3500 and Orbit 60
Indoor Packaged Systems
Datasheet

Bently Nevada Machinery Condition Monitoring

141545 Rev. G

Description

Packaged Systems provide a fully pre-mounted, pre-wired, site-ready, and factory-tested industrial enclosure solution for Bently Nevada machinery protection and condition monitoring instrumentation. A packaged system is designed to simplify site installation, provide suitable protection for the installed instrumentation from the surrounding environment, and facilitate ongoing ease of use and maintenance.

Packaged Systems are often delivered as part of larger control and automation projects where customers procure cabinets and instrumentation from multiple suppliers. In other instances, a Packaged System is used as part of a retrofit in an existing facility and must match existing cabinets and a particular field wiring layout. In either situation, customers have the option of specifying the specific dimensions, styles and terminal layouts of the cabinets supplied by Bently Nevada to ensure they match site requirements.

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Supported Monitoring Types	Supported Applications/Environments
• Orbit 60 Series Monitoring System • 3500 Series Monitoring Systems • Any external data acquisition hardware (e.g., communications processors) required by the monitoring systems	**Standard Enclosure Options (Stock Standards):** • NEMA 12 enclosures (IP54 rating) suitable for indoor control room environments • Freestanding enclosure w/ mounting base • Wall-mount enclosures with mounting flanges **Flexible Options available with additional lead-times:** • Doublewide enclosures • Custom size enclosures, materials and painting • Cable marshalling enclosures • Glazed Door Cabinet • Cooling mechanism like vortex or AC units • Seismic kit

Specifications

Enclosures

Enclosures	
Material	Carbon steel
Surface Finish	Dipcoat-primed/Power Coated
Color	RAL 7035
Mounting Plate	Carbon Steel, Zinc-Plated
Physical Dimensions	
Height	Refer to Typical Cabinet Type, Figure 1~ 5 Size not on this datasheet will be considered custom.
Depth	
Width	
Accessories	
Plinth	100mm Plinth for Free-standing enclosure
Handle	Comfort Handle with key-lock
Cable Entry	Gland Plates for Bottom entry
Lifting	Eyebolts
Door	Door Stay for Free-standing enclosure
Fans	• Door Mount (3500) • Roof Mount (O60 & 3500)
Light	LED Light with motion sensor
Temperature	Thermostat or RTD
Earthing	PE/FE Grounding Bars
Circuit Protection	• Miniature Circuit Breaker • Fuses
Terminal Block	Din Rail Mount Terminal Blocks

Enclosure Capacity

3500 in NEMA 12 cabinet (Figure 1) 800 mmW x 2000 mmH x 800 mmD	
Number of Racks	3 Rack/Panel Mount
	2 Rack/Panel Mount (with Isolators)
	2 Bulkhead Mount
	2 Rack Mount in Swing Frame (Front Access Only)
Number of Dynamic IOs	Without Isolator - 120
	With Isolator - 70

Orbit60 in NEMA 12 cabinet (Figure 2) 800 mmW x 2000 mmH x 800 mmD	
Number of Racks	4 Rack/Panel Mount
	4 Bulkhead Mount F/R access
	3 Bulkhead Front Access only
Number of Dynamic IOs	Rackmount F/R w/o Isolators - 120
	Rackmount F/R with Isolators - 70
	Bulkhead F/R w/o Isolators - 180, with Isolators -120
	Bulkhead Front access w/o Isolator – 120, with Isolators - 70

3500 in NEMA 12 wall-mount (Figure 3) 800mmW x 1200mmH x 400mmD	
Number of Dynamic IOs	1-Bulkhead - 60

Orbit60 in NEMA 12 wall-mount (Figure 4) 800mmW x 900mmH x 400mmD	
Number of Dynamic IOs	1-Bulkhead - 60

Orbit60 in NEMA 12 wall-mount (Figure 5 and 6) 800mmW x 1200mmH x 400mmD	
Number of Dynamic IOs	1-Bulkhead with Display -60
	1-Bulkhead with Isolators and Terminal Block -35
	1-Bulkhead with direct connection to Isolators - 50

Terminal Blocks	
Power	
Type:	Single feedthrough terminals, DIN mount
Insulation	Polyamide Nylon
Transducer, Relay, and Recorder	
Type:	Single feedthrough terminals, DIN mount
Insulation	Polyamide Nylon

Wires and Cables	
Signal Cable	
Type	Single Pair or Triad Cable with shield wire
Conductor	Stranded copper
Size	22 ~ 18 AWG 0.33 ~ 0.82 sqmm
Insulation Rating	300 Volts, 75°C minimum
Insulation material	PVC, Flame Retardant
Relay Wire	
Type	Single core
Conductor	Stranded copper

Wires and Cables	
Size	18 ~ 16 AWG 0.82 ~ 1.32sqmm
Insulation Rating	300 Volts, 75°C minimum
Insulation material	PVC, Flame Retardant
Recorder Cable	
Type	Single Pair with shield wire
Conductor	Stranded copper
Size	22 ~ 18 AWG 0.33 ~ 0.82 sqmm
Insulation Rating	300 Volts, 75°C minimum
Insulation material	PVC, Flame Retardant
Power Wire	
Type	Single core
Conductor	Stranded copper
Size	12 AWG (1.5sqmm) minimum
Insulation Rating	600 Volts, 75°C minimum
Insulation material	PVC, Flame Retardant
Earth Wire	
Conductor	Stranded copper
Size	12 AWG (1.5sqmm) minimum
Protective Earth	Green and Yellow
Functional Earth	Green

Circuit Breakers

Circuit Breakers	
	Thermo-magnetic, double pole

Bus Bars

Bus Bars	
Individual bus bars are provided for Protective Earth Ground and Functional Earth, and can be connected when an isolated earthing connection is not required. Intrinsically safe applications have an additional bus bar for I.S. ground.	
Material	Copper

Enclosure Cooling

One or two exhaust fans and corresponding intake filters based on cabinet loading. All enclosures will have cooling fans to circulate ambient air through the cabinets, which may include internal circulation fans between monitoring systems per thermal evaluation.

System Environmental	
Operating Temperature Range	-5°C to +40°C
Storage Temperature Range	-40°C to +85°C
Relative Humidity	0% to 85% rH non-condensing operating and storage

Ventilation
Increase ventilation or decrease heat loads inside the cabinet to achieve a 10°C delta or less between average cabinet inside temperature and ambient temperature. If the delta is 10°C, when ambient is 25°C the average internal temperature will be 35°C. Use heat calculations tools to estimate the average internal cabinet temp. Understand that the temperatures inside at the top of the cabinet will be higher than the average calculated.

Average Internal Temperature

1. Ideal long term: 35°C.
2. Occasional (2-4 hours per day for 90 days per year): 50°C
3. Very rare (a few hours annually): 55°C
4. Anything hotter or longer needs a cooling device.

Equipment Type	
Overvoltage Category	Overvoltage Category II
Pollution Degree	Pollution Degree 2
Electrical Equipment	Fixed Equipment & Permanently Connected Equipment
EMC Compatibility	Industrial location
Ingress Protection	IP54
Impact Resistance	IK-09
Equipment Class	Equipment Class 1
Power Supply System	TN-S System

Cabinet Indoor Package Approval	
Approval	• ETL • CE

CAUTION

LOCATION TEMPERATURE AND HUMIDITY

If you install the hardware in a location where temperatures may exceed 40°C (104°F) or in excessive humidity, please reach out to Bently representative for right custom cabinet design.

Ordering Information

For the detailed listing of country and product-specific approvals, refer to the *Approvals Quick Reference Guide (108M1756)*.

For additional technical documentation, please log in to bntechsupport.com and access the Bently Nevada Media Library.

Packaged Systems

Packaged Systems are individually manufactured to order. Contact a Bently Nevada Customer Care Representative at Bently.com/support for ordering information.

Standard Accessories

- Thermostat/RTD sensor for Temperature
- Interior Cabinet Light Motion Activated, LED
- Electrical Receptacle Country specific format
- Fan

Optional Accessories

- Network Switch 5x RJ45 ports, 10 or 100 Mbs, DIN rail mount. For Orbit60 1G Network Switch
- Other network accessories, Patch Panel, Firewalls
- Redundant DC power distribution within the cabinet
- Alternate insulation material on wires and cables such as LSZH
- Alternate materials for wire duct (LSZH)
- Interposing relays to handle higher electrical current
- Galvanic Isolators, Zener barriers, surge protectors on signal and power lines
- Cooling devices for higher temperature environments
- Marshalling cabinets
- Power and Fan Failure detection
- Door mounted bypass or reset switches
- Multiple Incoming Power Circuits
- External Terminal Blocks for Marshalling cabinets
- Heater
- Smoke Detector

Documentation

- Cabinet drawings in .pdf format
- QA test report

Storage Requirement

- Cabinet & spares must be stored in closed roof
- No rodents, birds or insects in the storage room
- Panels are to be stored in a clean, cool and dry place under controlled ambient temperature, 20 to 30 °C and relative humidity 5% to 85%, non-condensing
- Do not tip, stack and expose to electric shock

Diagrams and Figures

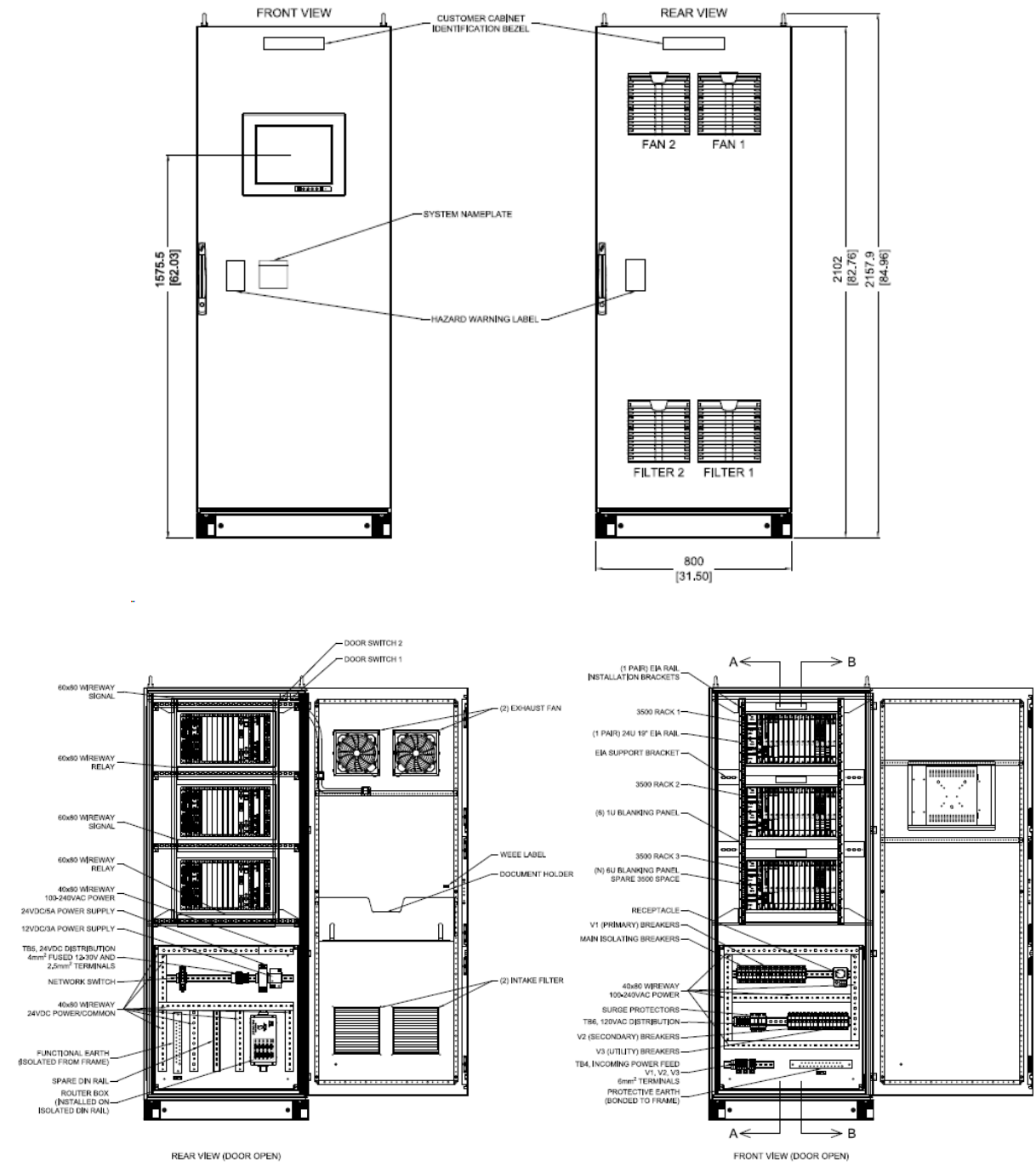

Figure 1: 3500 in NEMA 12 cabinet with optional display (800 mmW x 2000 mmH x 800 mmD)

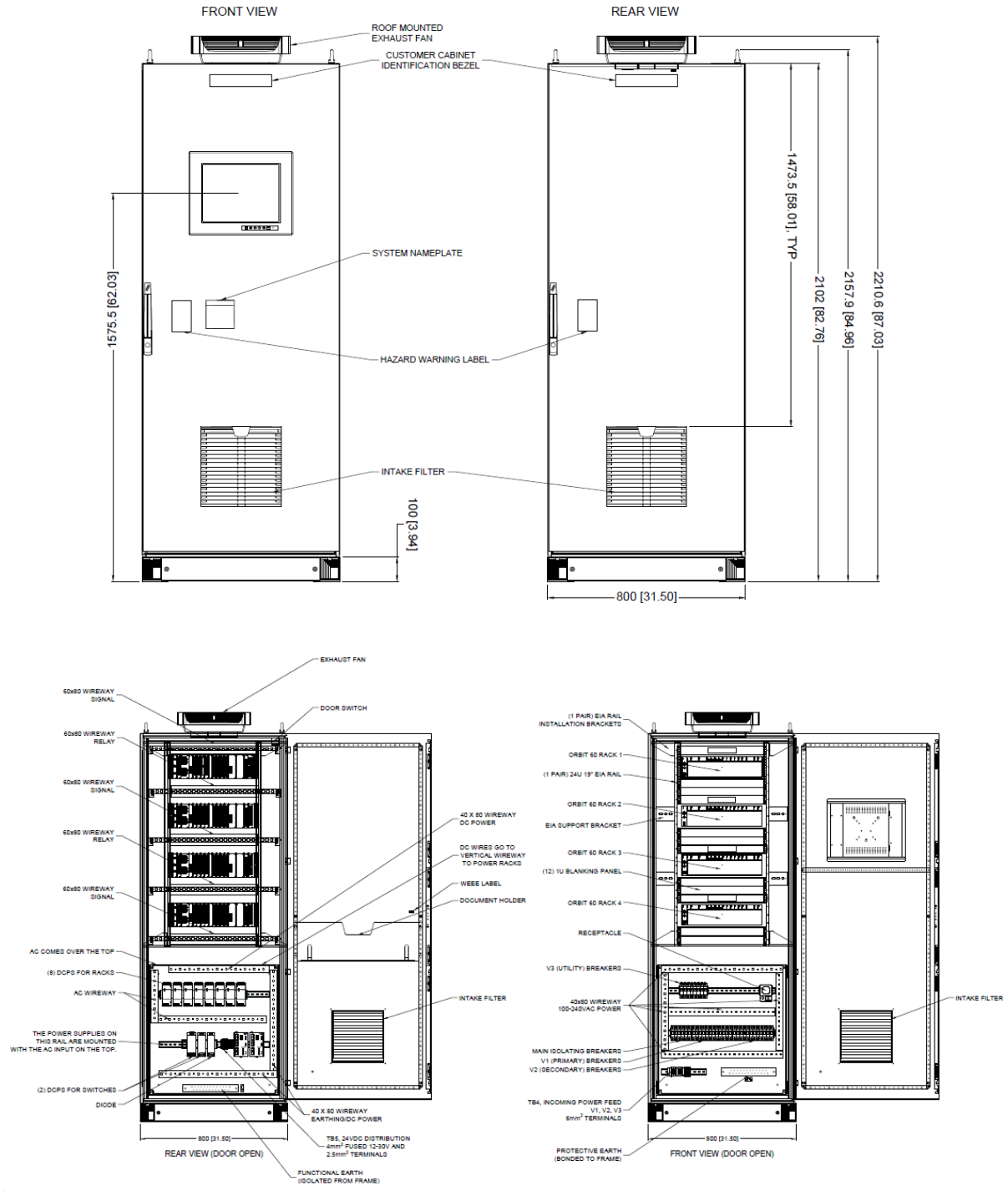

Figure 2: Orbit 60 in NEMA 12 cabinet with optional display (800 mmW x 2000 mmH x 800 mmD)

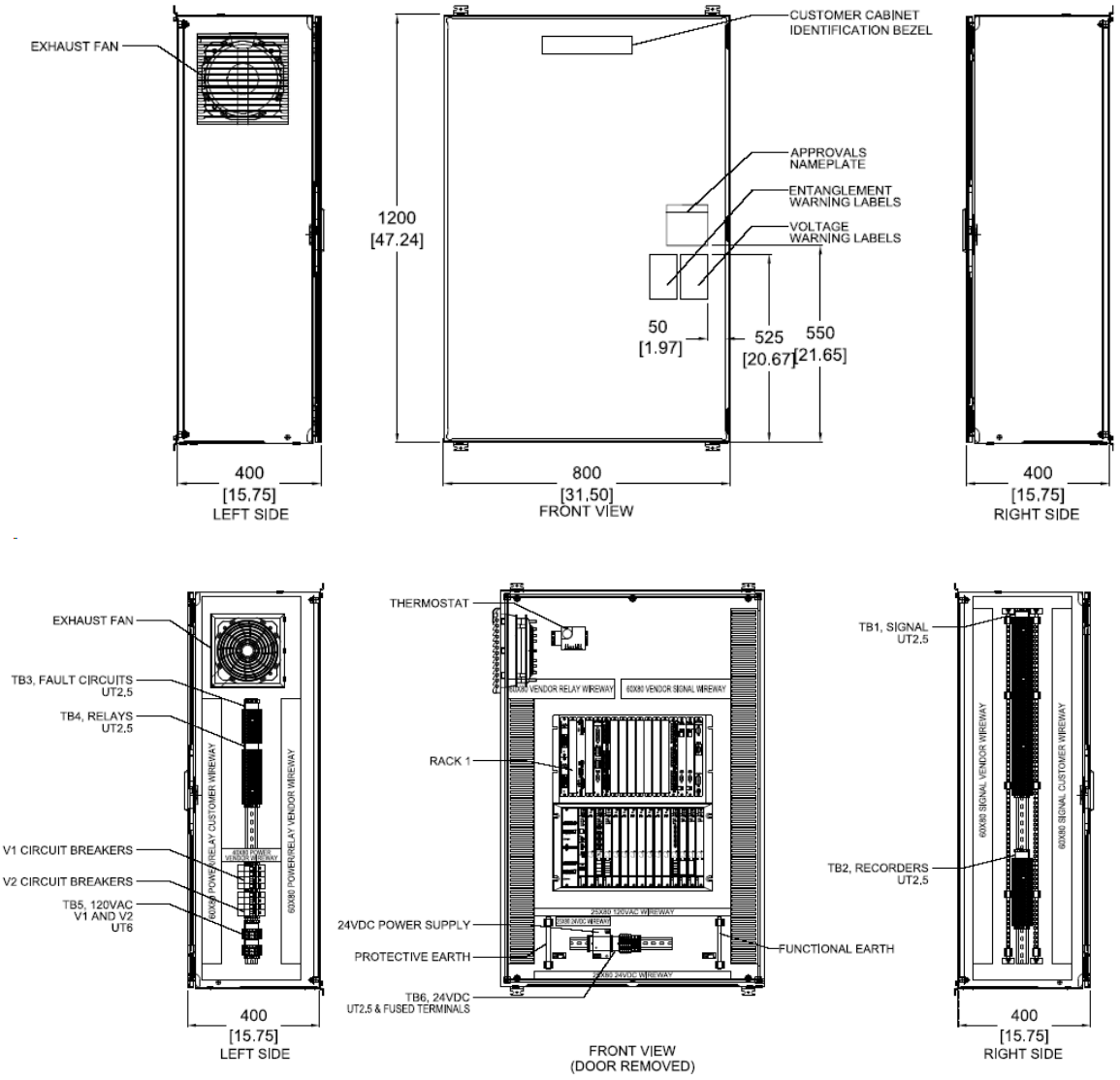

Figure 3: 3500 in NEMA 12 wall-mount cabinet (800 mmW x 1200 mmH x 400 mmD)

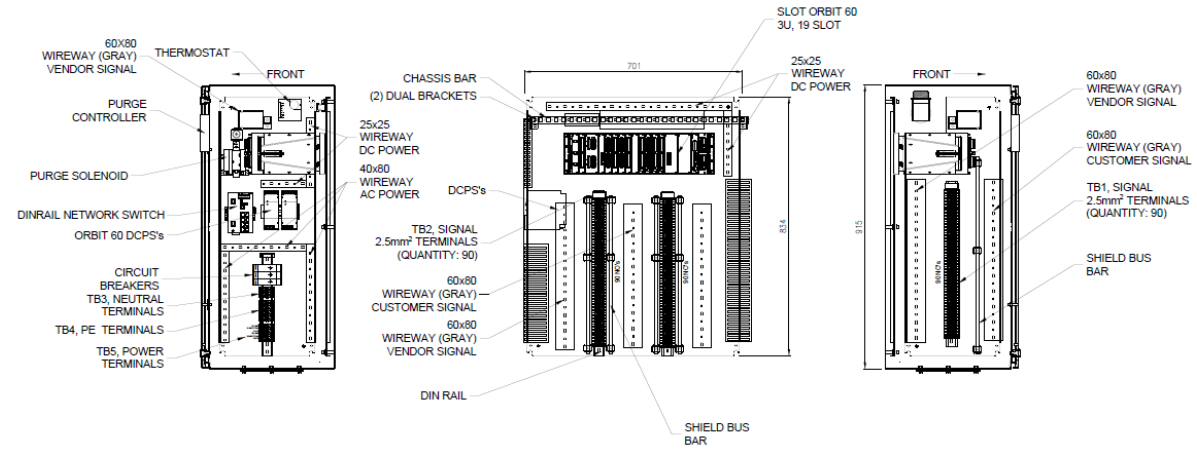

Figure 4: Orbit 60 in NEMA 12 wall-mount cabinet (800 mmW x 900 mmH x 400 mmD)

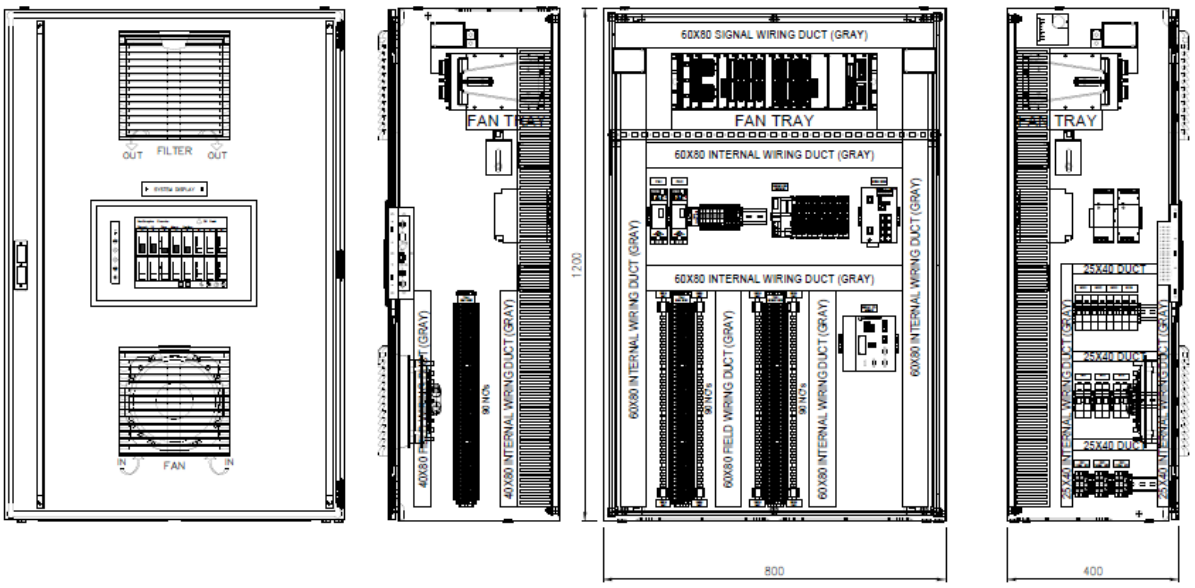

Figure 5: Orbit 60 in NEMA 12 wall-mount cabinet with Display (800 mmW x 1200 mmH x 400 mmD)

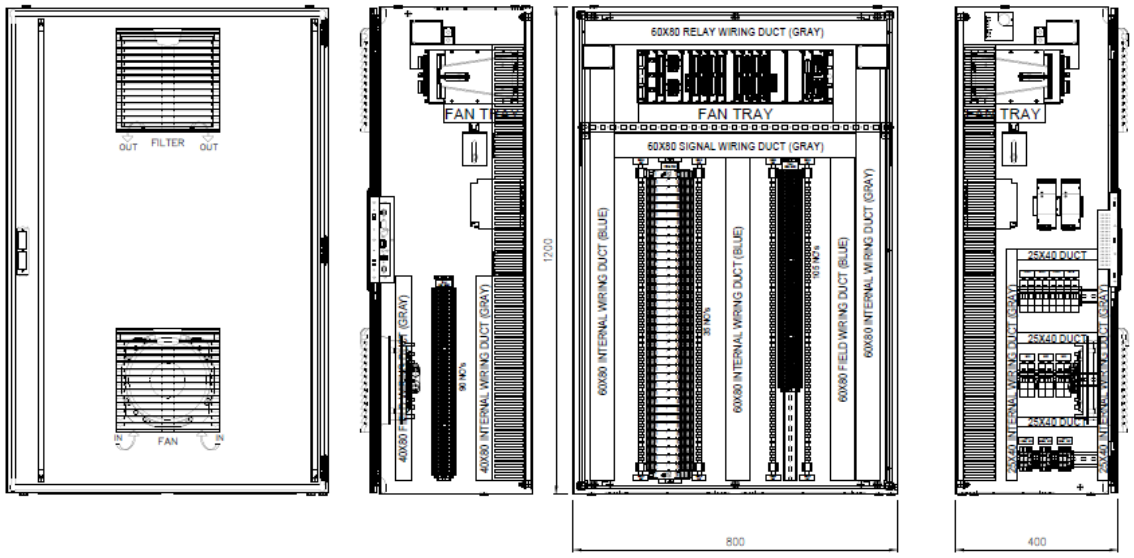

Figure 6: Orbit 60 in NEMA 12 wall-mount cabinet with Isolator (800 mmW x 1200 mmH x 400 mmD)

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