**
- **Volts per Hertz**
- **Overexcitation**
- **Loss of Field/Underexcitation**
- **Loss of Sensing**
- **Phase Unbalance**
- **Field Ground**

Limiters

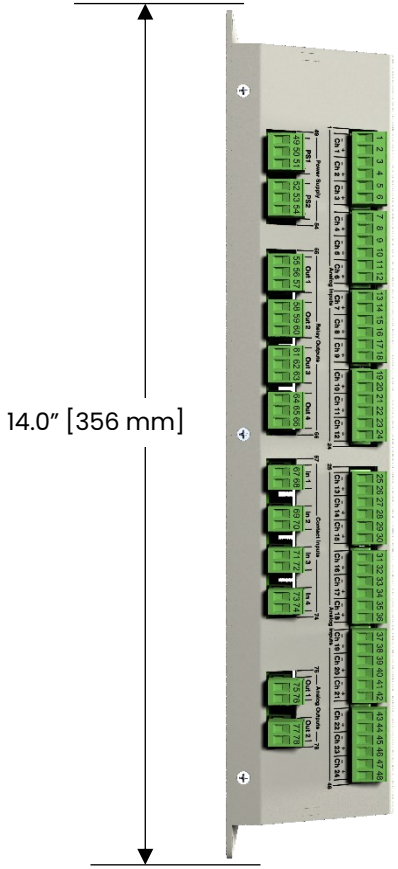
- **Minimum Excitation Limiter (MEL)**
- **Minimum Field Excitation Limiter (MFEL)**
- **Underexcitation Limiter (UEL)**
- **Overexcitation Limiter (OEL)**
- **Instantaneous Overcurrent Limiter**
- **Undervoltage Limiter**
- **Overvoltage Limiter**
- **Var Limiter**
- **Volts per Hertz Limiter**
- **Generator Line Current Limiter**

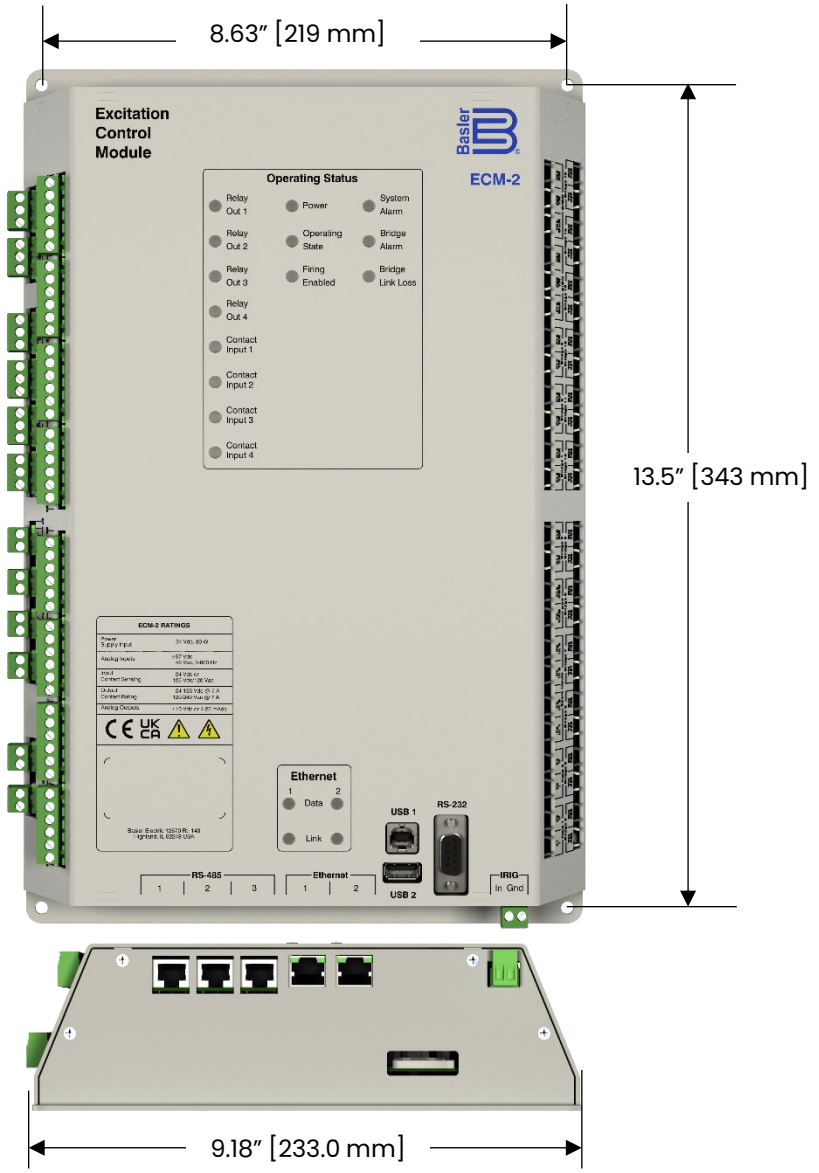


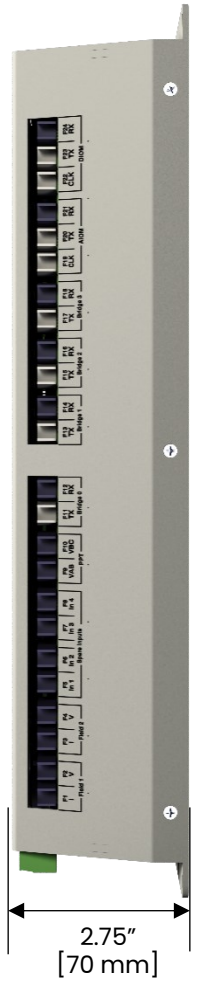
Excitation Control Module

ECM-2

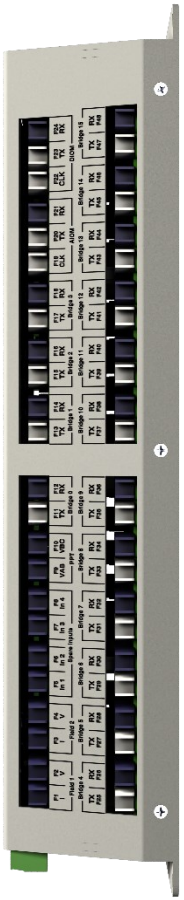
Weight and Dimensions







4 Rectifier
Bridge Version



5-16 Rectifier
Bridge Version

Weight:
5.0 lbs [2.27 kg]

Dimensions:
9.18 x 14 x 2.75 inches
[233 x 356 x 70 mm]

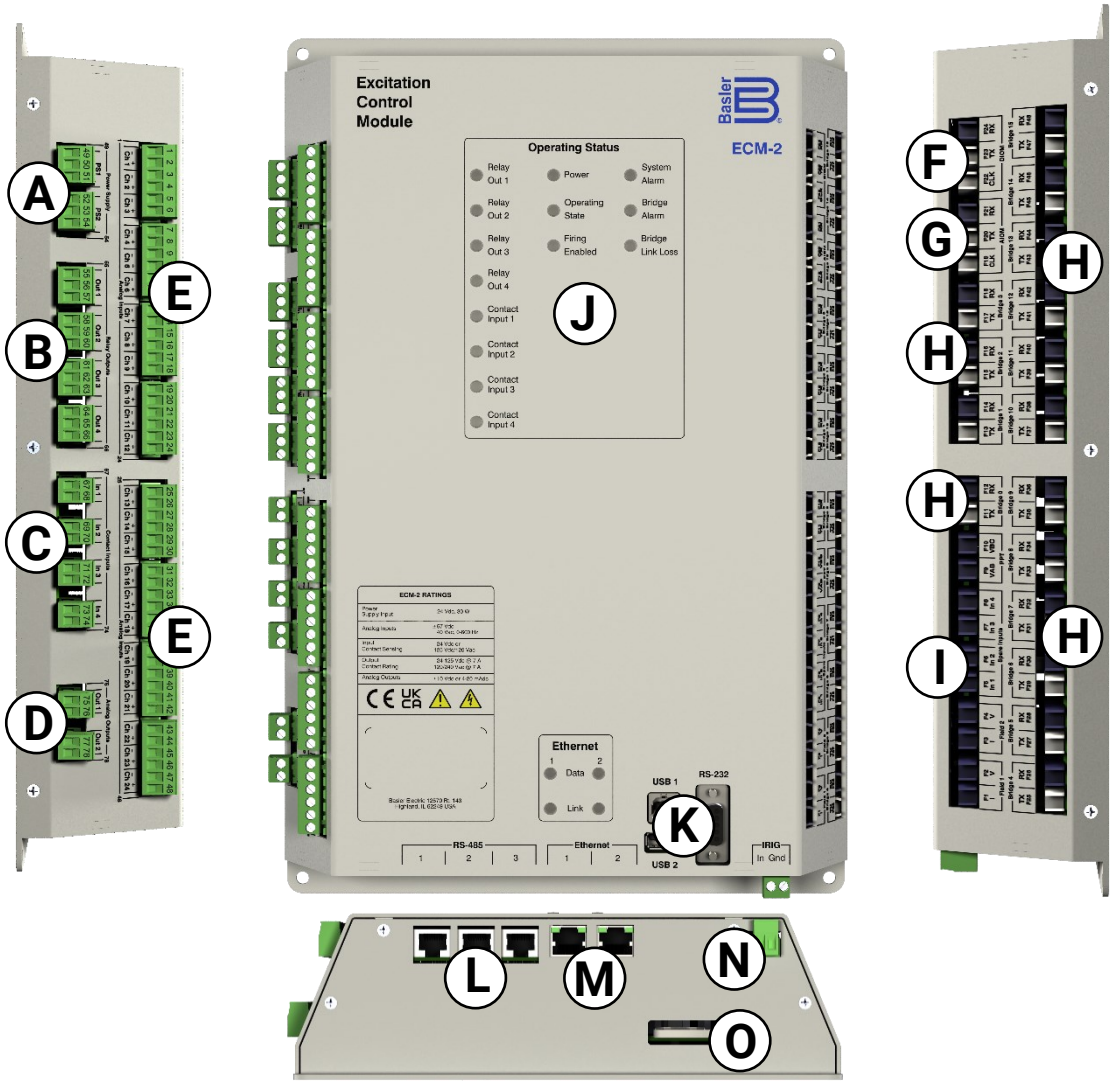
Excitation Control Module

Terminals and Connections

ECM-2

Connection Table

- **A** Redundant Power Supplies
- **B** Relay Outputs
- **C** Contact Inputs
- **D** Analog Outputs
- **E** Analog Inputs
- **F** Digital I/O Module connection
- **G** Analog I/O Module connection
- **H** Bridge connections
- **I** Isolation transducer connections
- **J** LED Indicators
- **K** USB & RS-232
- **L** RS-485
- **M** Ethernet
- **N** IRIG
- **O** Backup Battery



Excitation Control Module

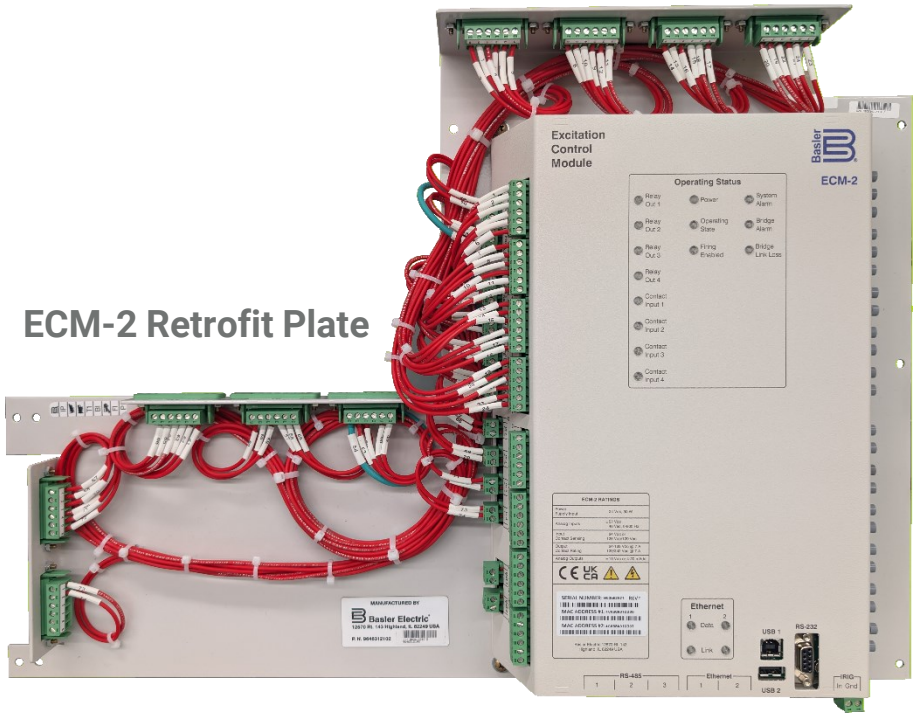
ECM-2

Retrofit of the legacy Digital Input Output Module

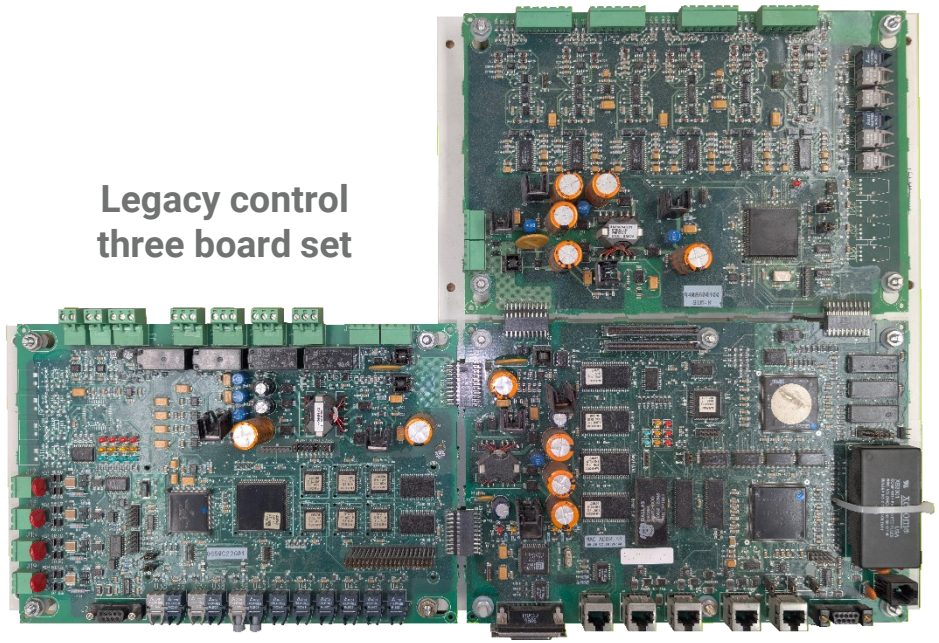
ECM-2 was designed to replace the ECS2100 three board control set. It seamlessly interfaces with existing modules and with the retrofit plate (9469400100 & 101), wiring changes are minimized. ECM-2 is easy to configure with BESTCOMS*Pro* software and offers a host of new features!

Retrofit Features

- Compatible with all ECS2100 modules.
- System life can be extended.
- Minimal wiring changes.
- All ECM-2 features are available on a legacy system.



ECM-2 Retrofit Plate



Legacy control three board set

Bridge Control Module

BCM-2

The BCM-2 Bridge Control Module monitors and controls a single SCR based power stage. Each BCM-2 generates the gating pulses for a six SCR bridge based on the needs of the larger system. It monitors SCR conduction, bridge temperature, operating power, and control signals. Status and control are available via Ethernet (Modbus) and relay contacts.

BCM-2 Ratings

- **Control Power:** ± 24 Vdc (Redundant)
- **Channel Select:** ± 24 Vdc
- **Analog Inputs:** (6) ±15 Vdc, 10 Vac
- **RTD Inputs:** (7) 100 Ω Platinum (2 wire)
- **Contact Inputs:** (5) ± 24 Vdc or 125Vdc/120Vac
- **Relay Outputs:** (4) Form C, 7.0 A Carry

Communications

- **USB (Device)**
- **Ethernet**

Ordering Information

Standard BCM-2	9500500100
No Pulse Transformers	9500500101

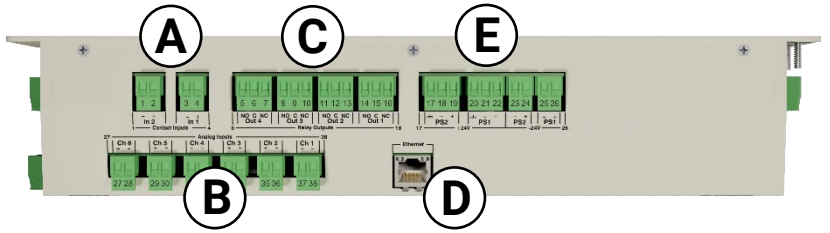
Bridge Control Module

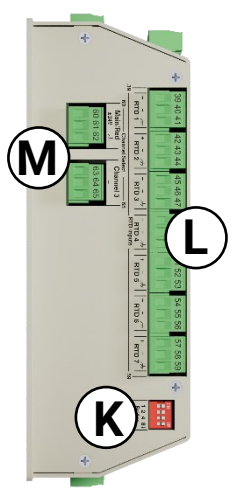
BCM-2

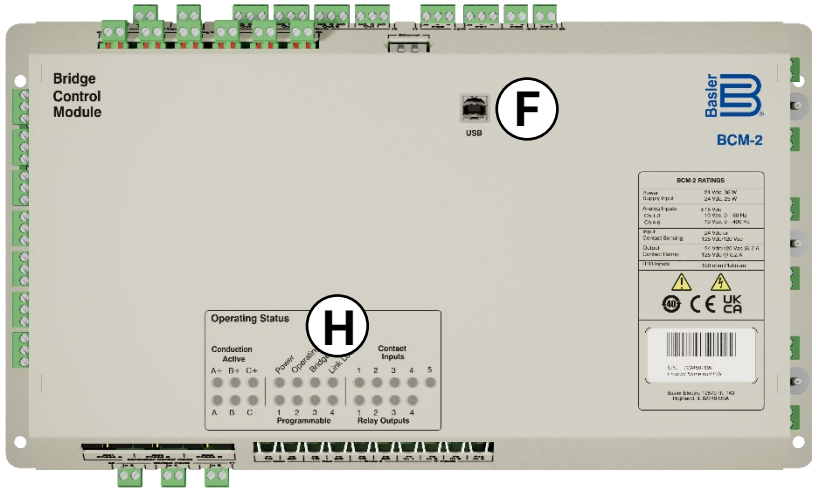
Terminals and Connections

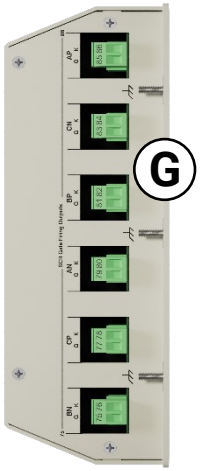
Connection Table

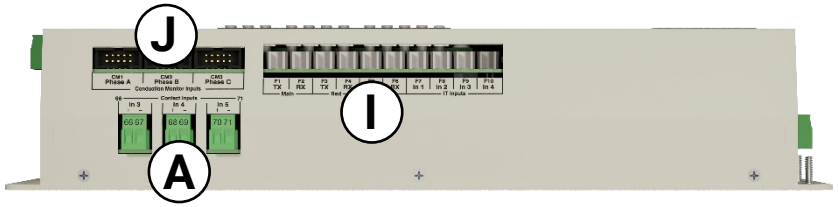
A	Digital inputs In1-In5 accommodate 24 Vdc, 125 Vdc, or 120 Vac
B	Auxiliary 10 Vac / ±15 Vdc analog inputs are Ch1-Ch6.
C	Form-C relay output contacts Out1-Out4 accommodate 125 Vdc/120 Vac, maximum.
D	RJ-45 Ethernet for Modbus TCP and BESTCOMSPro.
E	Redundant power supply input connectors.
F	USB, Type-B communication port.
G	SCR gate pulse connections for Gate (G) and Cathode (K).
H	Conduction Monitor, Diagnostic, Programmable, Contact Input, and Relay Output LED indicators.
I	Fiber optic communication connectors. F1–F6 connect to ECM-2 or FCIM. F7–F10 connect to the system IT modules (if equipped).
J	Conduction monitor connections, CM1, CM2, and CM3.
K	Bridge number selection switches.
L	Bridge heat sink temperature input connectors RTD1-RTD7.
M	Channel selection input connectors Main/Red and Channel 3.







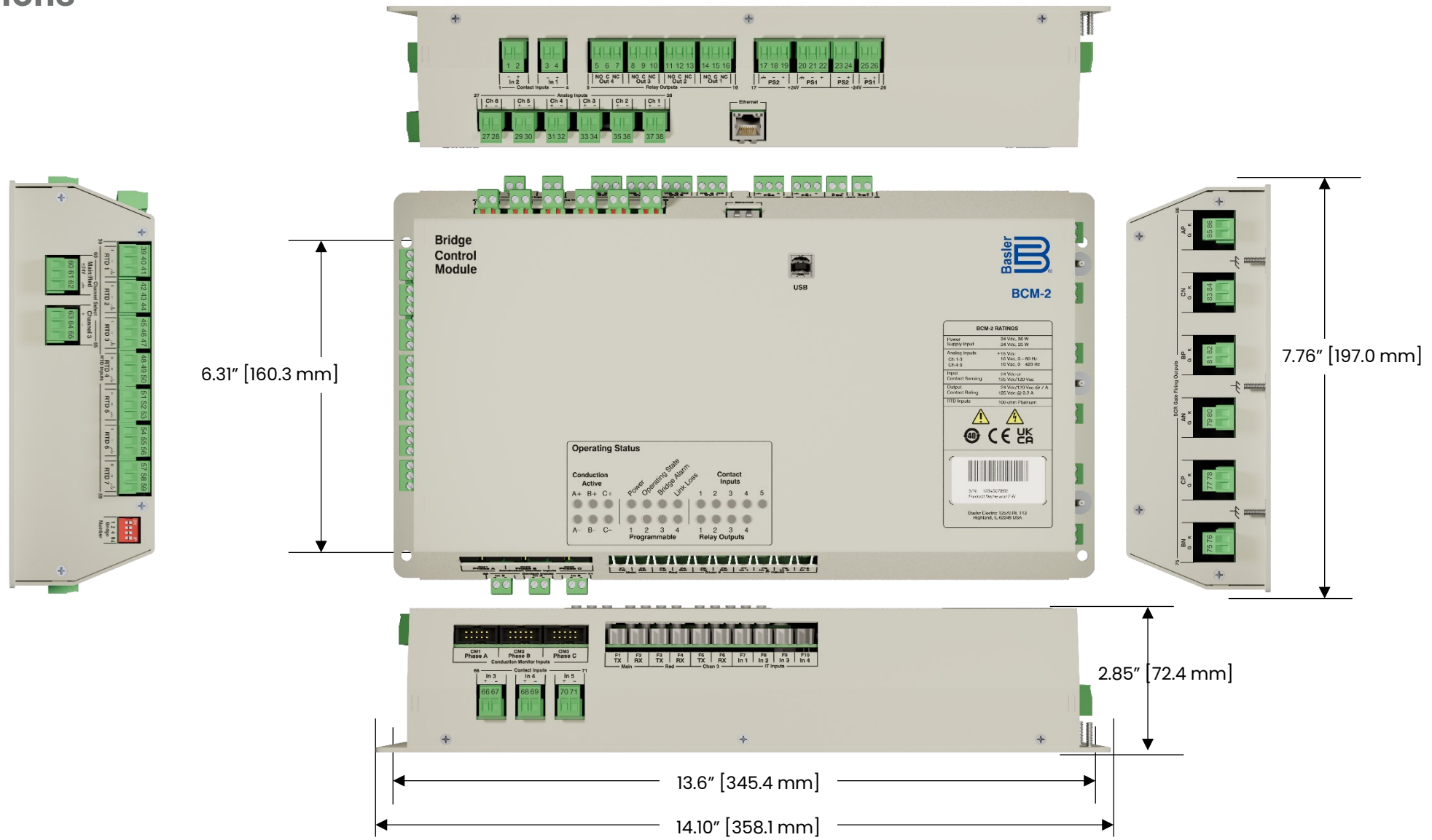




Bridge Control Module

BCM-2

Weight and Dimensions



Weight:
4.5 lb [2.04 kg]

Dimensions:
14.10 x 7.76 x 2.75 inches
[358.1 x 197.0 x 69.85 mm]

Bridge Control Module

BCM-2

Retrofit of the legacy Digital Input Output Module

The BCM-2 was designed with retrofitability in mind. It is a direct replacement for the legacy Bridge Control Module used in DECS-2100 and ECS2100 systems. It is also a replacement for the IFM-105 and IFM-150 firing circuits used with DECS-400 and DECS-450 systems.

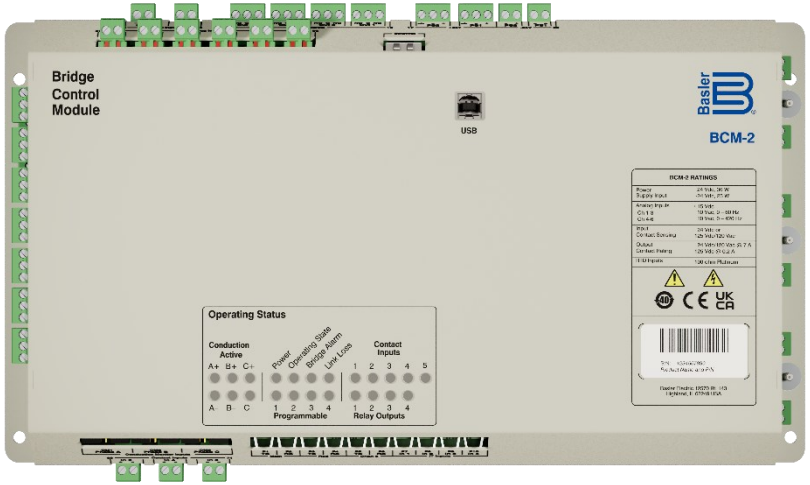
BCM-2 Design Improvements

- Direct USB Communication
- More contact inputs, 5 vs. 2
- Analog Inputs
- Clear labeling of LED indicators and connections

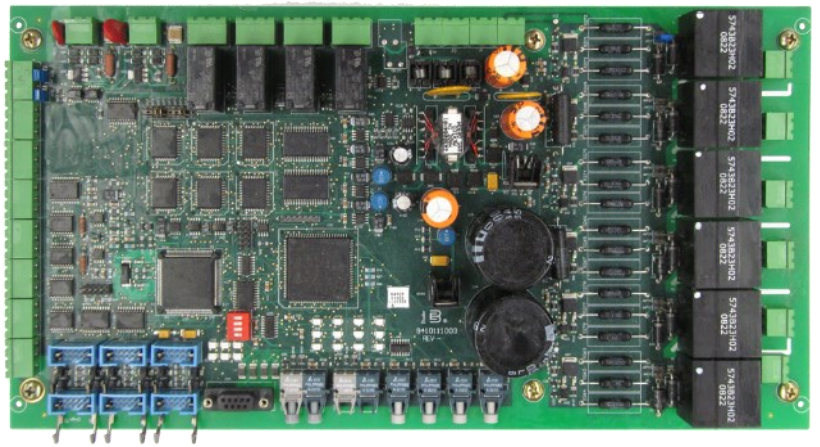
Retrofit Features

- Same footprint as BCM
- All indication LEDs are now labeled and visible from Power Drawer cover window
- BESTCOMS*Pro* Support
- Wiring connections are in the same location.

BCM-2



Legacy BCM



Analog Input Output Module

AIOM-2

Expand the capabilities of your DECS-2100 or ECS2100 digital excitation control system with the AIOM-2 Analog I/O Module. It adds four analog inputs, two RTD inputs, and eight analog outputs via a dedicated, noise-immune fiber optic link. For maximum flexibility, daisy-chain two modules to double your analog I/O capacity to 8 analog inputs, 4 RTD inputs, and 16 analog outputs

AIOM-2 Ratings

- **Control Power:** 24 Vdc (Redundant)
- **Channel Select**: ± 24 Vdc
- **Analog Inputs:** (4) ±10 Vdc or 4-20 mA
- **RTD Inputs:** (2) 100 Ω Platinum (2 or 3 wire)
- **Analog Outputs:** (8) ±10 Vdc or 4-20 mA

Ordering Information

- **AIOM-2** 9500700100

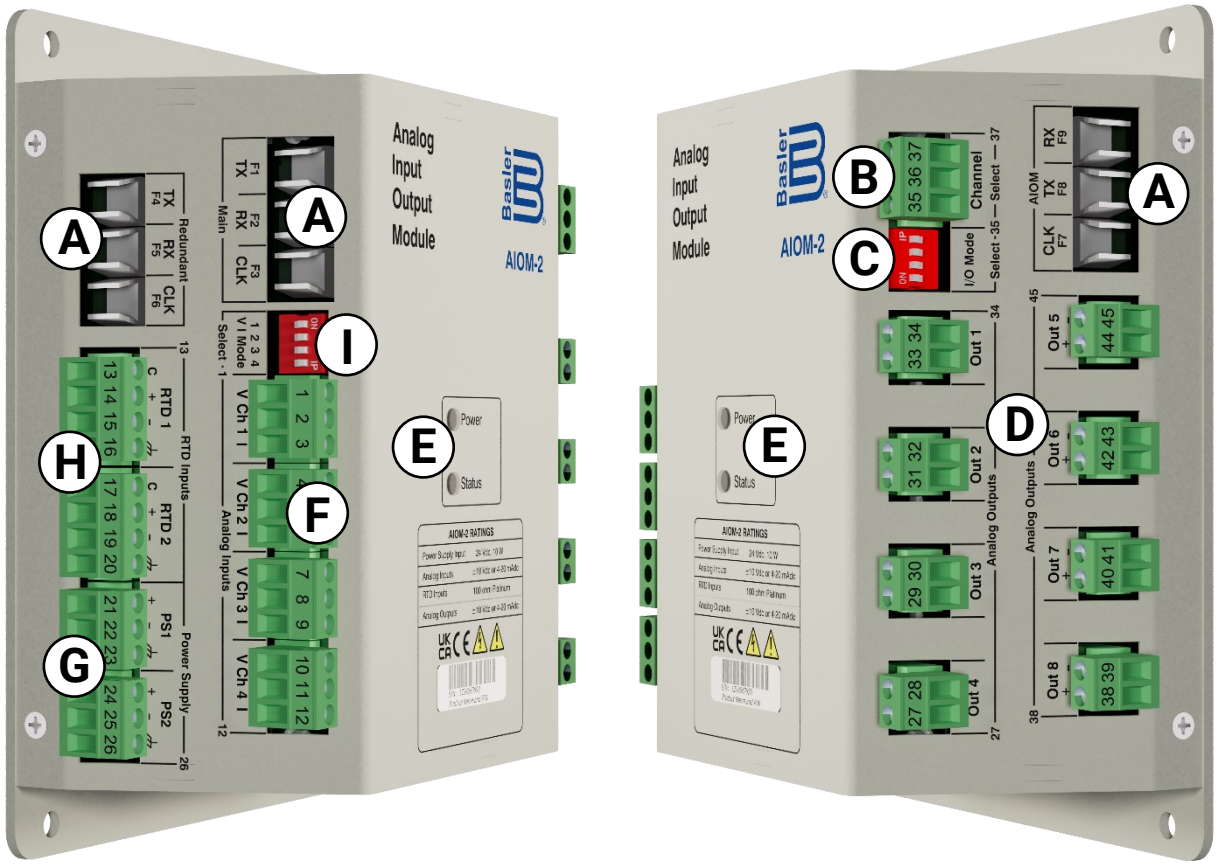
Analog Input Output Module

AIOM-2

Terminals and Connections

Connection Table

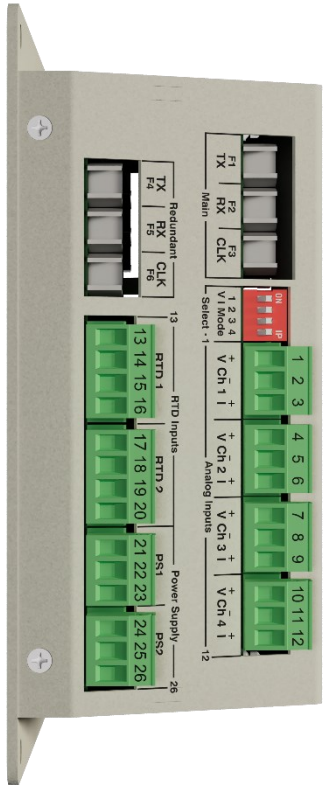
A	Fiber optic communication connectors. F1-F3 connect to the main channel ECM-2. F4-F6 connect to the redundant channel ECM-2. F7-F9 connect to a second AIOM-2.
B	Channel Select connector. Apply 0 or +24 Vdc for main channel control and -24 Vdc for redundant channel control.
C	I/O Mode switch. Configures retrofit compatibility mode. Any one switch in the up position sets normal AIOM-2 operation. All switches in the down position, sets AIOM operation (only inputs 1 and 2, RTD 1, and outputs 1 through 4 are enabled).
D	Analog output connectors.
E	Power and Active Status LED indicators.
F	Analog input connections.
G	Power supply connections.
H	RTD connections.
I	V/I Mode switch to select voltage or current operation mode for the analog inputs.

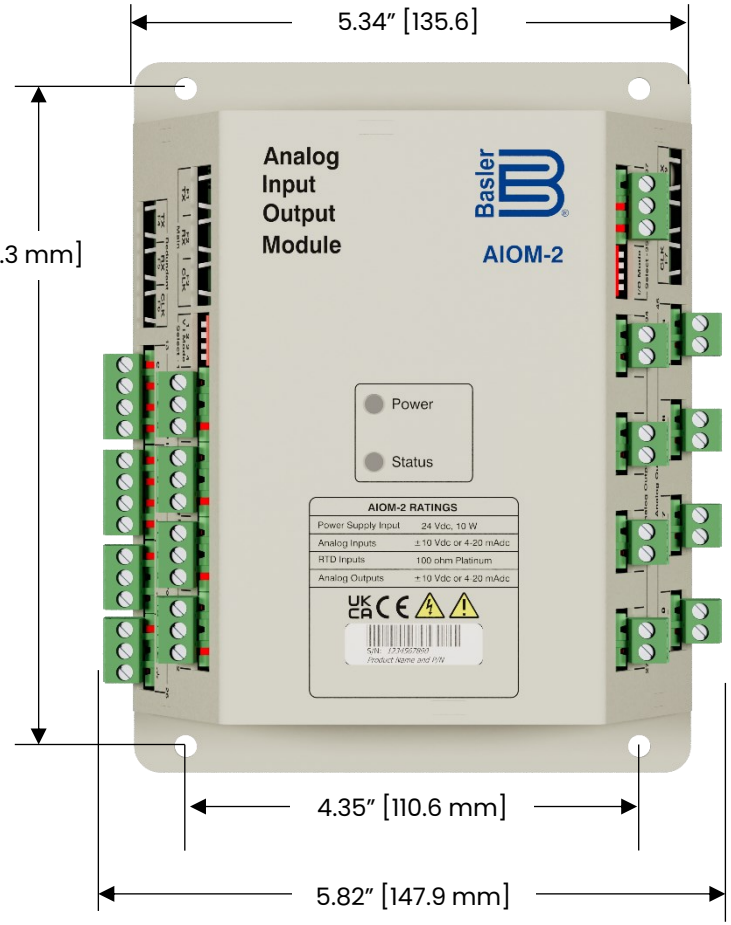


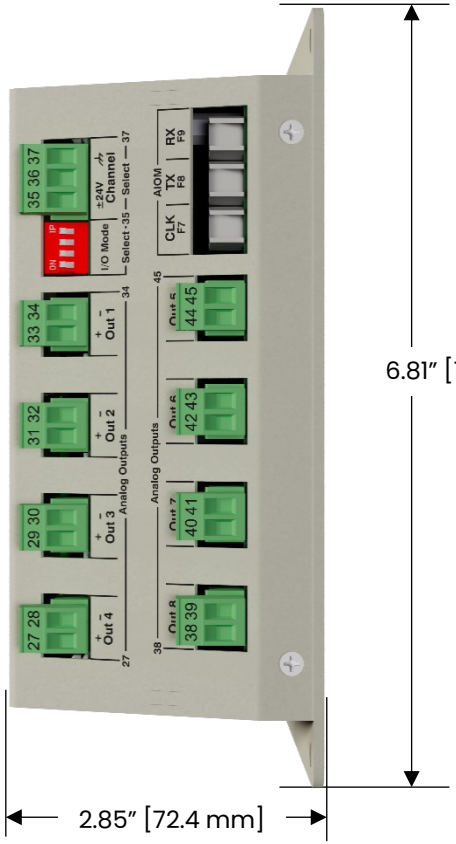
Analog Input Output Module

AIOM-2

Weight and Dimensions







Weight:
1.6 lb [0.7 kg]

Dimensions:
5.82 x 6.81 x 2.85 inches
[147.9 x 173 x 72.4 mm]

Analog Input Output Module

AIOM-2

Retrofit of the legacy Analog Input Output Module

The AIOM-2 is designed with retrofitability in mind. It is a direct replacement for the legacy Analog Input Output Module used in DECS-2100 and ECS2100 systems.

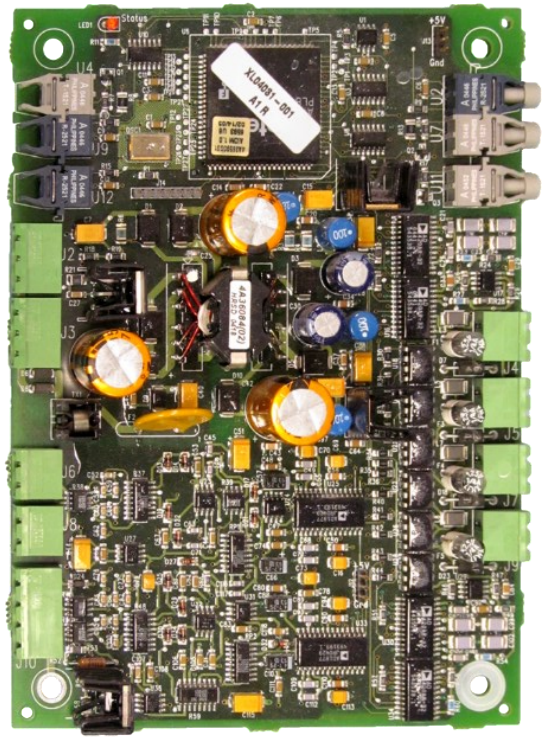
AIOM-2 Design Improvements

- More inputs, 4 vs. 2
- More RTDs, 2 vs. 1
- More outputs, 8 vs. 4
- Clear labeling of LED indicators and connections
- I/O now has 500 V of isolation from ground

Retrofit Features

- Same footprint as AIOM
- Direct replacement for AIOM, no wiring or software changes required
- Retrofit mode dip switch selectable to replace one or two legacy AIOM(s)
- Wiring connections are in the same location

AIOM-2

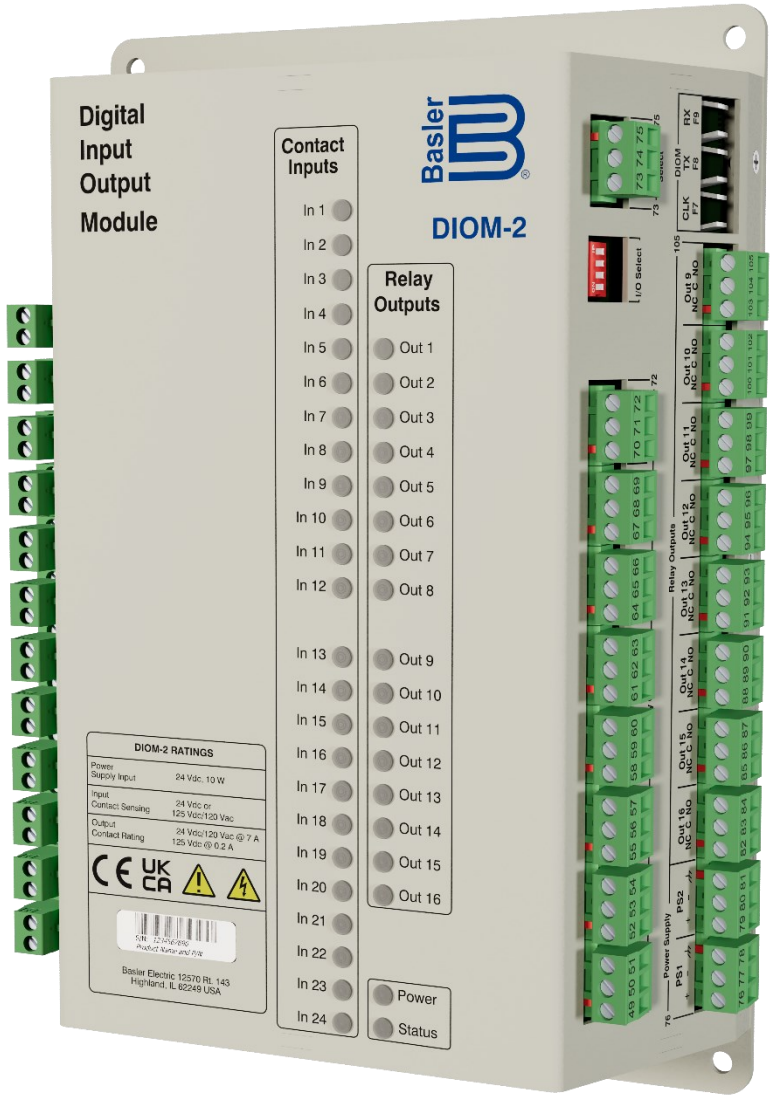


Legacy AIOM

Digital Input Output Module

DIOM-2

The DIOM-2 Digital I/O Module provides an additional 24 contact inputs and 16 output contacts to an ECS2100 or DECS-2100 digital excitation control system. Communications with the excitation controller is over a dedicated fiber optic link. Up to two DIOM-2s can be connected in daisy chain configuration to provide a total of 48 contact inputs and 32 output contacts.



DIOM-2 Ratings

- **Control Power:** 24 Vdc (Redundant)
- **Channel Select:** ± 24 Vdc
- **Contact Inputs:** ± 24 Vdc
  125Vdc/120Vac
- **Relay Outputs:** Form C, 7.0 A Carry

Ordering Information

- **DIOM-2** 9500600100

Digital Input Output Module

DIOM-2

Terminals and Connections

Connection Table

A Fiber optic communication connectors. F1-F3 connect to the main channel ECM-2. F4-F6 connect to the redundant channel ECM-2. F7-F9 connect to a second DIOM-2.

B State select connector. Apply 0 or +24 Vdc for main channel control and -24 Vdc for redundant channel control.

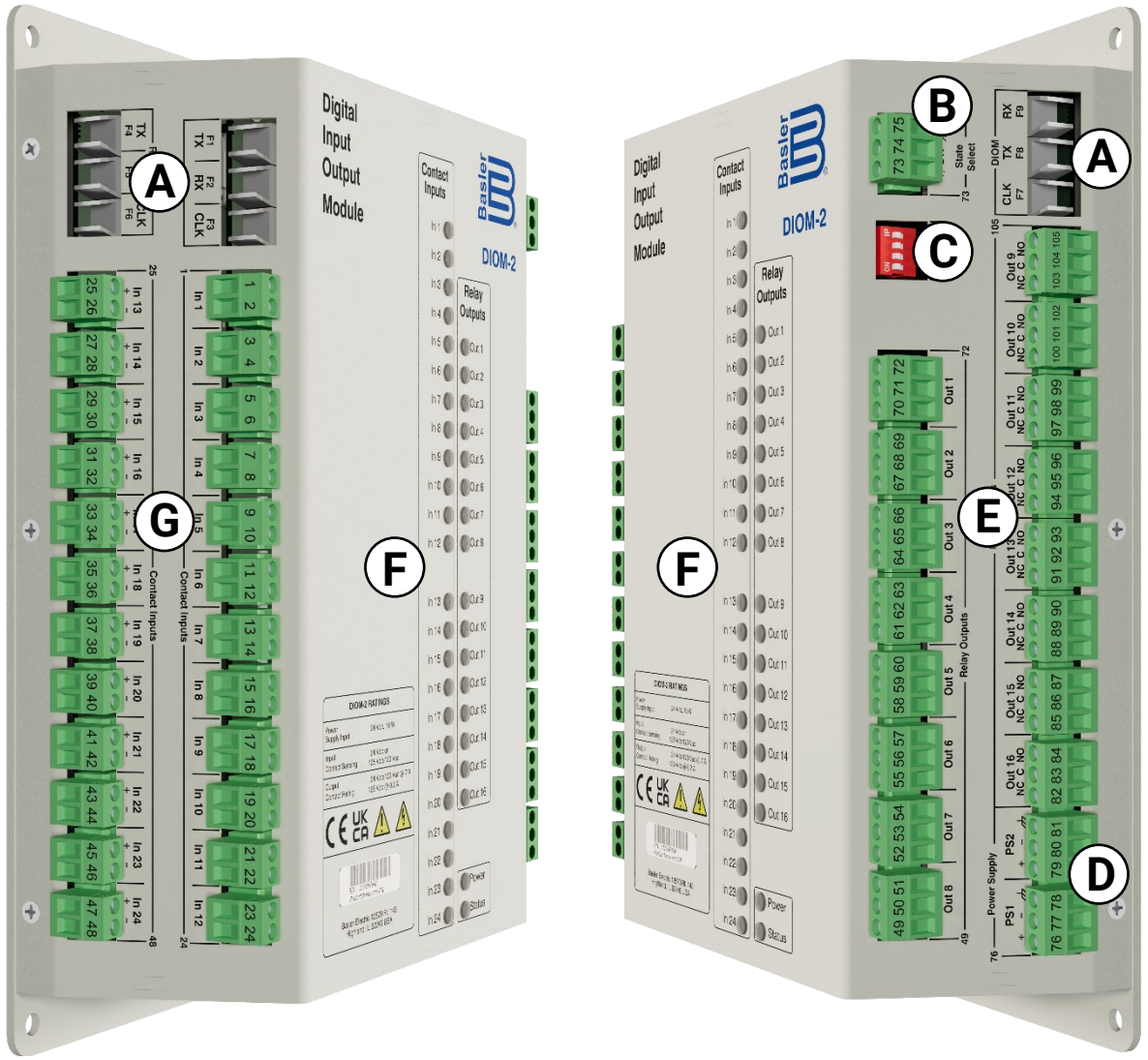
C I/O Select Switch. Configures retrofit compatibility mode. Any one switch in the up position sets normal DIOM-2 operation. All switches in the down position, sets DIOM operation (only inputs 1 through 12 and outputs 1 through 8 are enabled).

D Power supply connectors. PS1 and PS2 accept +24 Vdc (17-36 Vdc).

E Form-C relay output contact connectors Out1 through Out16 accommodate 125 Vdc/120 Vac, maximum.

F Contact Input, Relay Outputs, +24 Vdc, and Status LED indicators.

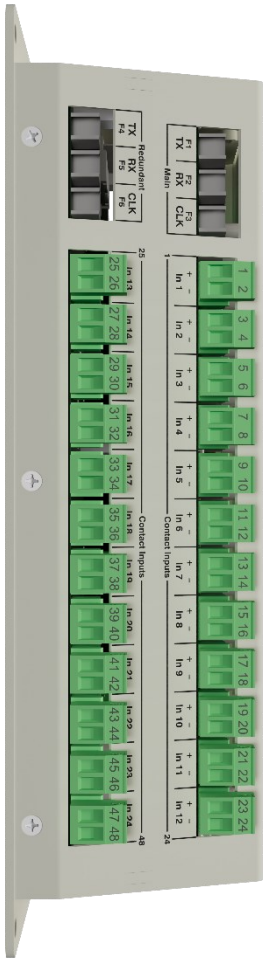
G Contact input connectors In1 through In24 accommodate 24 Vdc or 125 Vdc/120 Vac via internal switch.

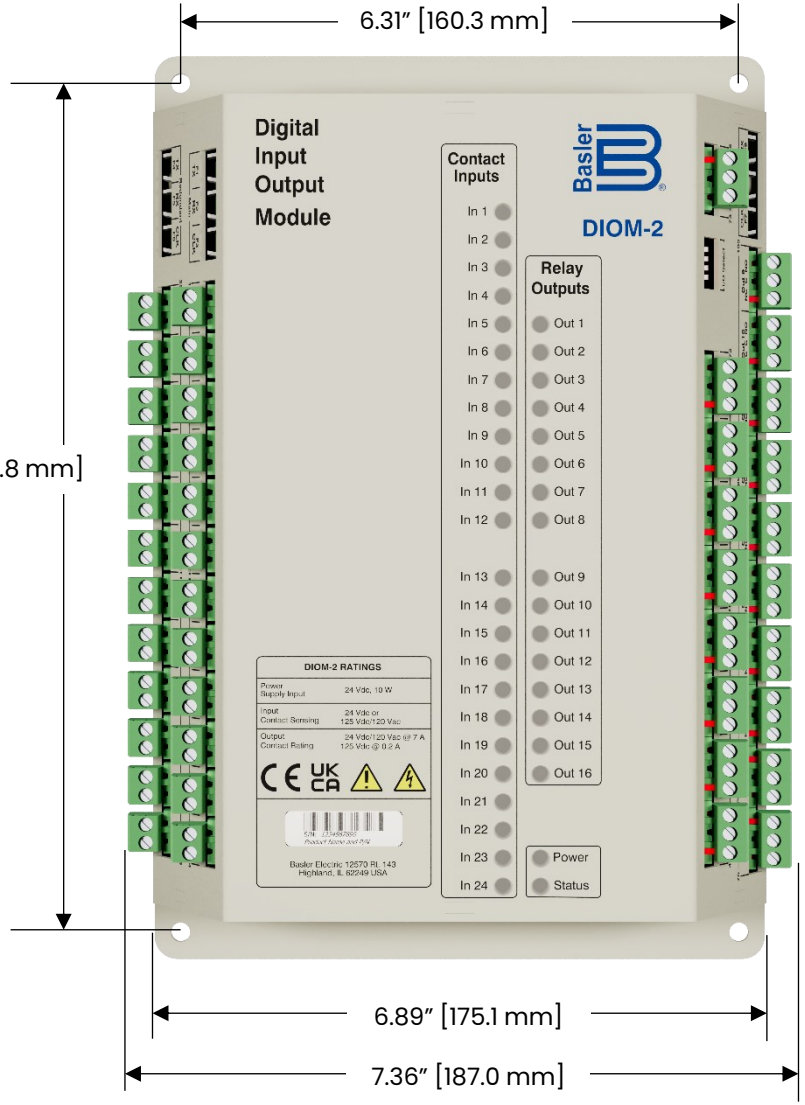


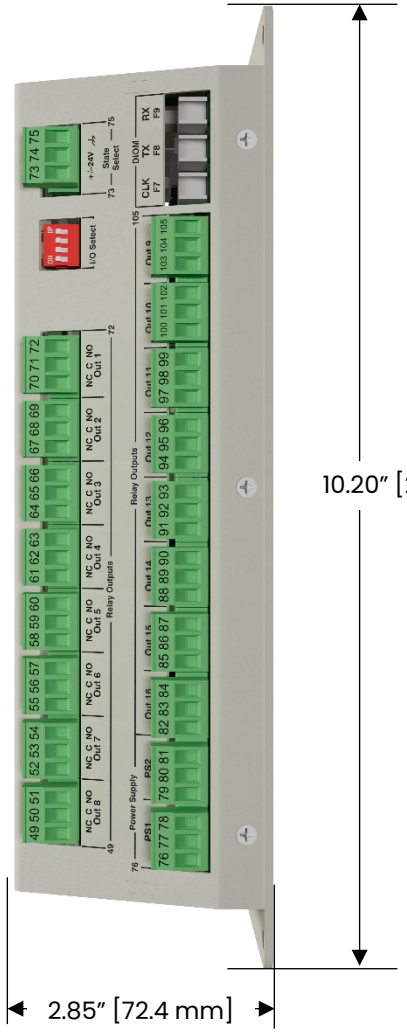
Digital Input Output Module

DIOM-2

Weight and Dimensions







Weight:
2.85 lb [1.3 kg]

Dimensions:
7.36 x 10.20 x 2.85 inches
[187.0 x 259.2 x 72.4 mm]

Digital Input Output Module

DIOM-2

Retrofit of the legacy Digital Input Output Module

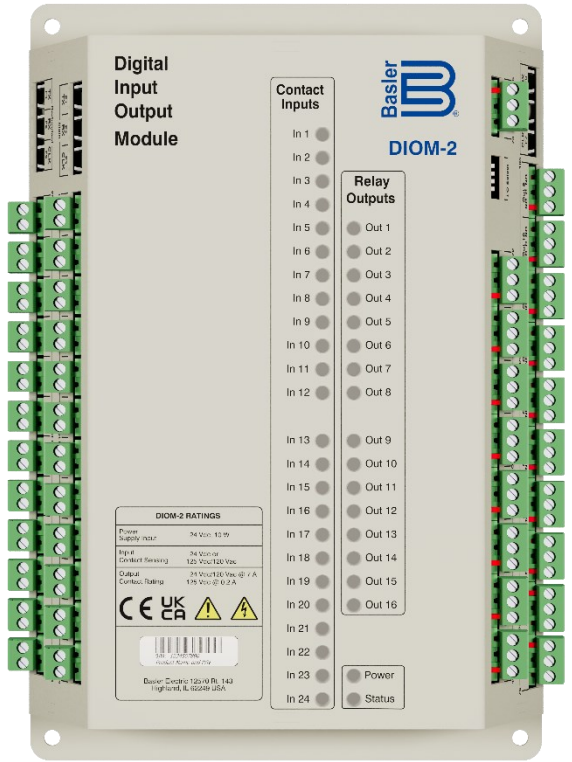
The DIOM-2 was designed with retrofitability in mind. It is a direct replacement for the legacy Digital Input Output Module used in DECS-2100 and ECS-2100 systems.

DIOM-2 Design Improvements

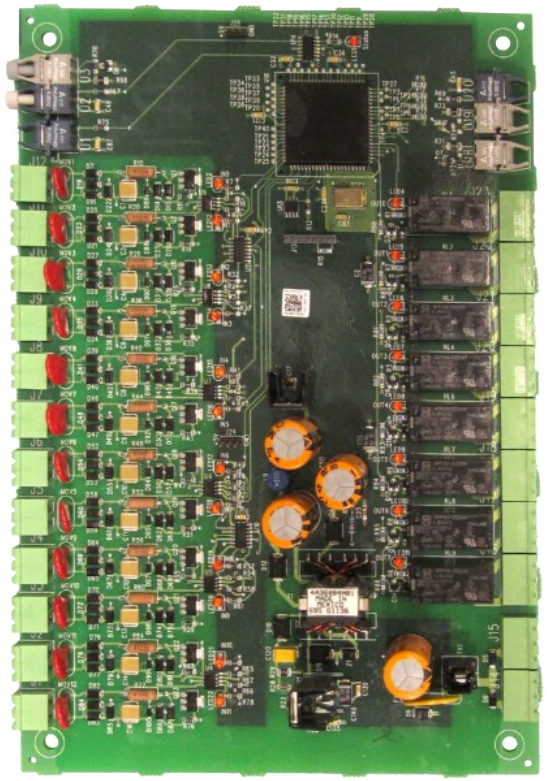
- More outputs, 16 vs. 8
- More inputs, 24 vs. 12
- Inputs capable of 24Vdc or 125Vdc/120Vac
- Clear labeling of LED indicators and connections

Retrofit Features

- Same footprint as DIOM
- Direct replacement for DIOM, no wiring or software changes required
- Retrofit mode dip switch selectable to replace one or two legacy DIOM(s)
- Wiring connections are in the same location



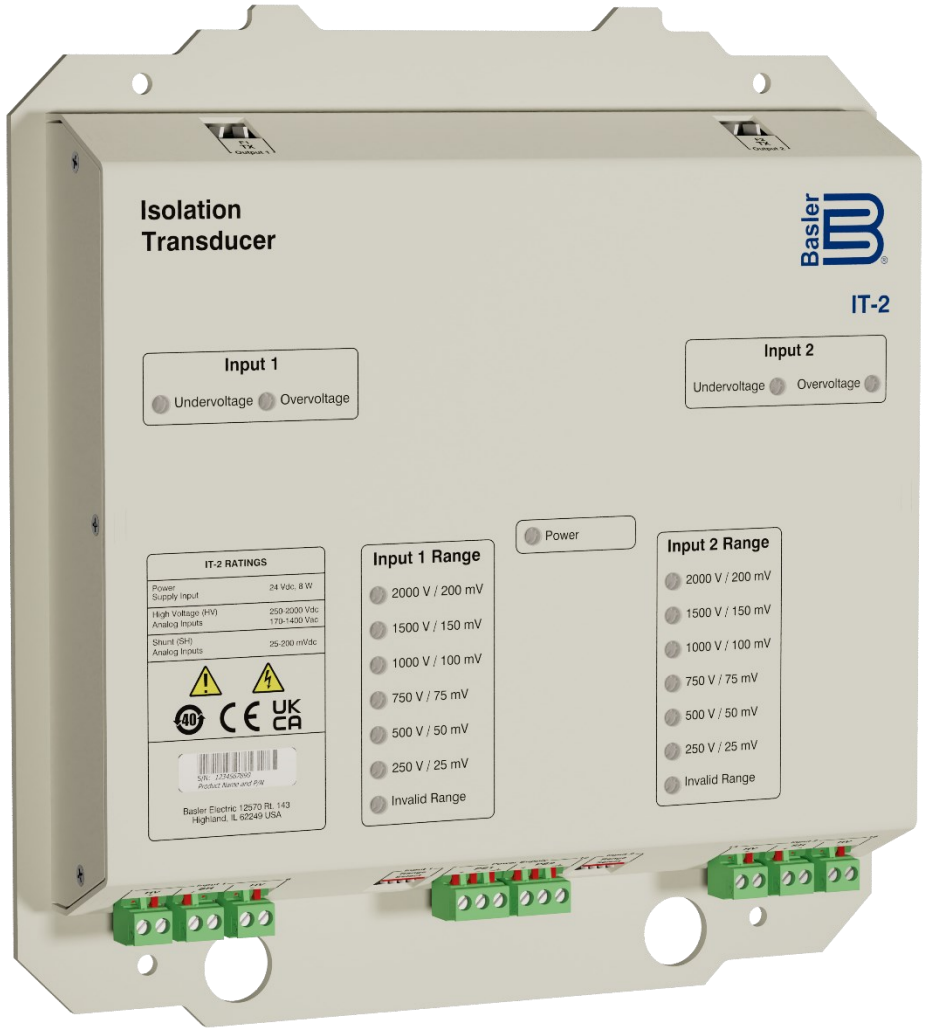
DIOM-2



Legacy DIOM

Isolation Transducer

IT-2



The IT-2 Isolation Transducer electrically isolates an excitation system controller from power parameters monitored by the system. Each IT-2 can monitor two parameters. Typically is used to measure the rectifier bridge input voltage, field voltage, or, using the shunt connection option, field current.

IT-2 Ratings

- **Control Power:** 24 Vdc (Redundant)
- **Sensing Inputs (HV):** (2*) 2,000 Vdc / 1,414 Vac
- **Sensing Inputs (SH):** (2*) 200 mVdc / 141 mVac

Ordering Information

- **IT-2** 9500800100
- **IT-2 No Cover** 9500800101

Isolation Transducer

Terminals and Connections

IT-2

Connection Table

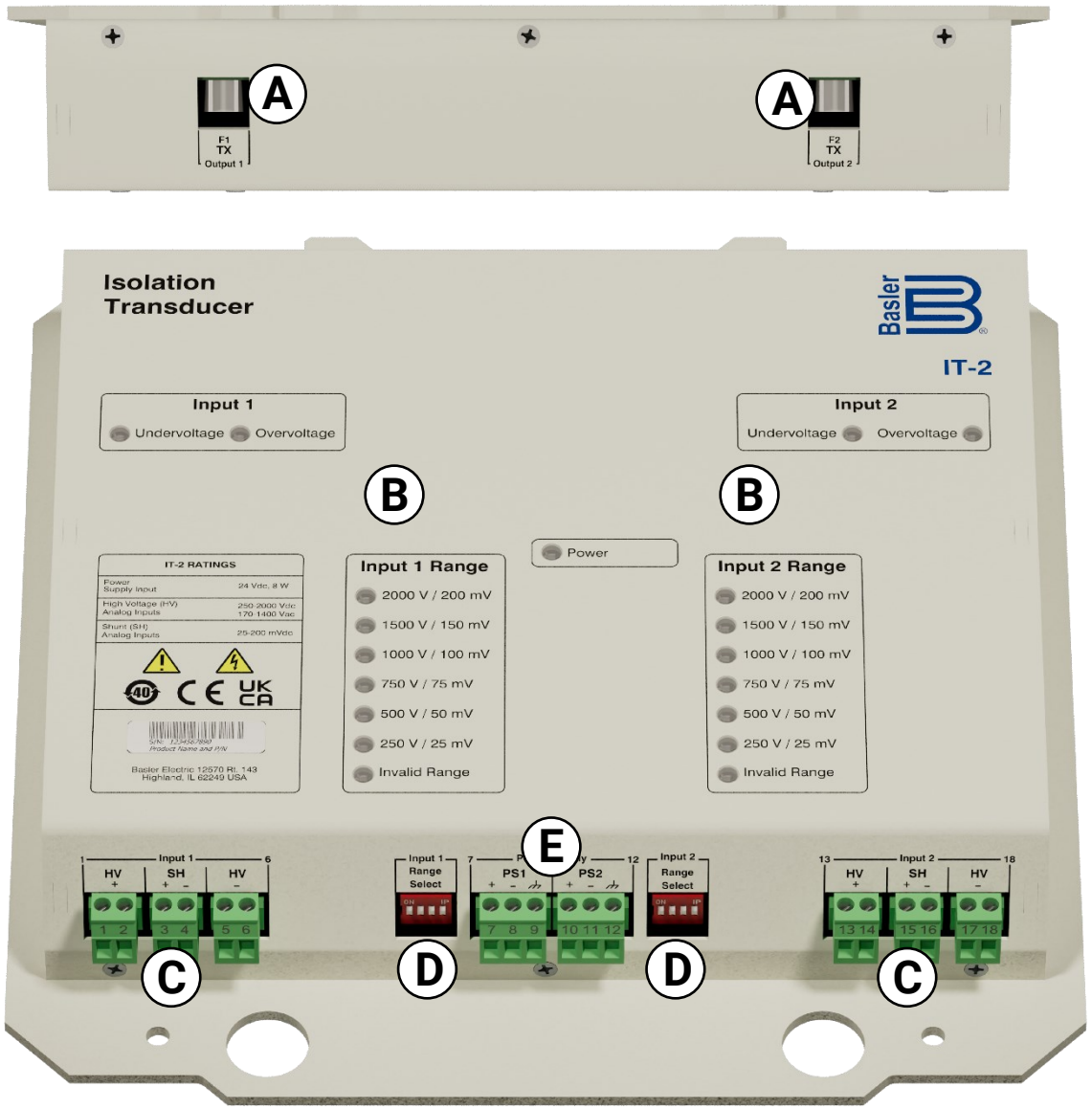
A Fiber optic output connectors. F1 and F2 connect to ECM-2 or FCIM and BCM-2 or BCM.

B Over/Undervoltage, Power Supply, and Range Selection LED indicators. See Monitoring for more information.

C Sensing input connectors: Input 1 and Input 2.

D Range Selection switches for Input 1 and Input 2.

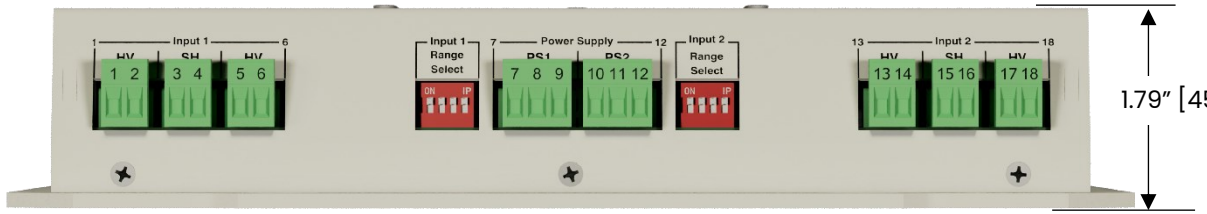
E Redundant power supply input connectors: +24 V PS1 and +24 V PS2.

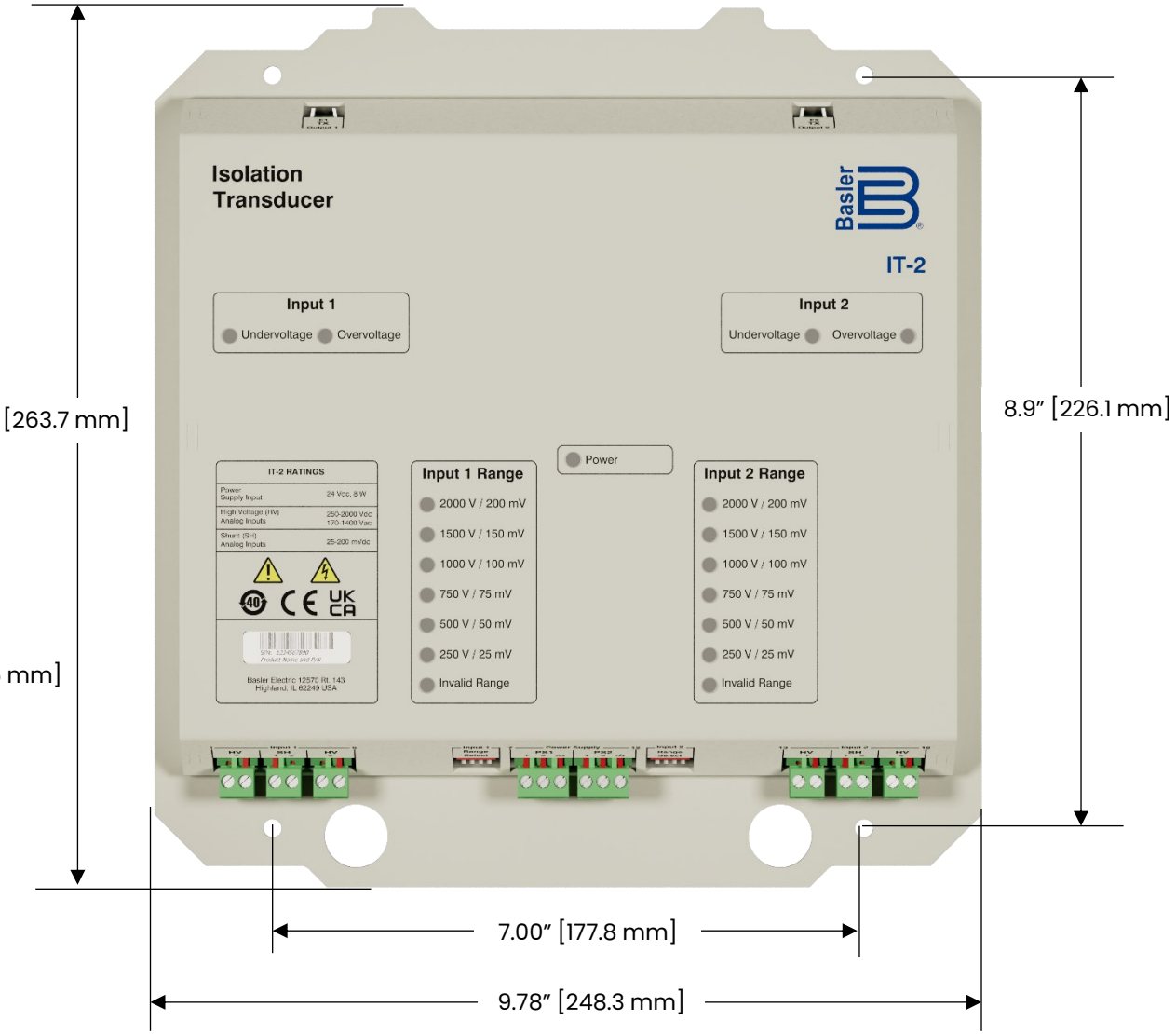


Isolation Transducer

Weight and Dimensions

IT-2





Weight:
2.7 lb [1.22 kg]

Dimensions:
9.78 x 10.38 x 1.79 inches
[248.3 x 263.7 x 45.6 mm]

Isolation Transducer

Retrofit of the legacy Isolation Transducer

The IT-2 was designed with retrofitability in mind. It is a direct replacement for the legacy Isolation Transducer used in DECS-2100 and ECS-2100 systems. A coverless version is available for use in legacy power drawers.

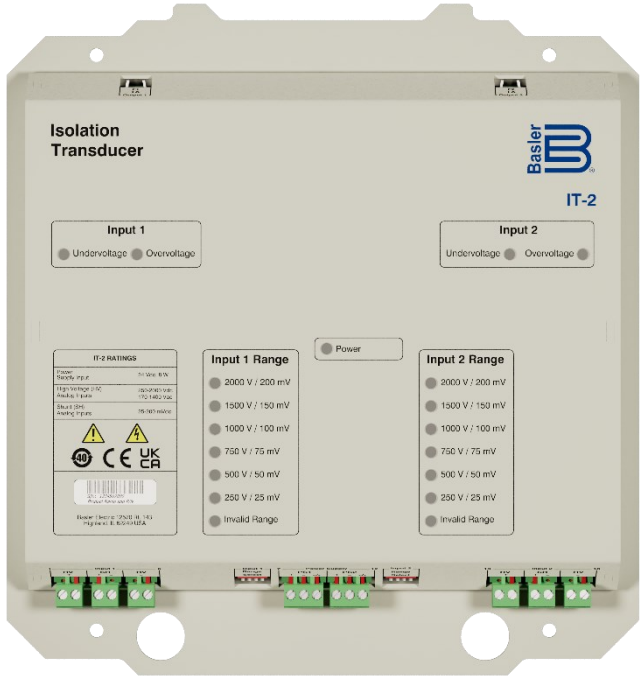
IT-2 Design Improvements

- DIP Switch selection instead of Jumper wires
- Clear labeling of LED indicators and connections

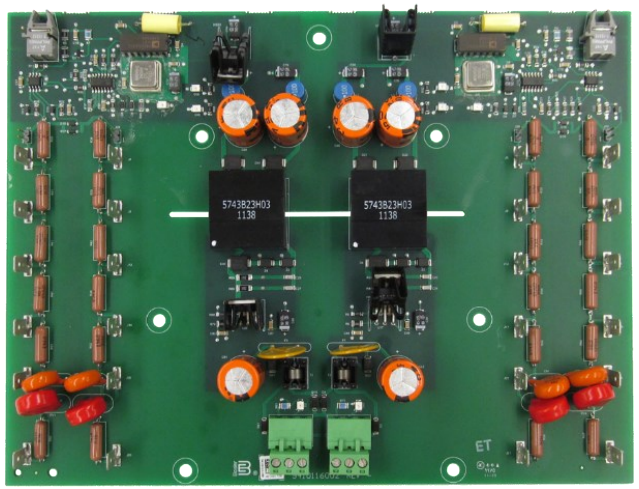
Retrofit Features

- Same footprint as IT.
- Direct replacement for IT, no wiring or software changes required.
- Wiring connections are in the same location.

IT-2



IT-2



Legacy IT

Field Ground Detection

FGD-2

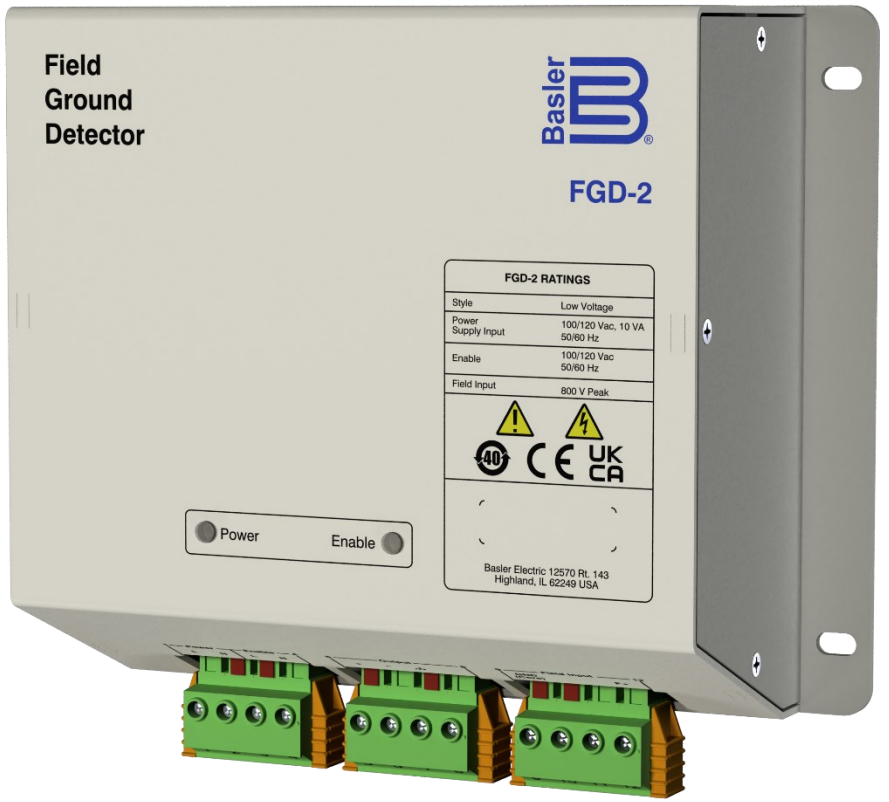
The FGD-2 Field Ground Detector Module is a transducer that continuously monitors the resistance of the field circuit of a synchronous machine with respect to ground. It applies a fixed voltage with respect to ground which causes a small leakage current to flow. The FGD-2 provides a low voltage output signal proportional to the leakage current which is measured by ECM-2 and other compatible controllers for field ground protection.

FGD-2 Ratings

- **Max field voltage:** 800 or 1,750 Vdc
- **Control Power:** 100/120 Vac, 50/60 Hz
- **Enable input:** 100/120 Vac, 50/60 Hz
- **Output:** 0-15 Vdc

Ordering Information

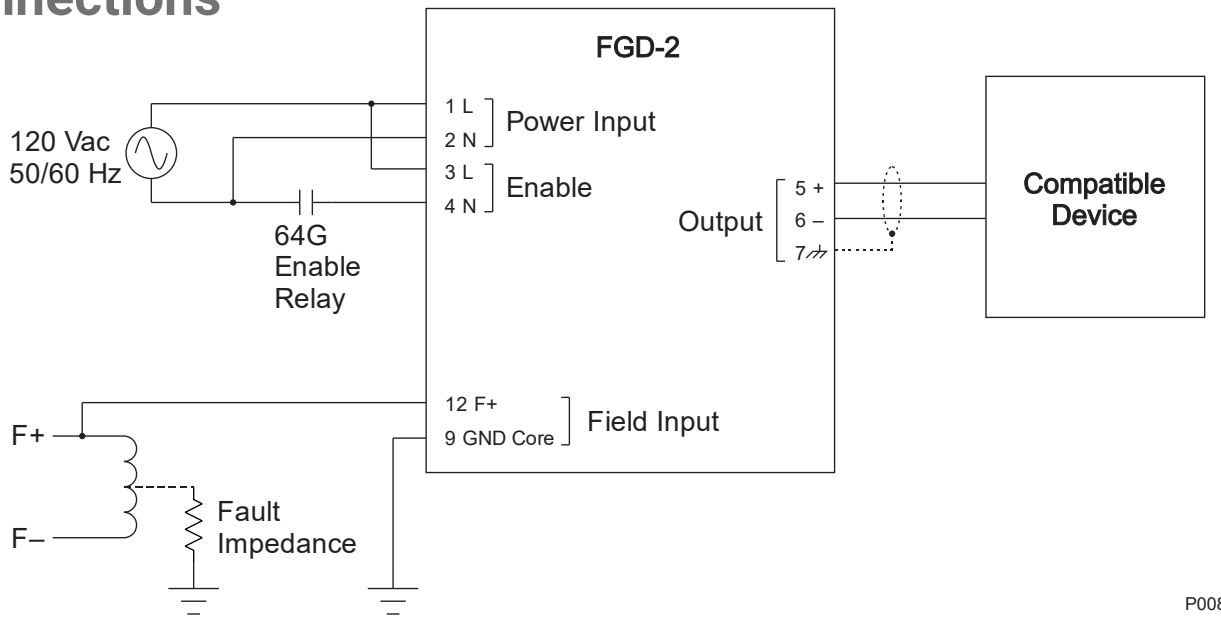
- **Low voltage style:** 9501000100
- **High voltage style:** 9501000101



Field Ground Detection

FGD-2

Connections



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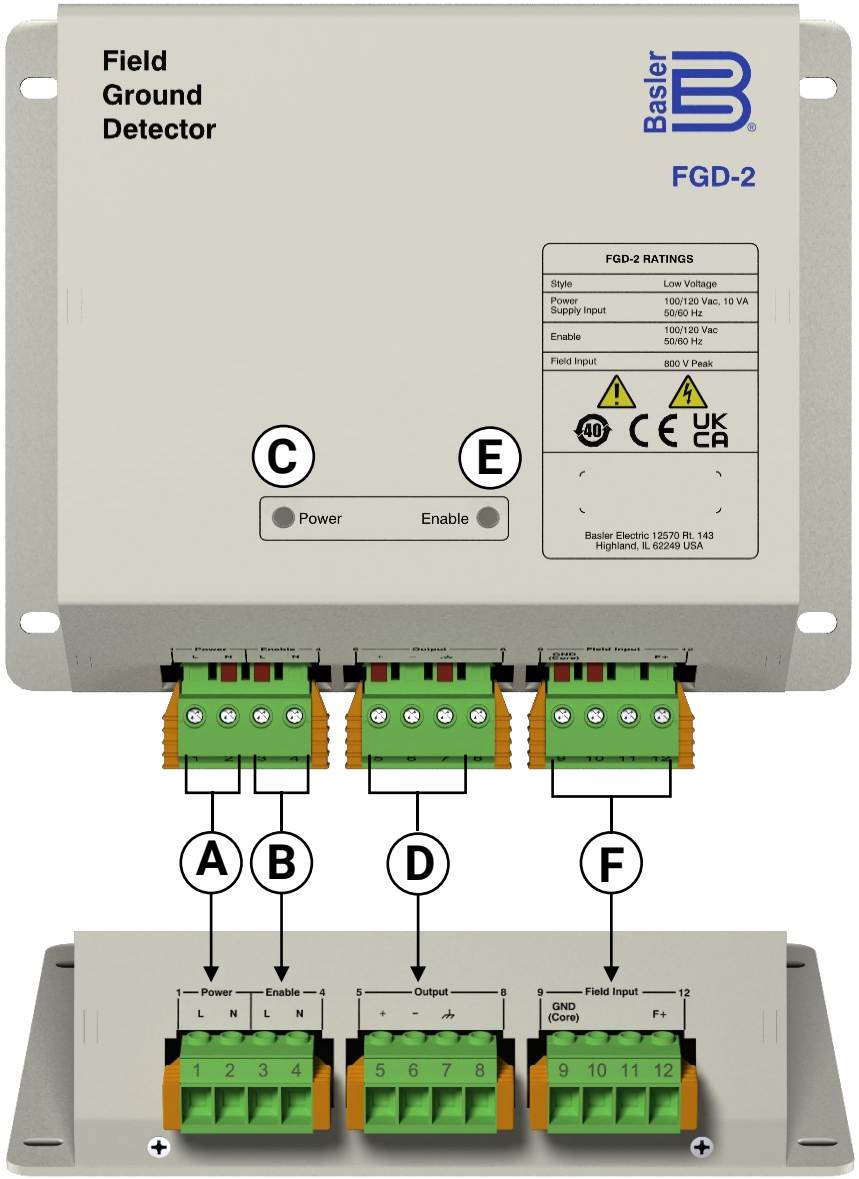


Connection & Indicator Table

A Power Supply. The Power Input terminals accept 120 Vac (90-132 Vac) 50/60 Hz.

B 64G Relay Enable. The Enable terminals accept 120 Vac (90-132 Vac) 50/60 Hz.

C Power LED. This green Power LED lights to indicate the presence of FGD-2 operating power.

D Output. Supplies a voltage signal that is proportional to the level of detected field leakage current.

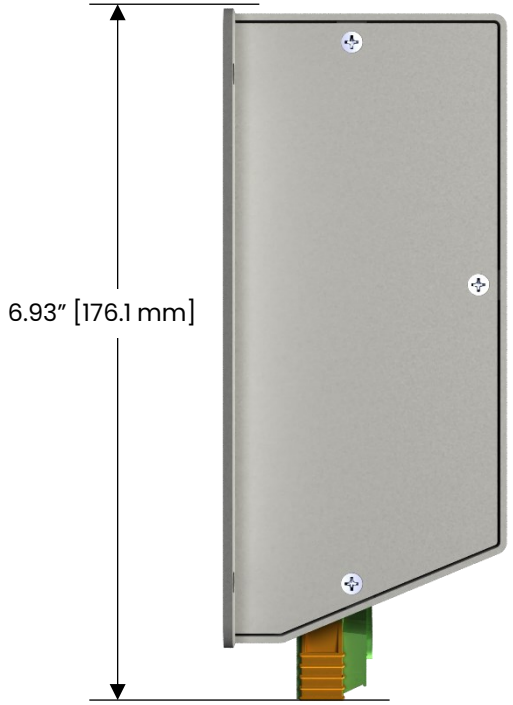
E Active Status LED. The green Active Status LED lights indicate that the FGD-2 is enabled and supplying a voltage signal to the compatible device.

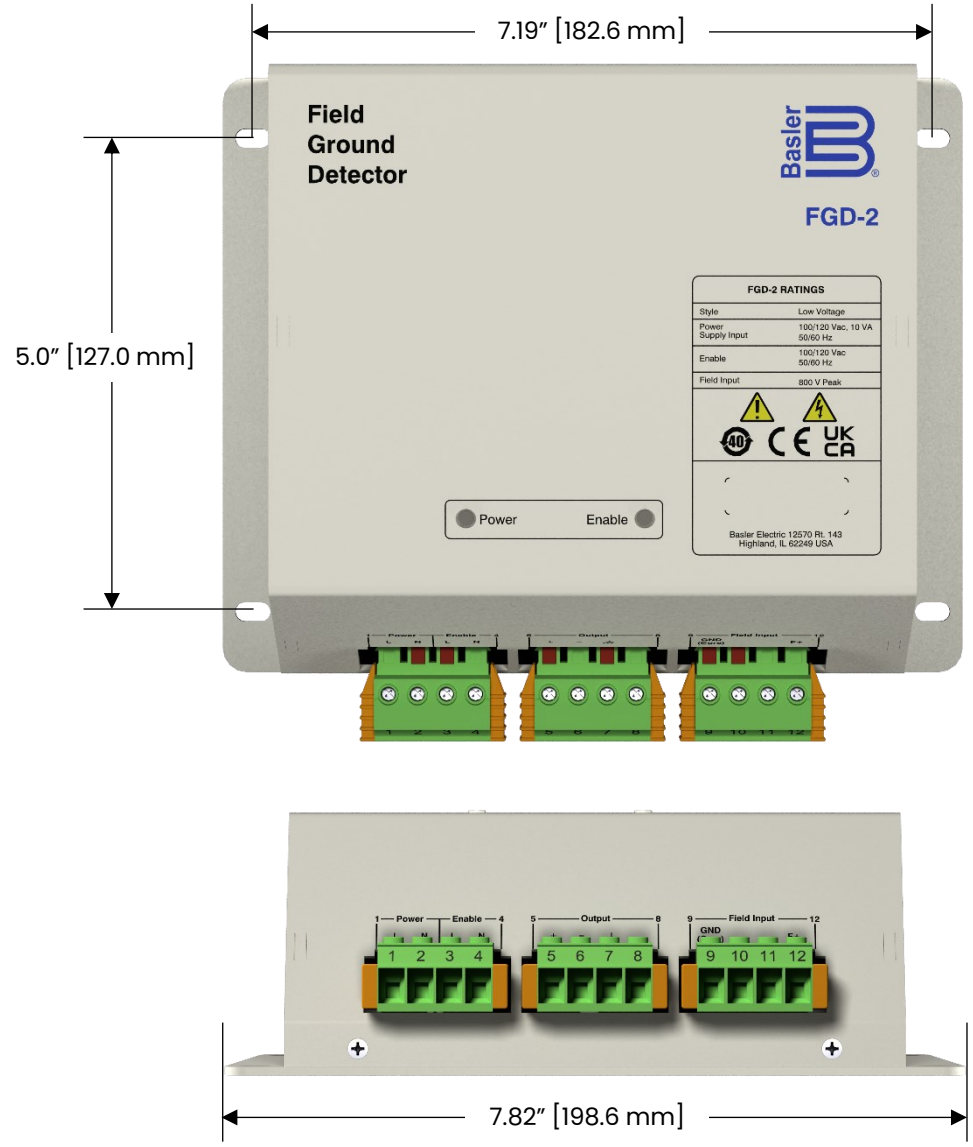
F Field Input. Supplies approximately –60 Vdc to the positive side of a machine field and measures the level of leakage current.

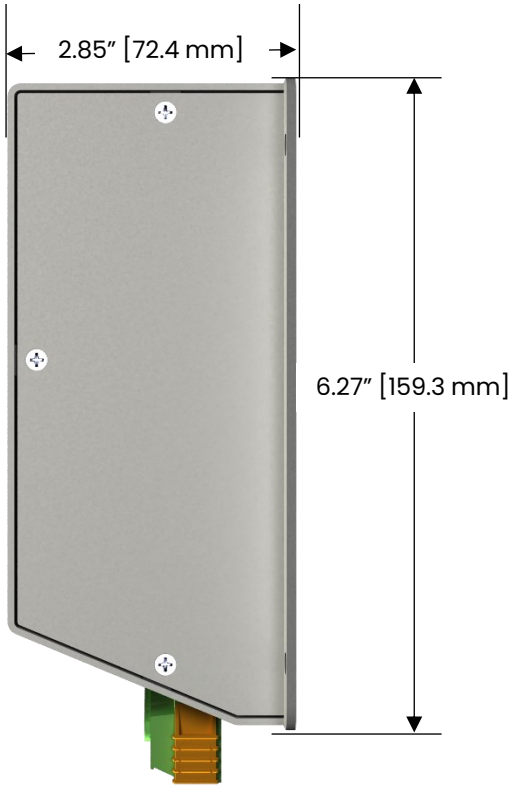
Field Ground Detection

FGD-2

Weight and Dimensions







Weight:
2.6 lb [1.2 kg]

Dimensions:
7.82 x 6.93 x 2.85 inches
[198.6 x 176.1 x 72.4 mm]

Field Ground Detection

FGD-2

Retrofit of the legacy Field Ground Detector (FGD)

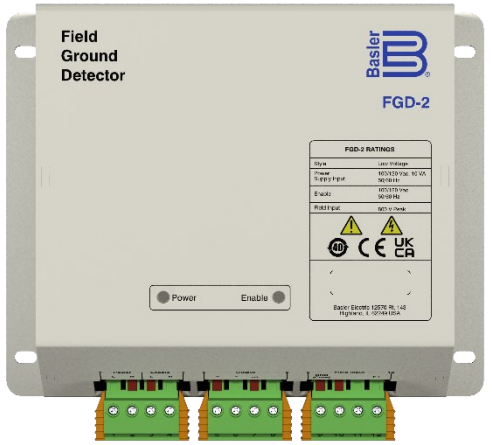
The FGD-2 was designed with retrofitability in mind. It is a direct replacement for the legacy Field Ground Detection module used in DECS-2100 and ECS2100 systems.

FGD-2 Design Improvements

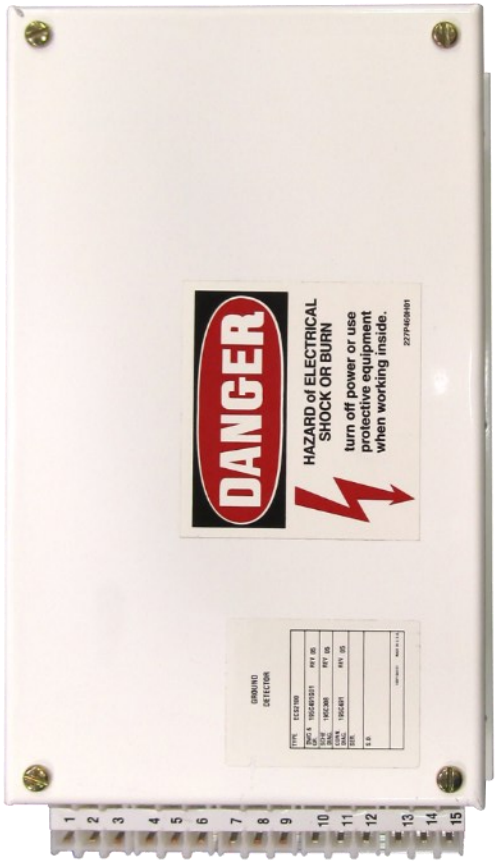
- Isolated Output
- Status LEDs for Power and Enable
- Significant size reduction

Retrofit Features

- FGD-2 mounting holes are the same distance as original FGD
- FGD-2 can be installed in same location while only requiring 4 of the 6 FGD mounting holes
- Wiring connections are in the same location
- No additional configuration required



FGD-2



Legacy Field Ground Detector

De-Excitation / Crowbar Module DXCB-2

The DXCB-2 De-Excitation/Crowbar Module protects the generator field and exciter circuits by providing a low impedance path for currents that would otherwise cause excessively high transient voltage or damaging arcs. These currents are dissipated through a system field discharge resistor array. A single DXCB-2 module can be operated in one of two modes: de-excitation (DX) or crowbar (CB). A typical system will have two modules, one for each mode. The DXCB-2 can be paralleled for higher discharge current or added redundancy.

DXCB-2 Ratings

- **Control power:** 125 Vdc
- **External Trigger:** 24 or 125 Vdc
- **Field voltage:** 600 or 1,000 Vdc
- **Current:** 2,000 or 5,000 Adc

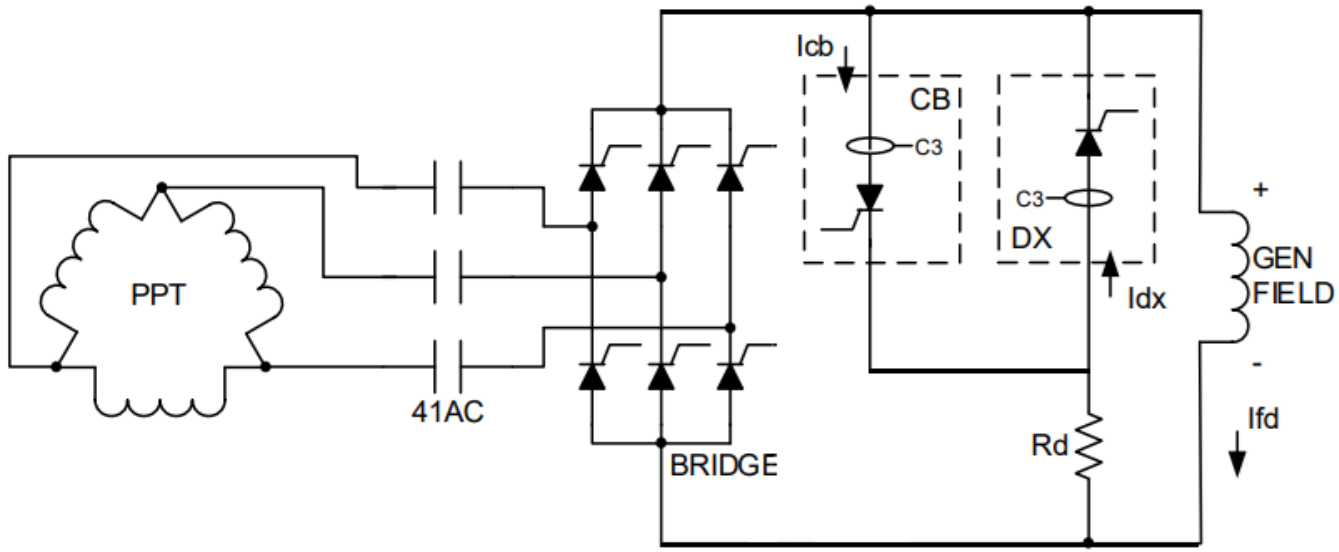
Ordering Information

- **Low voltage style:** 9500900100
- **High voltage style:** 9500900101

De-Excitation / Crowbar Module

DXCB-2

Terminals & Connections

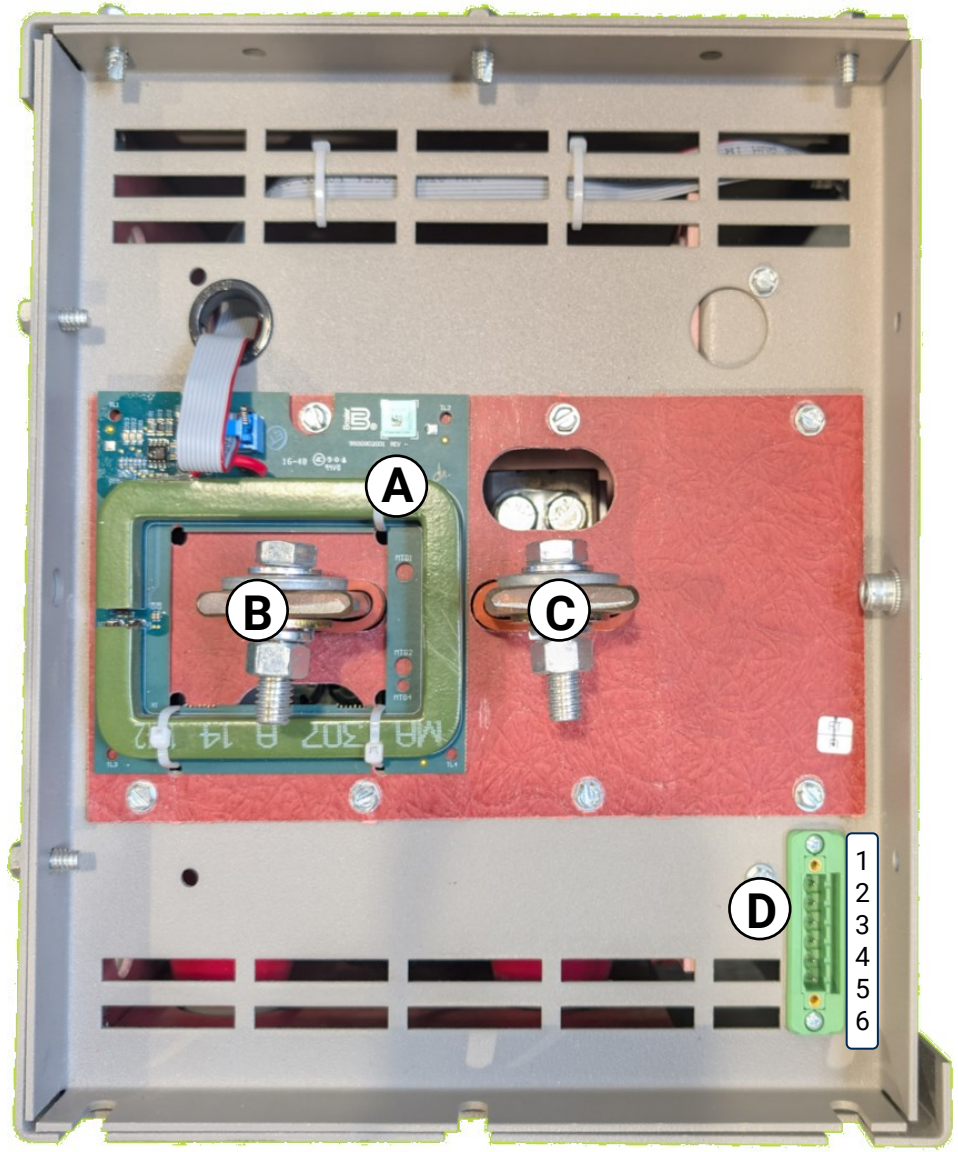


Connections

- (A) Conduction Monitor
- (B) Anode
- (C) Cathode
- (D) Control Connections

Control

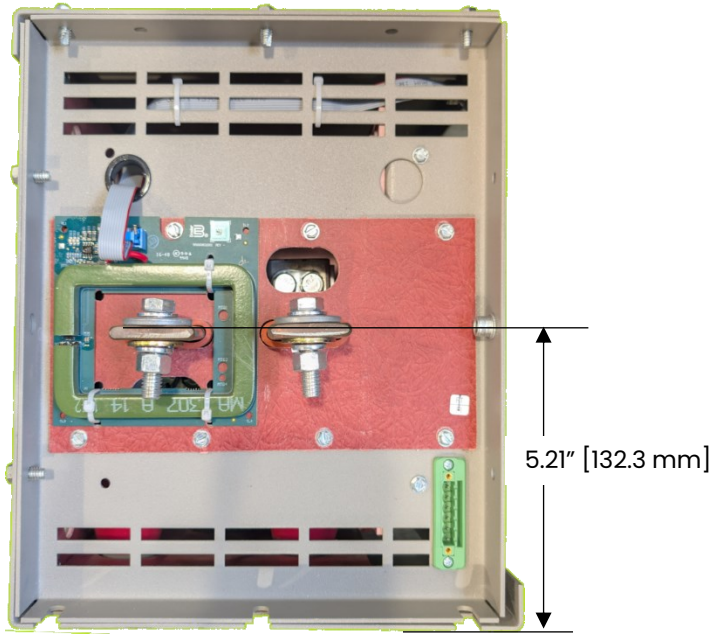
Power Supply	1+ 3-
Trigger	2+ 4-
Conduction	5- 6+

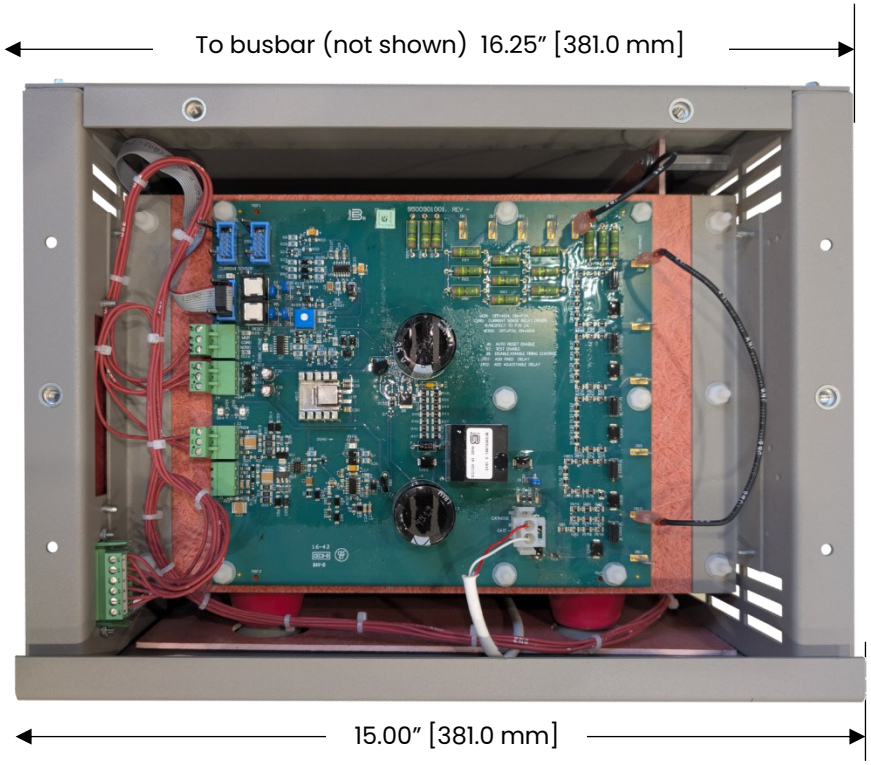


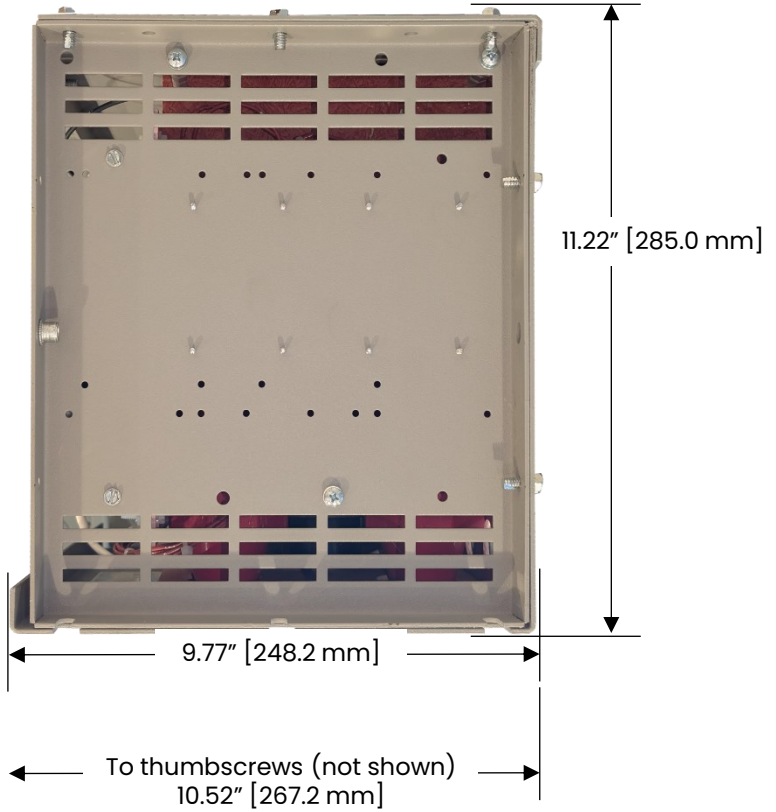
De-Excitation / Crowbar Module

DXCB-2

Weight and Dimensions







Weight:
48.6 lb [22.1 kg]

Dimensions:
16.25 x 11.22 x 10.52 inches
[412.6 x 285.0 x 267.2 mm]

De-Excitation / Crowbar

DXCB-2

Retrofit of the legacy De-Excitation/Crowbar

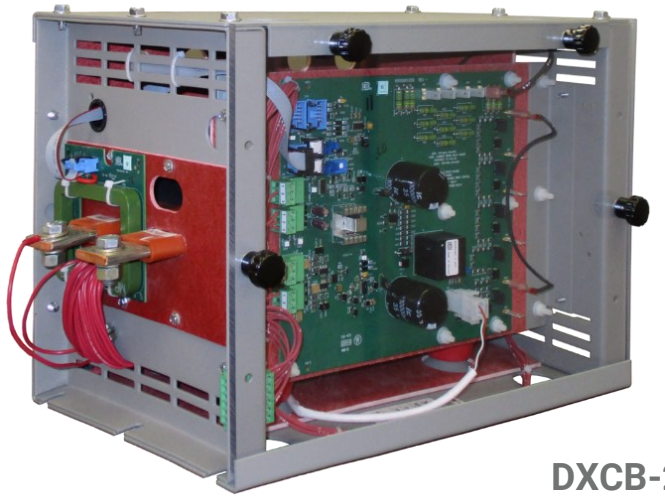
The DXCB-2 was designed with retrofitability in mind. It is a direct replacement for the legacy de-excitation / crowbar module used in DECS-2100 and ECS-2100 systems.

DXCB-2 Design Improvements

- Smaller voltage trigger steps (600 vs. 800 V)
- External Zener diodes no longer required

Retrofit Features

- DXCB-2 can be installed in same location
- Wiring connections are in the same location
- No additional configuration required
- External Zener diodes can be jumped out



DXCB-2

Legacy DXCB

Interactive Display Panel

IDP-1201

The IDP-1201 Interactive Display Panel is a 12 inch color touch screen that enables a user to monitor and control an excitation system. Monitoring and control features include excitation system status, system control operations, and routine adjustments of the excitation setpoint. An additional IDP-1201 can be mounted remotely, such as, in the control room.

IDP-1201 Ratings

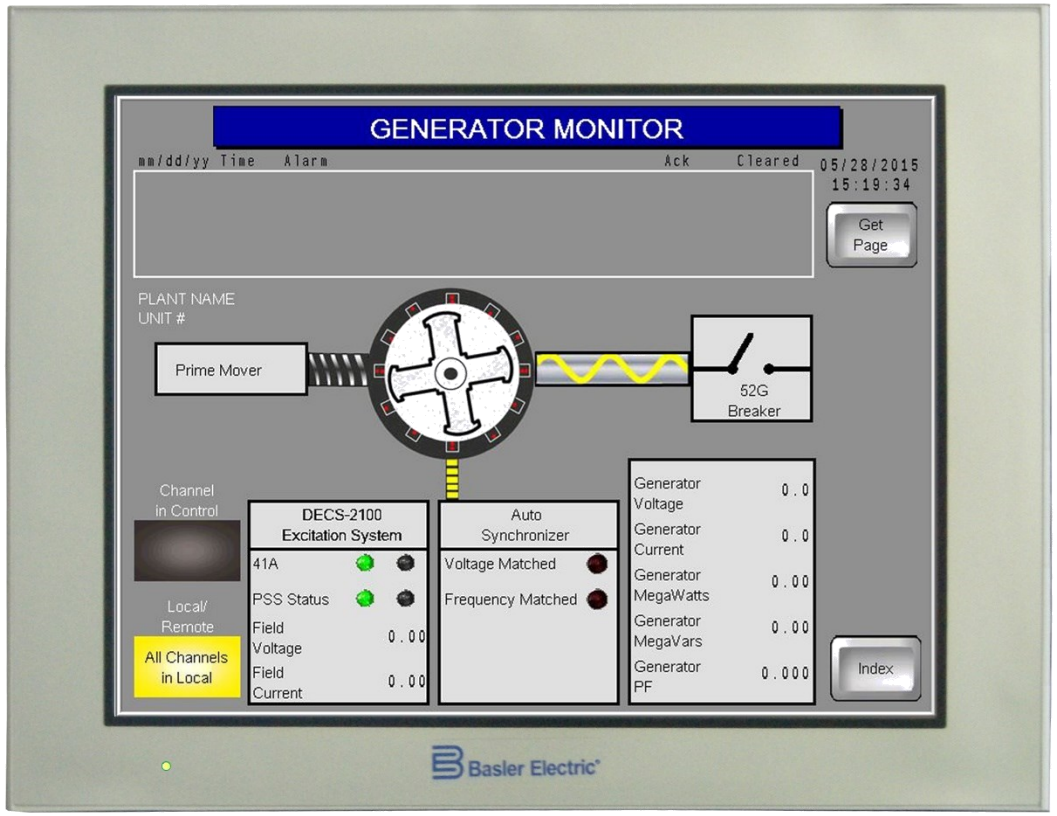
- **Control Power:** 24 Vdc
- **Resolution** SVGA (800x600 pixels)

Communications

- **USB (Host)**
- **USB (Device)**
- **RS-485 (Modbus)**
- **Ethernet (Modbus)**

Ordering Information

- **IDP-1201** *Custom configured, contact sales*
- **Ethernet Switch** 41133
- **24 Vdc Power Supply** 43970
- **4" DIN Mounting Rail** 9572818004



Interactive Display Panel

IDP-1201

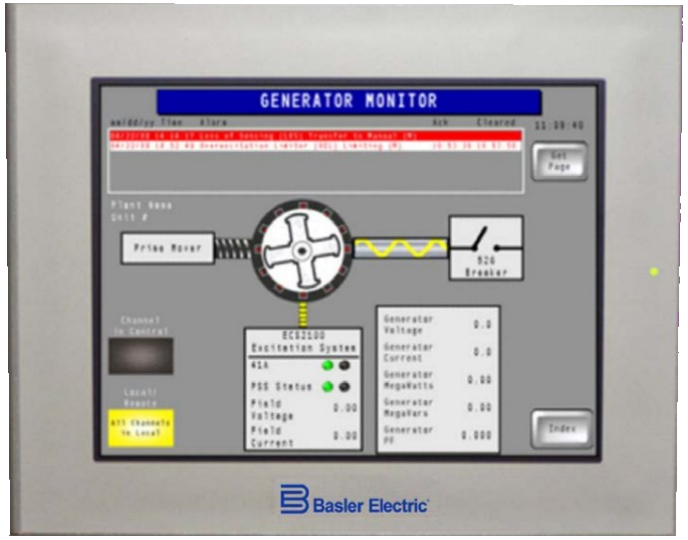
Retrofit of the legacy display panels

The IDP-1201 serves as the successor to the IDP-1200. Other than slight differences in its connectors and their layout, the IDP-1201 is virtually identical to the IDP-1200 in form and function. Replacement of an IDP-1200 with an IDP-1201 requires no modification of the mounting panel and only a slight adjustment to the control power connections. Retrofit kits are available for original ECS2100 PanelMate as well.

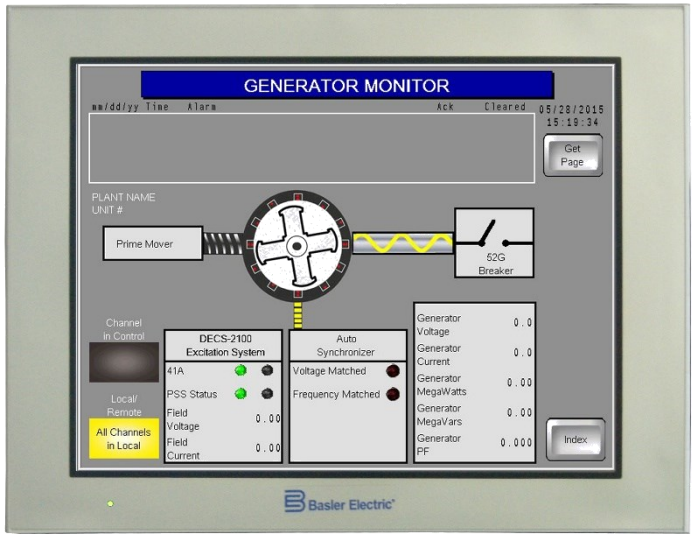
Retrofit Features

- Identical mounting between IDP-1201 and IDP-1200.
- PanelMate and IDP-1200 display retrofit kits available.

Legacy PanelMate



Legacy IDP-1200

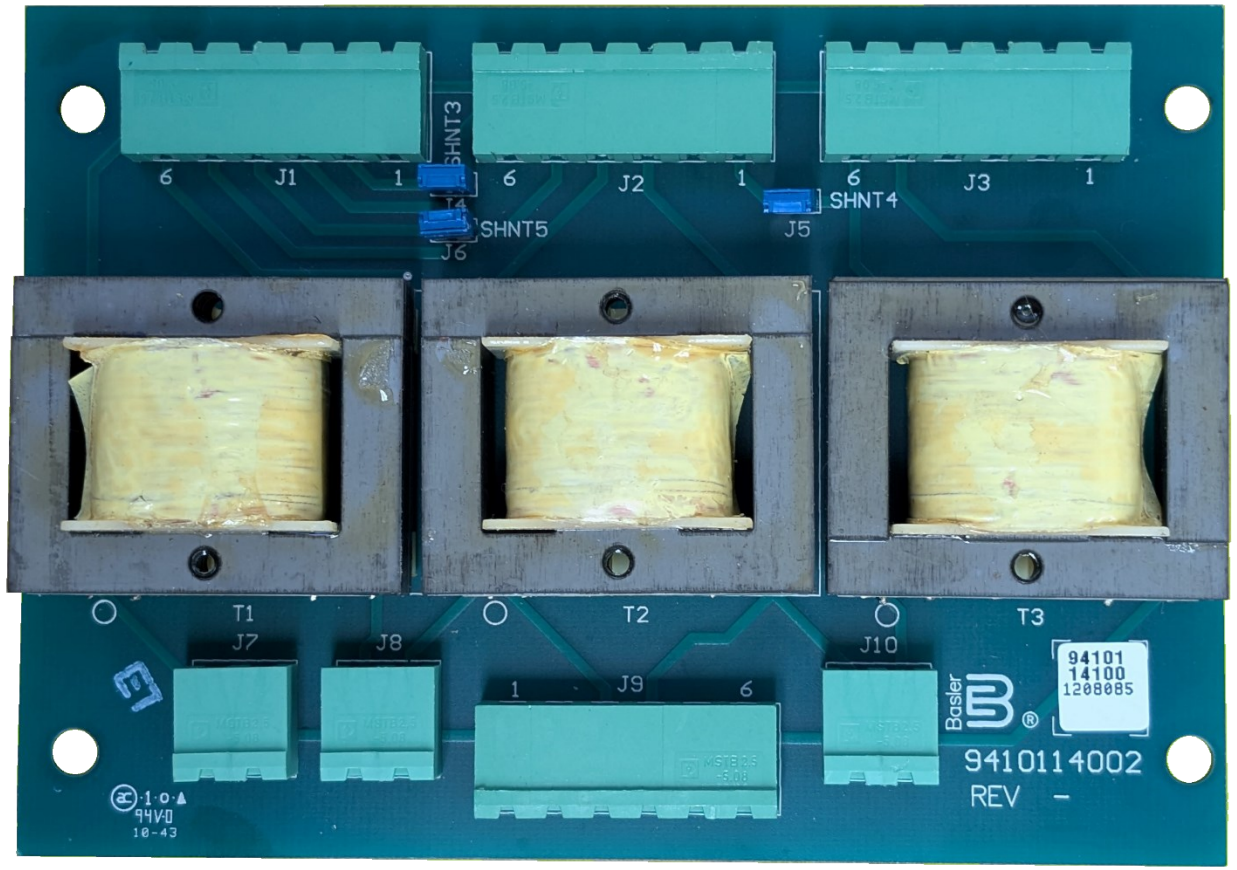


IDP-1201

PT Sensing Card

The PT Sensing Card provides isolation and attenuation of generator and bus voltages for measurement by an ECM-2. Each card can accept three phases and can be connected in closed or open delta configurations with jumpers.

A single PT card can distribute voltage signals to up to three ECM-2s for use in Primary, Redundant, and Supervisory applications.



PT Ratings

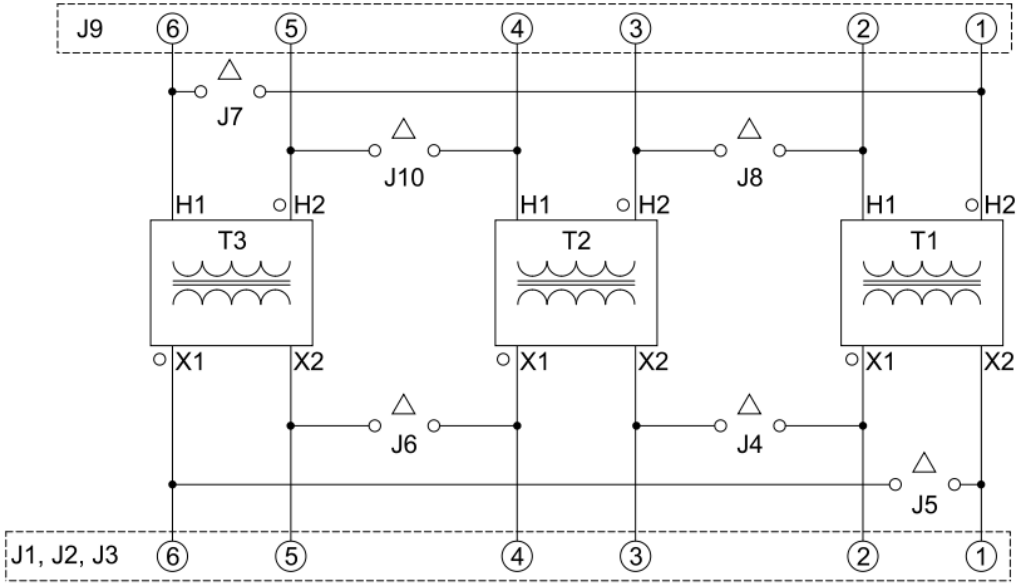
- **Input Voltage:** 120 Vac, 50/60 Hz
- **Output Voltage:** 20 Vac, 50/60 Hz

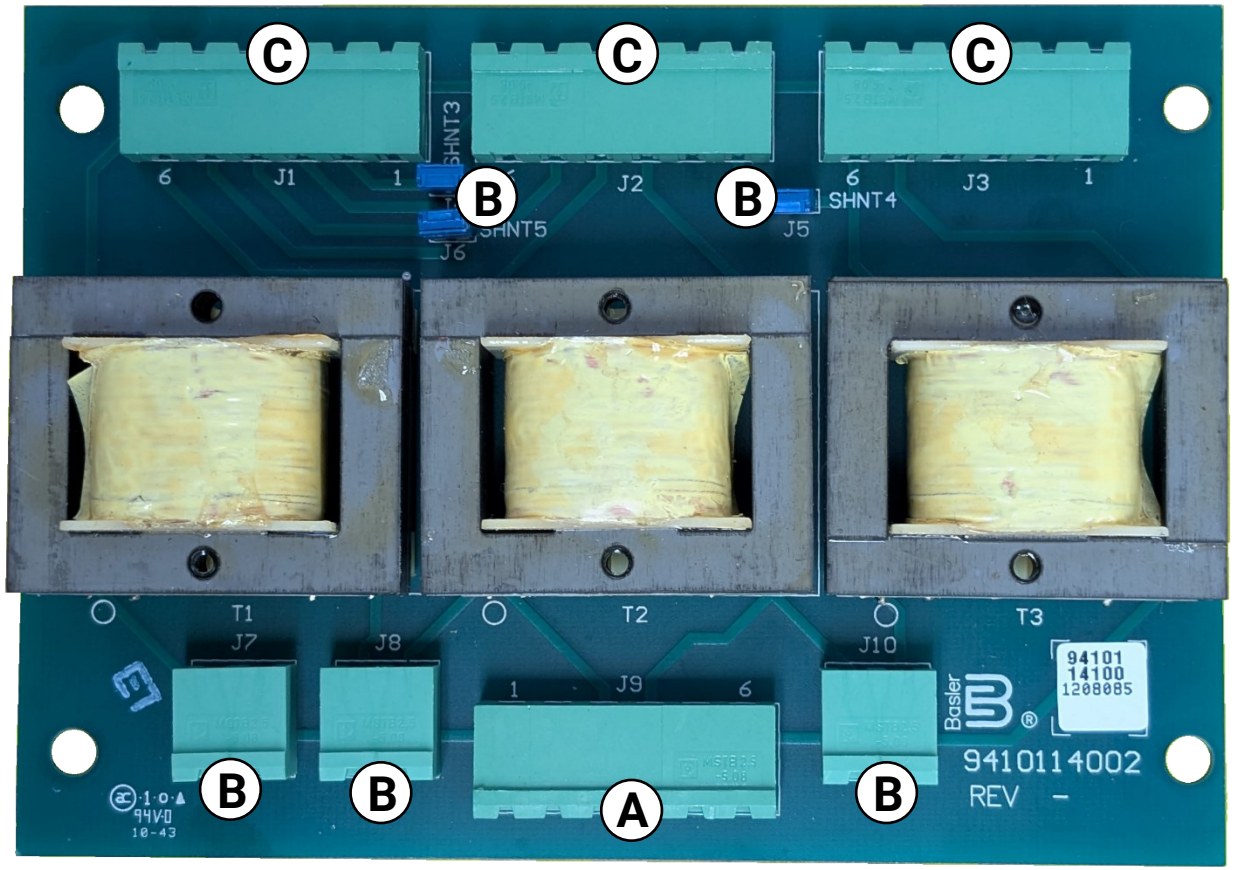
Ordering Information

- **PT Card:** 9410114100

PT Sensing Card

Terminals & Connections





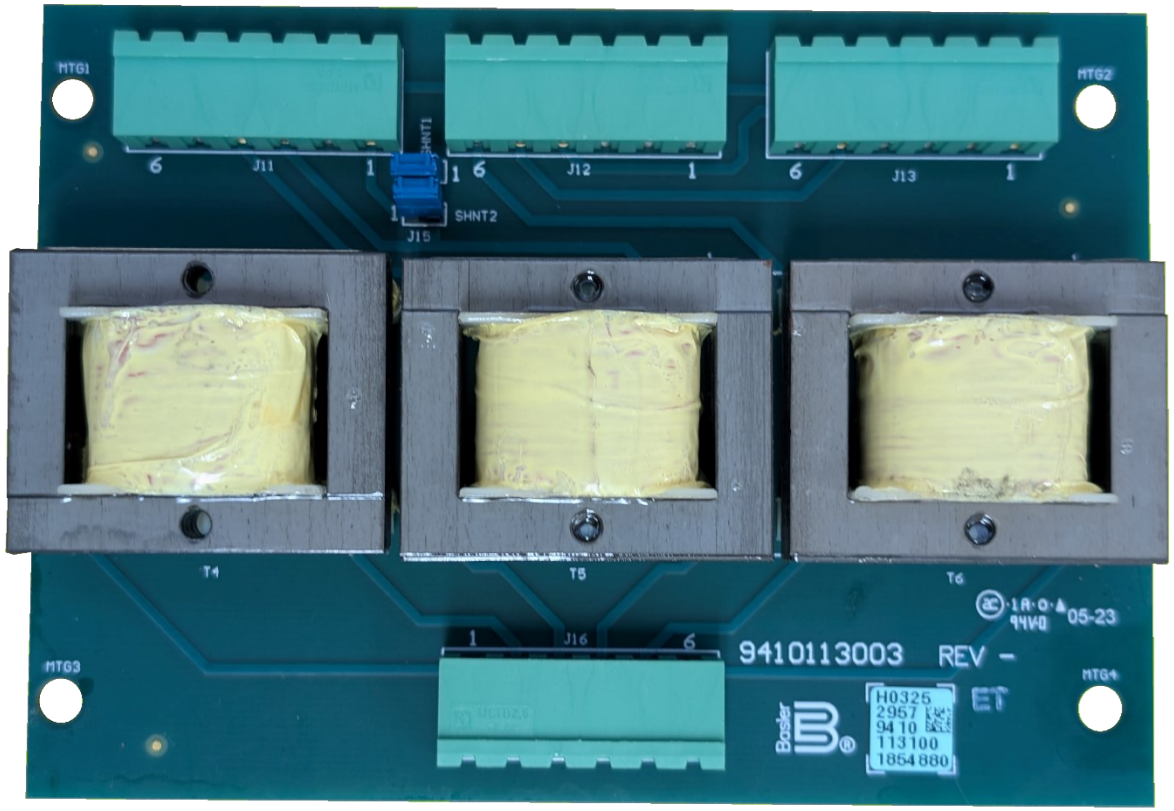
Connections

- **A** PT Connection
- **B** Delta Connection Jumpers
- **C** ECM-2 Analog Input Connection

CT Sensing Card

The CT Sensing Card is typically paired with 0.3 Ω burden resistors to generate an AC voltage proportional to generator current. The CT card steps this voltage up for measurement by an ECM-2. Each card can accept three phase, single phase or two CT currents.

A single CT card can distribute voltage signals for up to three ECM-2s for use in Primary, Redundant, and Supervisory applications.



CT Ratings

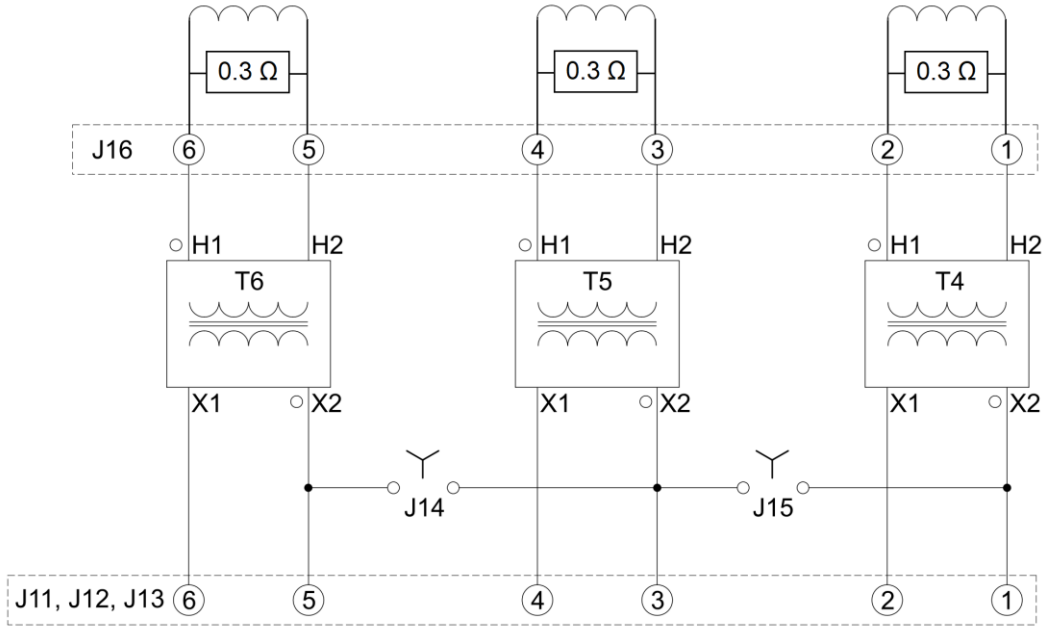
- **Input Voltage:** 1.5 Vac, 50/60 Hz
- **Output Voltage:** 4.5 Vac, 50/60 Hz

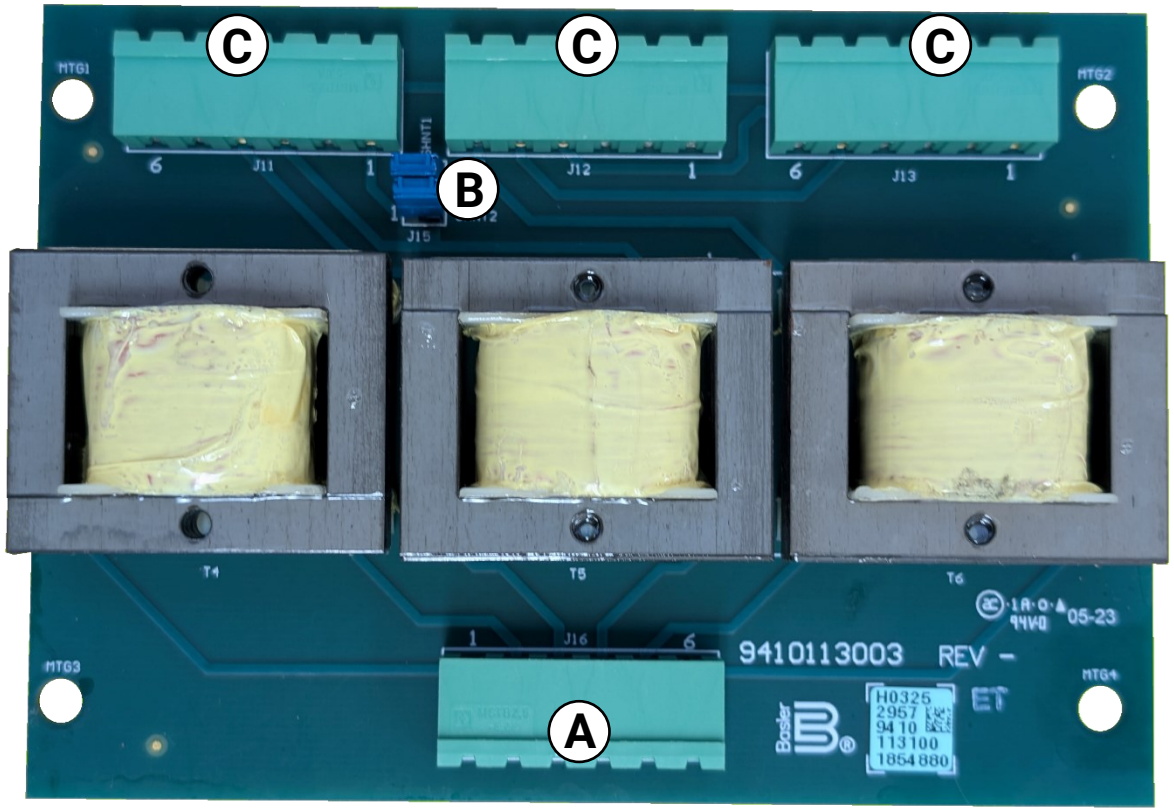
Ordering Information

- **CT Card:** 9410113100

CT Sensing Card

Terminals & Connections





Connections

- **A** CT Connections
- **B** WYE Connection Jumpers
- **C** ECM-2 Analog Input Connection

Power Stage

Flexible Rectifier Bridge Options

DECS-2100 has a variety of standard rectifier bridge options that can be used in redundant or parallel applications. They are the Medium, High and Low Voltage Power Drawers, SSE-N rectifier bridges typically used with DECS-450, and our Low and Medium Voltage Compact Rectifier Bridges (CRB). In addition, the Bridge Control Module (BCM-2) enables DECS-2100 to interface with a variety of 3rd party rectifier bridges for Digital Front End upgrades.

Standard Rectifier Bridge Options

Low Voltage Power Drawer	600 Vac, 1100 Adc
Medium Voltage Power Drawer	900 Vac, 1000 Adc
High Voltage Power Drawer	1300 Vac, 900 Adc
SSE-N Rectifier Bridge	320 Vac, 270 Adc
Low Voltage Compact Rectifier Bridge	600 Vac, 1400 Adc
Medium Voltage Compact Rectifier Bridge	900 Vac, 1000 Adc

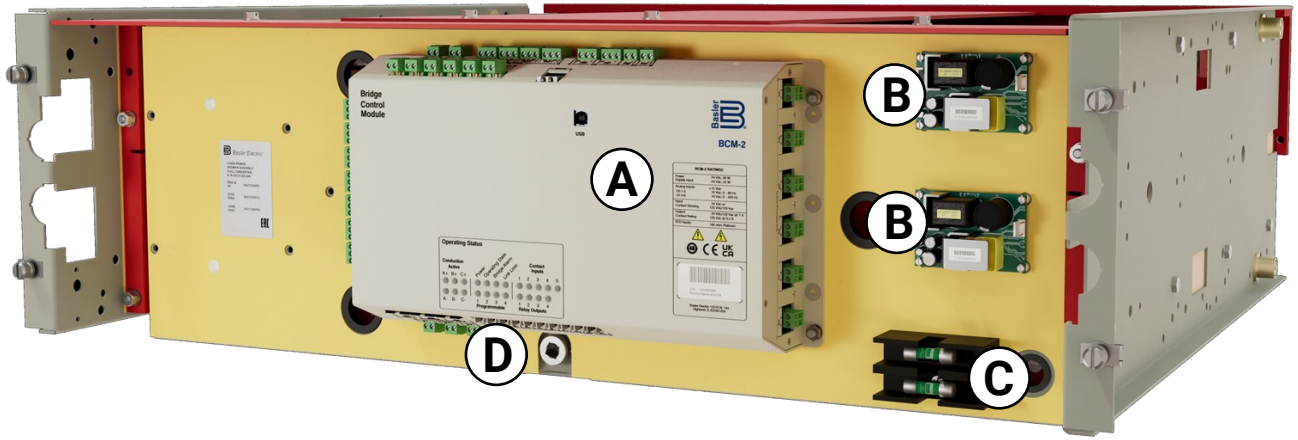
Rectifier Bridge ratings are subject to derating based on environmental conditions or when paralleled.

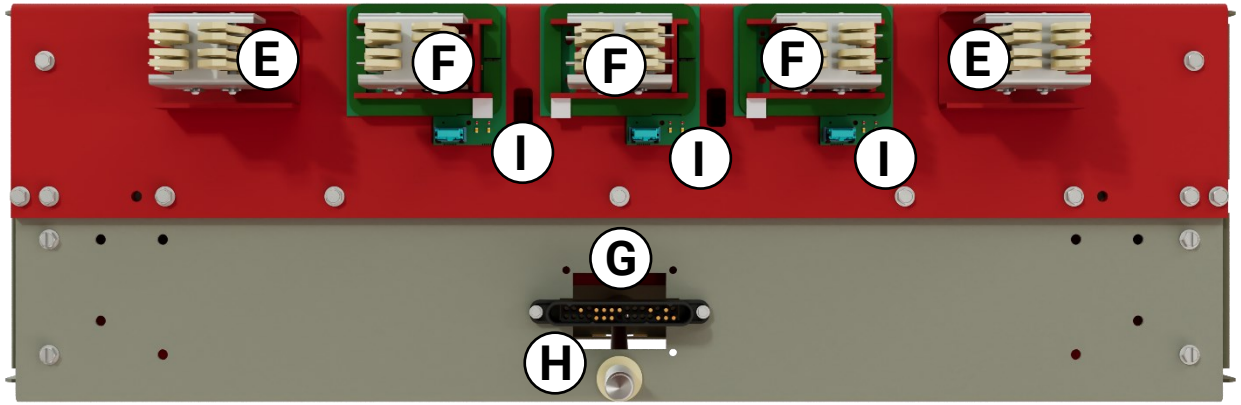
Low Voltage Power Drawer

Terminals and Connections

Connection Table

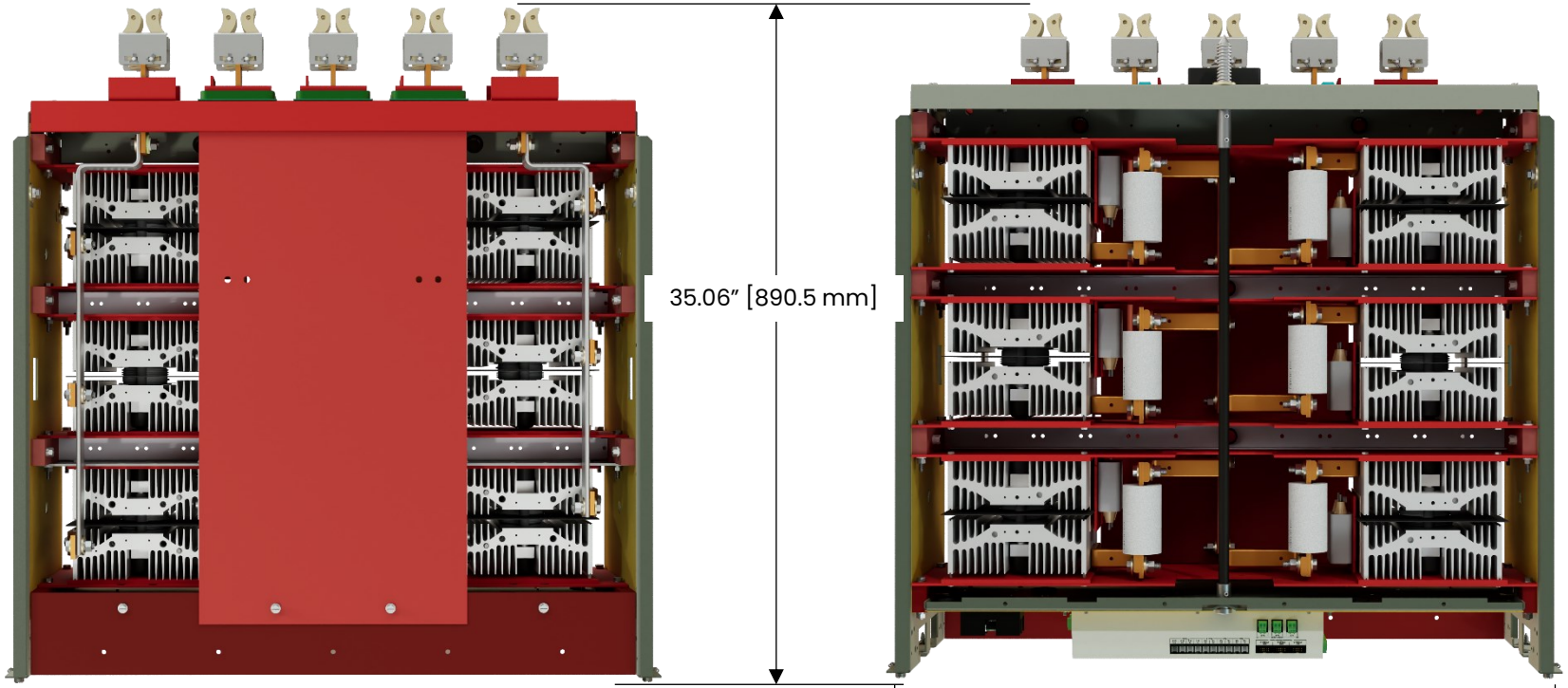
- **A** Bridge Control Module – (BCM-2)
- **B** +24 and -24 Vdc Power Supplies for BCM-2.
- **C** Power Supply Fuses
- **D** Crank Receiver
- **E** DC Bus Connections
- **F** AC Bus Connections
- **G** Control Signal Plug
- **H** Threaded Rod
- **I** Conduction Monitors





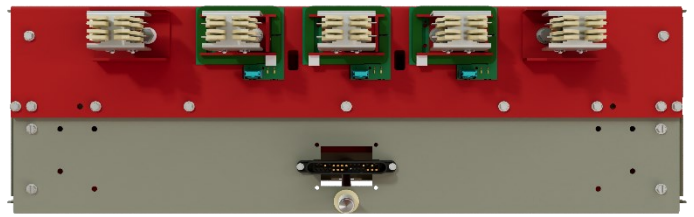
Low Voltage Power Drawer

Weight and Dimensions



Weight:
270 lb [122.5 kg]

Dimensions:
35.06 x 34.44 x 10.59 inches
[890.5 x 874.8 x 269 mm]



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