



ADVANCED POWER
TECHNOLOGIES

Generator/Loadbank Quick Connection Tap Box



WM2-Series Generator/Loadbank Quick Connection Solutions Brochure

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**SAFE SMART SERVICEABLE SWITCHGEAR &
ENGINEERED POWER SYSTEM SOLUTIONS**



ALN: 517 Rev. 01

Enhance Safety

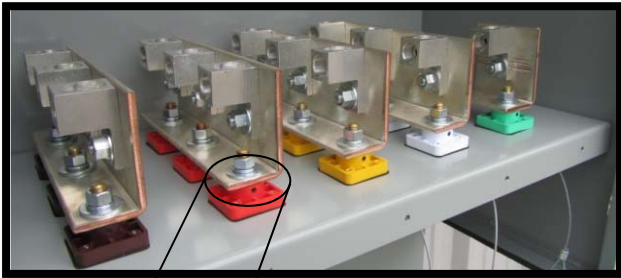


Figure 1: Mechanical lugs on silver plated copper bus bars (Top) with Cam-lok Cover (Left) and Male Cam-lok Receptacle (Right)



Figure 2: Loadbank Quick Connection Tap Box Inside Access Carbon Steel NEMA 3R

400A-4000A Generator or Loadbank Quick Connection Tap Box

- UL Listed
- Wall Mount
- System Ratings:
 - Voltage: 208V-480V (3Ø, 4W)
 - Current: 400A-4000A
 - Interrupting Rating: 10-65 kAIC
- Silver-plated copper phase bus bar for permanent connection to the facility
- Easy and spacious access to color coded, generator (male) & loadbank (female) E1016 cam-lok type receptacles with covers
 - A phase – Brown (480V) / Black (208V)
 - B phase – Orange (480V) / Red (208V)
 - C phase – Yellow (480V) / Blue (208V)
 - Neutral – White
 - Ground – Green
- APT Mechanical Lugs for incoming utility & permanent facility-side connections on NEMA standard hole pattern
- Standard Enclosure:
 - Pad-lockable hinged main access door
 - Integral lower flip door (allows the main door to be closed with the mobile generator cables connected)
 - Bottom door mechanically interlocked with front door to prevent unauthorized access to receptacles when not in use
 - Powder coated ANSI 61 Gray
 - NEMA 1/3R for indoor applications
 - Permanent Connections:
 - Side/Rear, Exit
 - Temporary Connections:
 - Bottom Flip Door Entry

Tap Box Features



Figure 3: 600A Quick Connection with Auxiliary Circuit Breaker



Figure 4: 800A Service Entrance Manual Transfer Tap Box

Circuit Breaker

Cam-lok Style Receptacles

Lower Flip Door (Kirk Key Interlocked with Circuit Breaker)

Monitoring, Interlocking, & Protection

- Phase Rotation Monitoring:
 - Provides visual assurance that mobile generator set phase rotation matches that of the facility
 - Configured to prevent circuit breaker from being closed if phase rotation is incorrect
 - Instructions to easily fix incorrect phase rotation are on a label inside each panel
- Ground Fault Monitoring:
 - Trips the circuit breaker on ground fault or provides alarm indication only
 - Configured at the factory per your order
 - Easily re-configurable in the field
- NEC 700.3 compliant temporary generator source connected indication

- Interlocking:
 - NEC 700.3 compliant key interlocking to prevent inadvertent paralleling of the temporary generator source with normal source(s)
- Shunt Trip:
 - 120VAC for tripping circuit breaker if phase rotation is incorrect or on ground fault sensing
- Temporary Generator Protection
 - Molded Case Circuit Breakers
 - Fixed mount
 - Trip Unit
 - Thermal Magnetic
 - Electronic trip unit with adjustable Long Time, Short Time, Instantaneous settings
 - Aux Contacts (“a” & “b”)
 - Standard or 100% rated

GQC Tap Box Options



Figure 5: 800A Interlocked Utility Service Disconnect



Figure 6: 800A Temporary Generator Quick Connection with Generator Signal Terminal Blocks for Customer Connections in Type 304 Stainless Steel Enclosure

Pad Mounting, Enclosure Options, Optional Features

- ❑ Termination Cabinet (Lug Inputs/Outputs Only)
- ❑ Load Transfer means:
 - Open Transition Manual Transfer via mechanical key interlocking
- ❑ Hurricane Resistant Wall-Mount to Pad-Mount Conversion Kit
 - 3/16" Formed Steel Construction
 - Bolt together design for easy factory or field assembly
 - Designed to withstand Category 5 Hurricane force winds
 - Up to 190MPH
 - Galvanized or Powder Coated Finish
- ❑ Enclosure options:
 - NEMA 4X for outdoor installation:
 - Type 304 or 316 Stainless Steel
- ❑ Other Options
 - No Neutral Bus or Cam-loks
 - 100% Ground
 - Surge Protection Device (SPD)
 - Generator Remote Start/Stop Terminal Blocks
 - Generator Block Heater Receptacle
 - 480VAC or 240VAC Twist-lock Receptacle
 - 120VAC Battery Charger/Convenience Receptacle
 - Load Dump Receptacle/Terminal
 - Extra Large Enclosure for Conduit Entry/Exit
 - Custom Color
 - Convenience Light
 - SCADA Connection Interface

Key Interlocking Configurations



Figure 7: 800A Interlocked Utility Service Disconnect

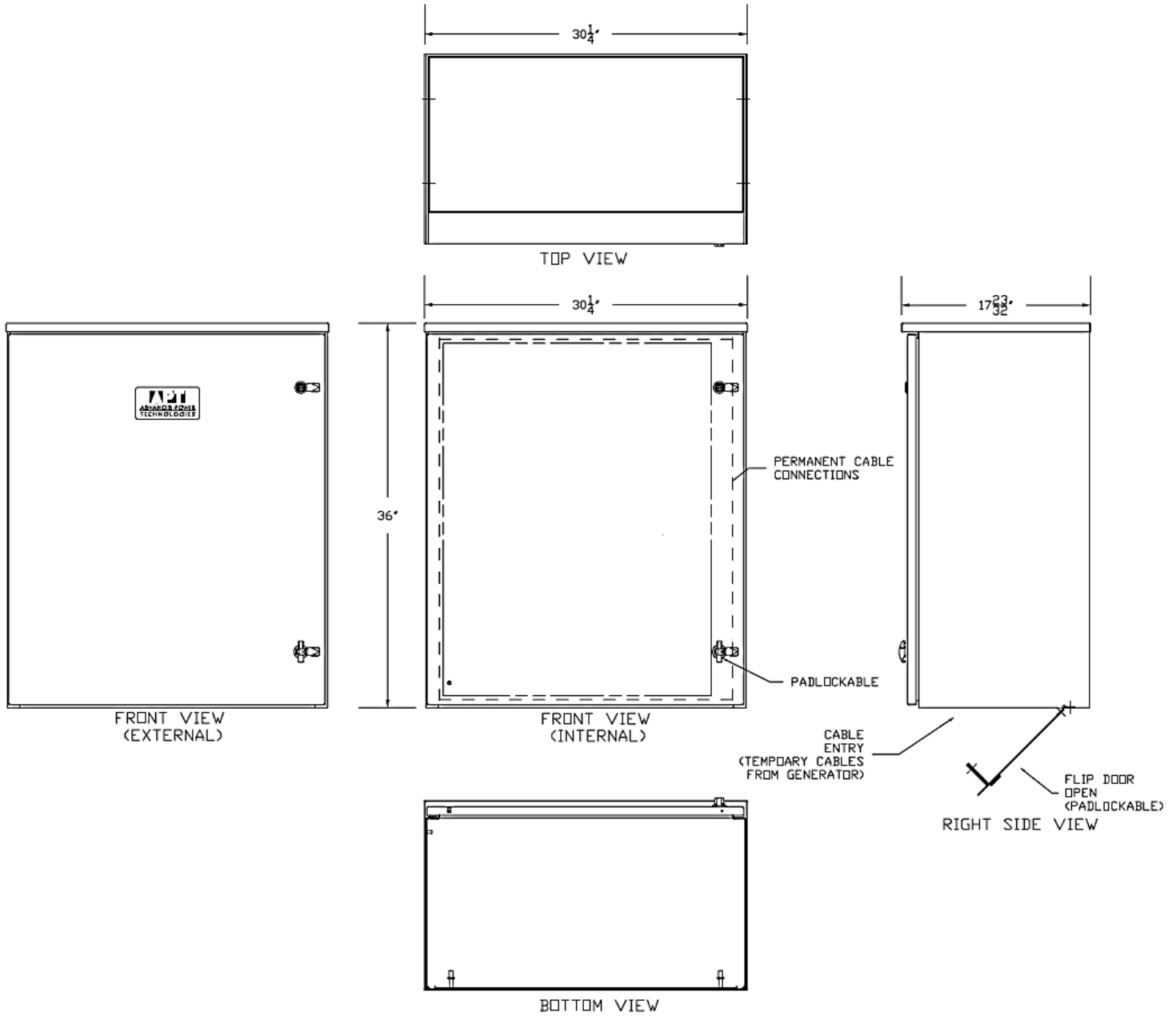


Figure 8: 800A Temporary Generator Connection Receptacles Accessed via Key Interlock with Utility Circuit Breaker

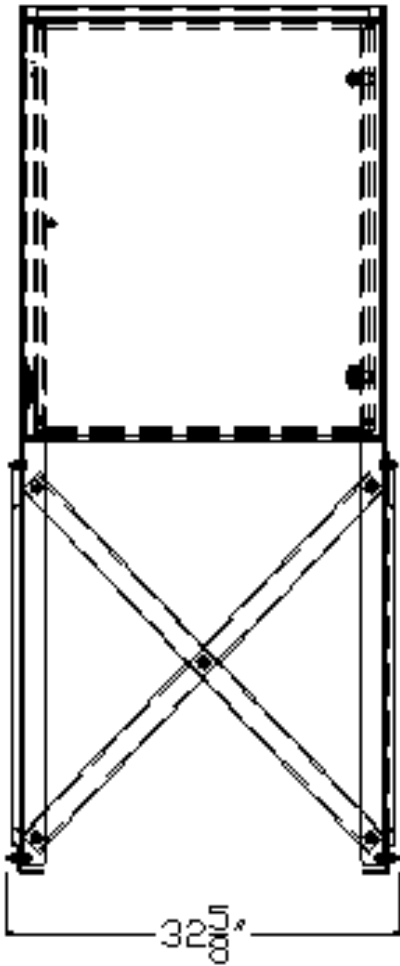
Utility, Generator Only, Loadbank Only, Applications

- Generator connection only applications typically require Kirk Key Interlocking to safely prevent the inadvertent paralleling of the normal & emergency power sources:
 - Service Entrance Rated Manual Transfer Tap Box (two integrated Kirk Keys)
 - Utility Service Entrance Circuit Breaker with Kirk Key
 - Temporary Generator Circuit Breaker with Kirk Key
 - Temporary Generator Connection Only
 - External service main no temporary generator circuit breaker protection
 - One integrated Kirk Key, one ship loose Kirk Key for installation on facility service main
 - Multiple generators or feeders circuit breaker sections (multiple Kirk Keys, transfer block)
- Operation sequence without the interlocking of sources is available upon request for users with advanced knowledge of their facility's requirements and procedures
- Loadbank connection only applications
 - Easily connects a temporary Loadbank to a facility's permanent generator(s)
 - Utilizes female cam-lok type receptacles
 - Does not require the use of interlocking
 - Circuit breaker and monitoring options available

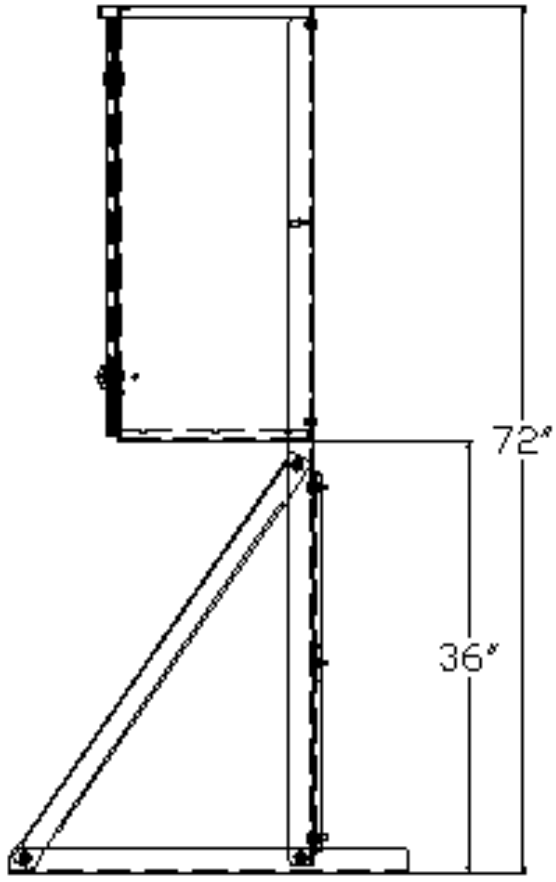
GQC Tap Box Wall Mounted



GQC Tap Box Pad-Mount Kit



FRONT



RIGHT SIDE

APT Product Part Number Builder

Table 1: Standard Product Configuration Budgeting Prices

Base Part Number	Approx. Generator Rating @ 480V (kW@0.8pf, kVA)	Current Rating	Maximum # of Cables Per Phase and Neutral		Base Budget Price (No Circuit Breaker) (USD \$)
			Cam-locks/Phase (Temporary Generator Side)	Maximum # Cables/Phase (Permanent Facility-Side)	
APN1583	250kW, 333kVA	400A	1	2	\$ 4,778.00
APN1584	500kW, 667kVA	800A	2	4	\$ 5,594.00
APN1585	750kW, 1000kVA	1200A	3	6	\$ 6,715.00
APN1586	1000kW, 1333kVA	1600A	4	8	\$ 7,531.00
APN1632	1250kW, 1667kVA	2000A	5	10	\$ 8,408.00
APN1633	1500kW, 2000kVA	2400A	6	12	\$ 9,528.00
APN1682	1750kW, 2333kVA	2800A	7	14	\$ 10,345.00
APN1683	2000kW, 2667kVA	3200A	8	16	\$ 11,465.00
APN1780	2500kW, 3000kVA	4000A	10	20	\$ 12,441.00

Base Size

BPN
APN1683

Option Number

A	EM	ET	MT	CB	KK	MO	OO
G	CS	3R	0	0	0	1	3-5-6-1a

Example: APN1683 G CS 3R 0 0 0 1 3-5-6-1a

Your P/N:

Base Part Number
(APN1583) - 400A
(APN1584) - 800A
(APN1585) - 1200A
(APN1586) - 1600A
(APN1632) - 2000A
(APN1633) - 2400A
(APN1682) - 2800A
(APN1683) - 3200A
(APN1780) - 4000A

Application
(G) - Generator Only
(L) - Loadbank Only
(GL) - Generator & Loadbank
(SE) - Service Entrance
(TL) - Termination Lugs Only

Enclosure Metal
(CS) - Carbon Steel
(SS4) - 304 Stainless Steel
(SS6) - 316 Stainless Steel

Enclosure Type
(3R) - NEMA 3R
(4X) - NEMA 4X

Mounting
(0) - Wall Mount
(1) - Pad Mount

of Circuit Breakers*
(1) - One CB
(2) - Two CBs
(0) - None

Kirk Key Interlocking
(1) - One Integrated Lock, One Ship Loose Lock
(2) - Two Integrated Locks (Manual Transfer)
(0) - None

Monitoring
(1) - Phase Rotation Only
(2) - Ground Fault Only
(3) - Phase Rotation & Ground Fault

Other Options*
(1) - No Neutral Bus or Cam-locks
(2) - 100% Ground
(3) - Surge Protection Device (SPD)
(4) - Generator Remote Start/Stop Terminal Blocks
(5) - Generator Block Heater Receptacle
(6) - 480VAC or 240VAC Twist-lock Receptacle
(7) - 120VAC Battery Charger/Convenience Receptacle
(8) - Load Dump Receptacle/Terminal
(9) - Extra Large Enclosure for Conduit Entry/Exit
(1a) - Custom Color
(2a) - Convenience Light
(3a) - SCADA Connection Interface
(0) - None

*Customer to provide description of the features desired

Generator Only Configurations

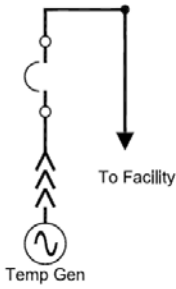


Figure 9: Single Circuit Breaker Option

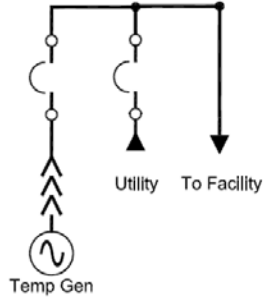


Figure 10: Dual Circuit Breaker Option with Utility & Gen Breaker

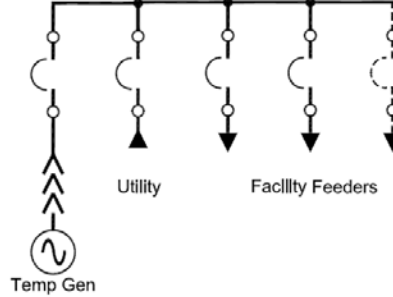


Figure 11: Multiple Circuit Breakers Option

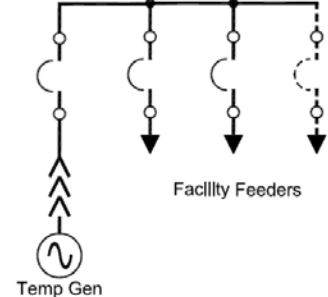


Figure 12: Feeder Circuit Breakers Option

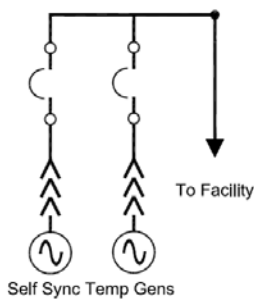


Figure 13: Two Self Sync Temp Gensets into two sets of Cam-locks

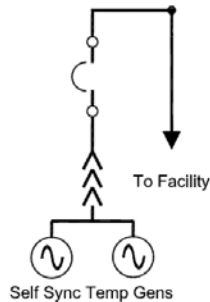


Figure 14: Two Self Sync Temp Gensets into one set of Cam-locks

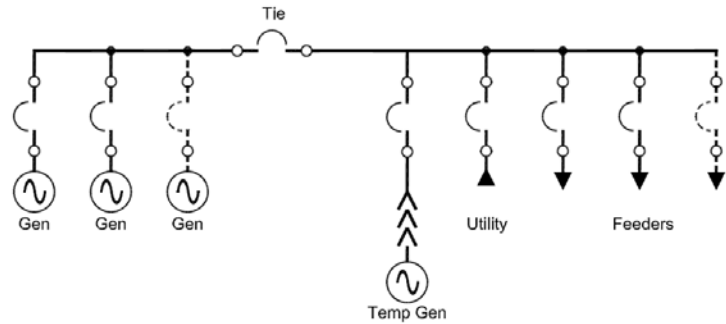


Figure 15: GQC integrated into Low Voltage Switchgear

Loadbank Only Configurations

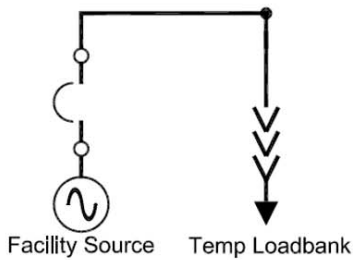


Figure 16: LQC Single Circuit Breaker Option

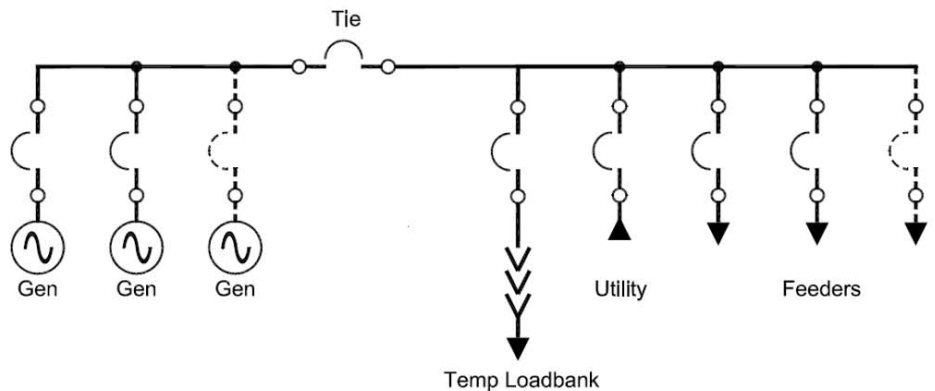


Figure 17: LQC integrated into Low Voltage Switchgear for annual Genset Testing

About Advanced Power Technologies



Advanced Power Technologies (APT) is on the cutting edge of the latest engineered power system smart technologies, as it relates to microgrid & storage management, renewable & conventional energy source deployment, demand peak shaving, and facility back-up and co-generation power systems. Located in the central United States and headquartered in Lafayette, Indiana with solutions development engineers around the country, APT provides domestic and international products and services to industry leading companies from around the world. APT engineers have decades of power system experience from working with some of the largest companies in industry. Over the last two decades, we have produced successful solutions for hundreds of large-scale electric power projects involving utility/generator paralleling, transfer, peak shaving, and distribution. We pride ourselves in providing electrical power systems that are engineered and custom built, utilizing state-of-the-art technologies to fit our customer's exact needs. The core of our business is low & medium voltage engineered power systems for a wide range of indoor & outdoor applications, such as:

- ⊙ Utility(ies) and Generator(s) Paralleling/Transfer/Peak Shaving/Distribution Switchgear
- ⊙ Microgrids, Microgrid Master Control Panels, SCADA systems
- ⊙ Containerized Battery Energy Storage Systems (BESS)
- ⊙ Photovoltaic (PV) Solar Power Collection/Distribution & Renewable Energy Storage Systems
- ⊙ Low & High Resistance Grounding Systems, Grounding Systems for Photovoltaic Effective Grounding
- ⊙ High Efficiency Combined Heat and Power Switchgear & Control Systems (CHP, Co-generation)
- ⊙ Outdoor Walk-In Electrical Houses (E-Houses) & Skid-Mounted Switchgear
- ⊙ Motor Control Centers & Motor Control Switchgear
- ⊙ Automatic & Manual Load Transfer Switchgear
- ⊙ Bypass/Isolation & Power Distribution Circuit Breaker Switchboards
- ⊙ Generator/Loadbank Quick Connection Switchgear, Switchboards, & Tap Boxes
- ⊙ Industrial Control Panels

Please see our product webpages on www.apr-power.com for product brochures and relevant information. Actual products may look different from images shown on the website and in brochures, based on actual specifications.

APT cares and understands that each power system is different. We will evaluate various solutions in order to develop the best solution for a site. APT focuses on our ability to a combine several traditional pieces of equipment/functionality into as little of a footprint possible. This saves on space, the cost of equipment, cost of installation, and accomplishes the most optimal/state-of-the-art design your facilities. APT's desires to foster and grow a culture of continued open communication with each customer. Let APT be your source to provide fully engineered power system equipment solutions for the full customer facility on time, on or under budget, and in the smallest footprint possible. We are always available to assist customers and engineers representing customers in the development of complex power solutions for all facility types.