



# What is a Docking Station

- ❑ Enables the ability to quick connect to a building or facility
- ❑ Ensures additional back up options beyond UPS systems
- ❑ Provides redundancy to permanent generators
- ❑ Opens up options for non-critical load services to be powered up
- ❑ Quick and easy access for load banking
- ❑ Supply's an option for portable power to be quickly disconnected once utility power is restored.





# Generator Docking Stations

## Transfer-switch-No permanent

- GDS
- Contractor Grade
- GRUB Box



## No method of Transfer

- Trystar Access Panel
- Rotary Docking Station
- Retail Docking Station



## Existing Permanent Gen. on site

- Single Breaker Docking Station
- Dual Breaker Docking Station



## Other applications

- Portable Rental Docking Station
- Inlet Panel



# Various Switching Methods



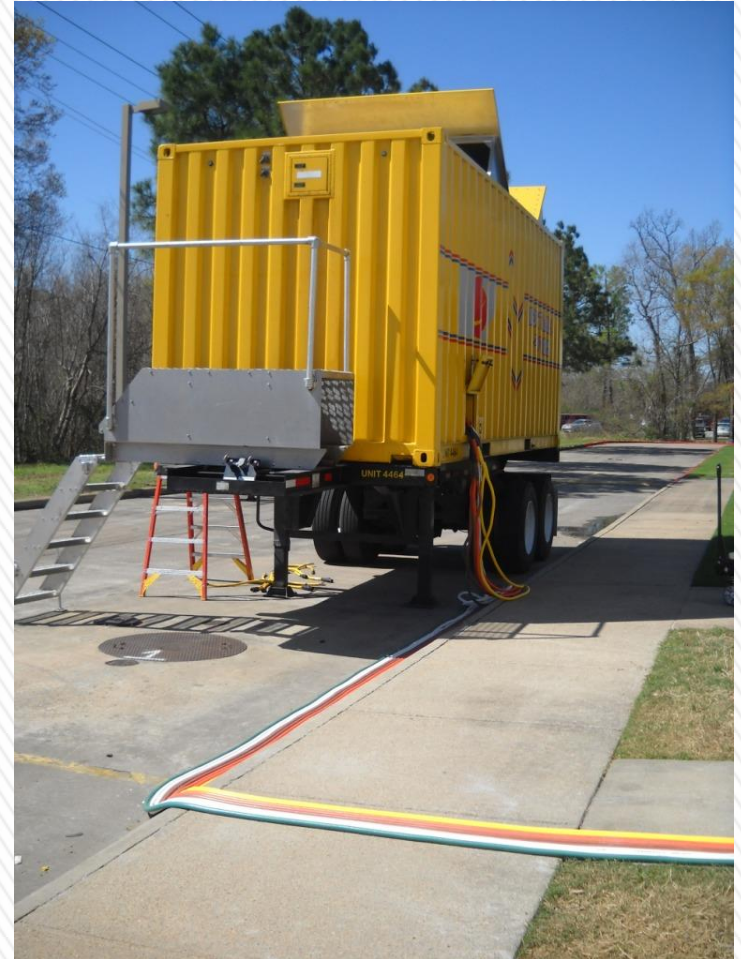
- **Automatic** – Docking Station is wired to ATS and setup with 2 wire auto start, 120V outlet for battery charger and block heater. If intercepting utility feed, the switch must be Service Entrance Rated with a Main Breaker. No amperage restriction.
- **Manual Rotary** - Docking Station and manual transfer-switch are in one common enclosure. If intercepting utility feed, the switch must be Service Entrance Rated with a Main Breaker. Restricted to 1200A.





# Generator Categories

- ❑ **Permanent:** On-site all of the time
- ❑ **Portable:** Stored off site



# Portable Generators

**Generator – Where are you going to get the generator**

- 1. Rent it – Need a contract to guarantee it's there when needed**
- 2. Own it – Need a place to store and maintain in**




# Safe and code compliant connection/disconnection

- Plan on how to hook it up and unhook it

**CAUTION**

To avoid electric shock, connect in the following sequence:



- 1: GROUND
- 2: NEUTRAL
- 3: PHASE A
- 4: PHASE B
- 5: PHASE C

Reverse sequence must be used for disconnecting.

When used to power a structure this inlet must be used in conjunction with a transfer switch.

For power inlet only.  
Not for use as an outlet.  
XXXV/XXXV XXXA 3 $\phi$  60Hz  
**TRYPSTAR, INC.**  
MODEL: GDS-XXXX-XX  
SERIAL: XXXXXXXXXXX-XX/20XX  
35K SCCR  
5 - 95% Humidity  
Ambient Temperature of 40 Deg C





# Generator Docking Stations, applications that have a transfer- switch, permanent generator or both

- **GDS**- Used to safely integrate a portable generator or load bank into an existing electrical system that already has the necessary switching means available.

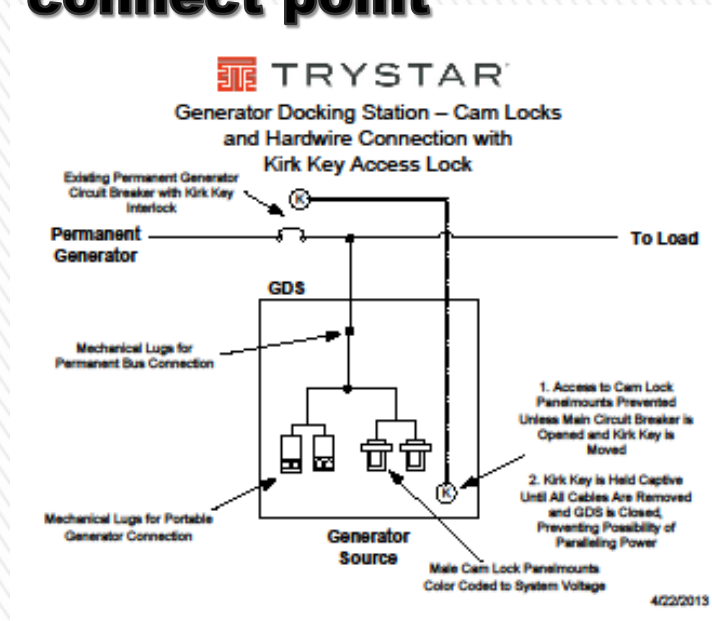






# GDS One Line

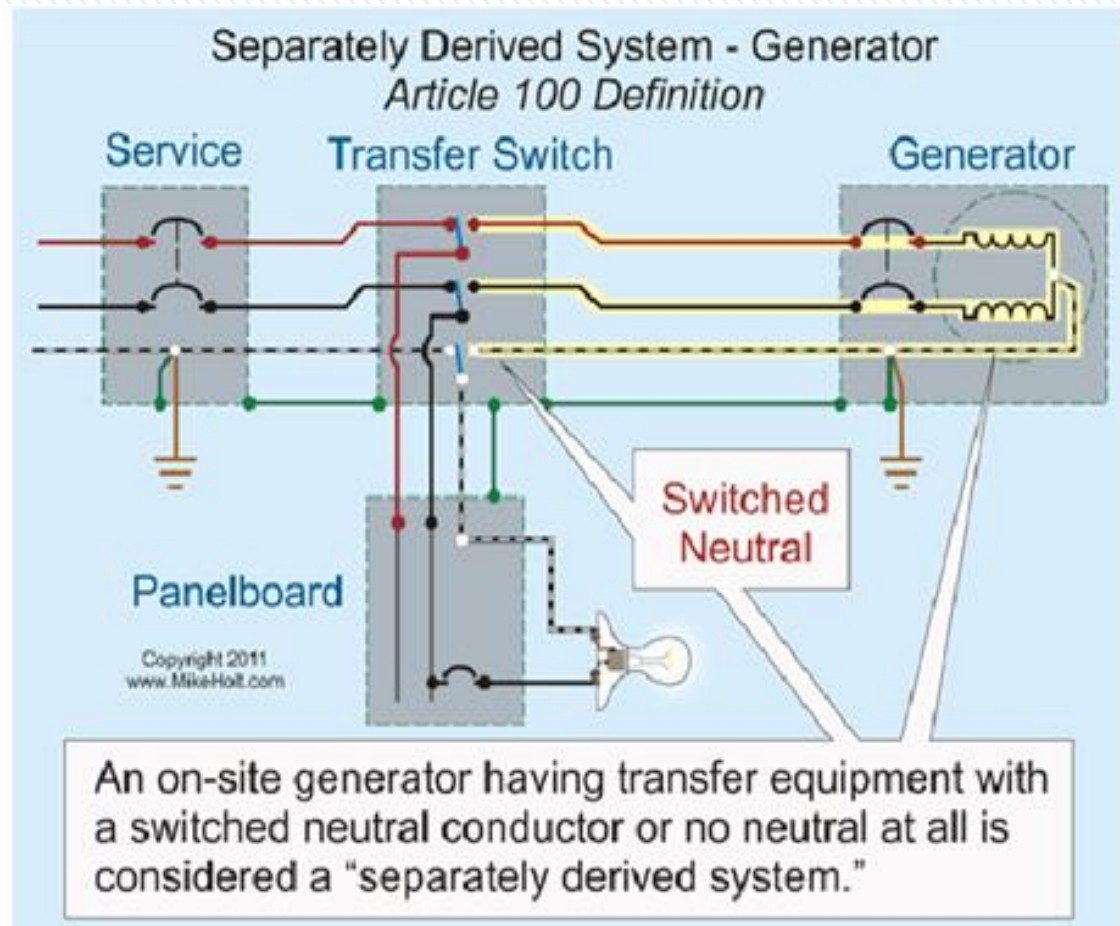
For use with and ATS,  
the GDS is a quick  
connect point



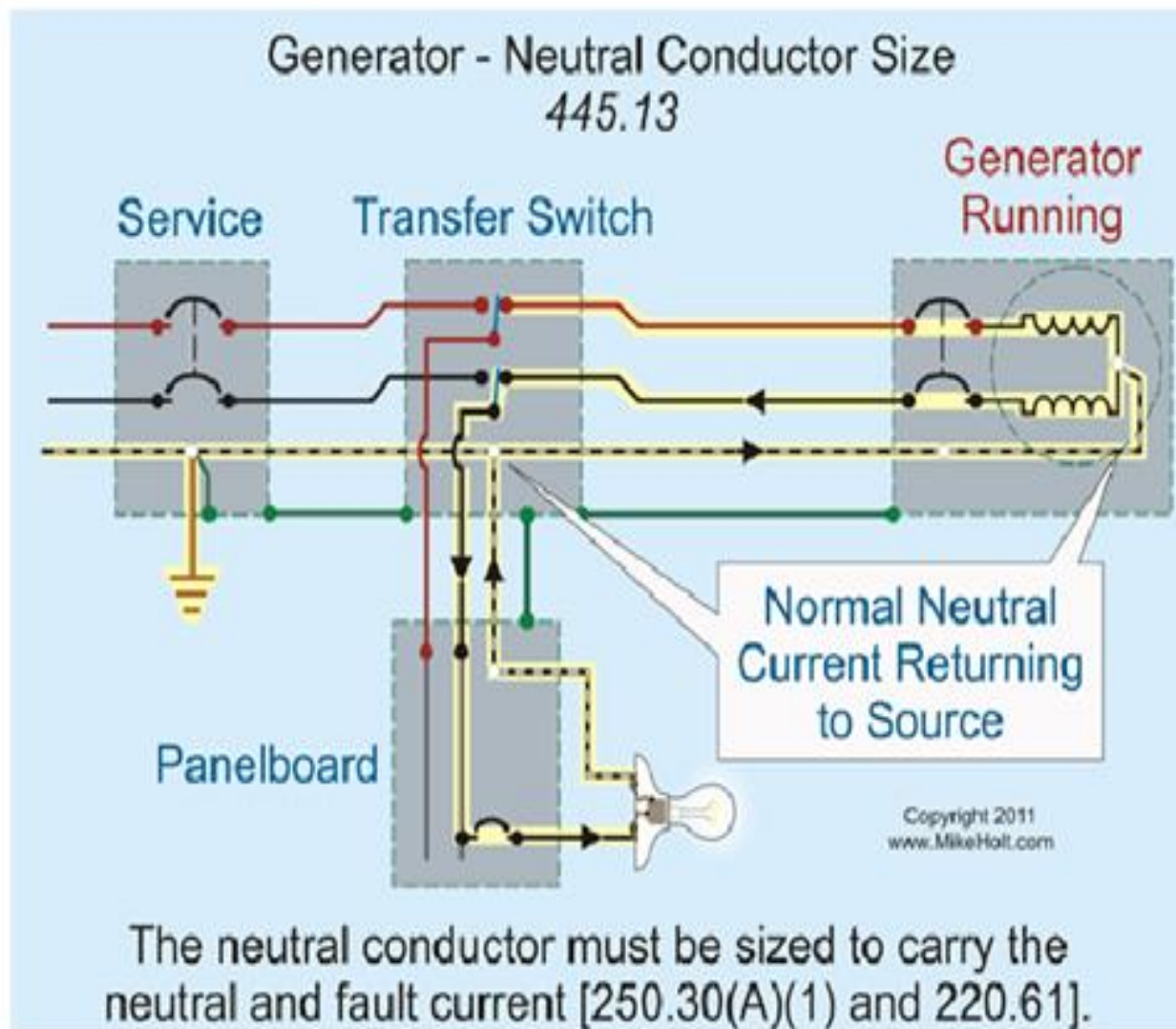


# Generators fall into 2 systems

## □ Separately Derived System



□ Not a Separately Derived System





# Rotary Docking Stations, applications that have neither a transfer-switch or permanent Generator

- Utility-Off-Generator, up to 1200A (soon 3000A)
- Option for Service Entrance Rating
- Same Cabinet as our large GDS
- Handle is inside or outside mounted

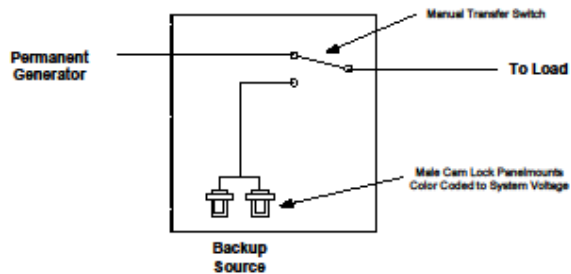




# GDR One Line

**A Manual transfer-switch  
all in 1 unit. Source A –  
Off – Source B**

 **TRYSTAR**  
Generator Docking Station with Rotary  
Transfer Switch



4/22/2013







TRYSTAR





# Retail Docking Station



- Kirk Key option as transfer method
- Comes with a breaker
- Dual inputs cam lok and hard wire
- ETL Listed up to 600A with breaker



# Safety through Kirk Keys

- Prevent back-feeding utilities, improper hookup (wrong rotation, phase to ground, etc.)



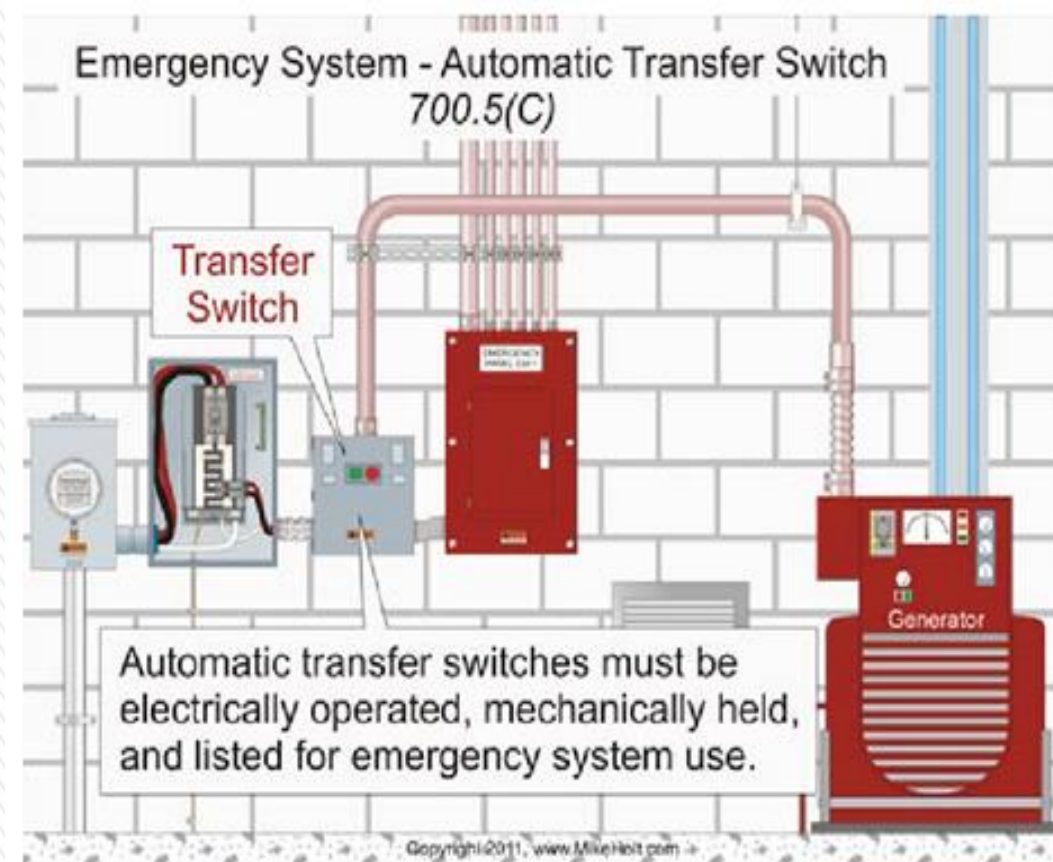
# Kirk Key Access Generator Docking Station

- ❑ Kirk ® key is on the building's main breaker, and captive
- ❑ To release key, turn main to off. This releases the only key that will unlock the Generator Docking Station.
- ❑ The key in the Generator Docking Station remains captive until the GDS is closed, and locked, and all cable is removed.



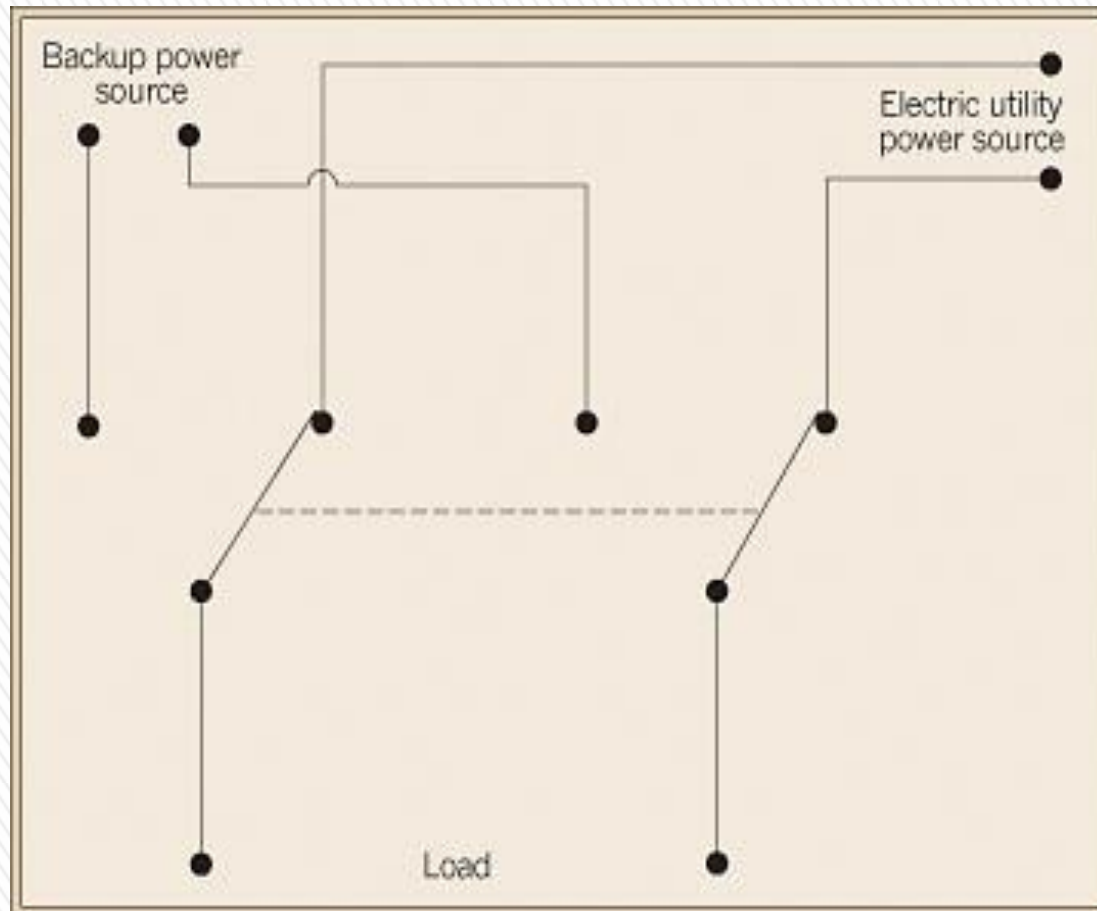
# Permanent Generator Need

- To be able to pick up the entire building load (can use means to load shed but need to be automatic)



# Safety with disconnects

- Needs to disconnect the utilities to prevent back-feeding



# Maintenance

- Need to do routine checks (oil change, coolant checks, load bank, etc.)



# Generator & Load Bank and GDS

- Primary use is for Load Banking
  - Eliminates long and difficult connection points
    - Reduces the total amount of time a customer is without a back up generator
- Secondary use is for bringing in a portable
  - In the event you lose the primary permanent generator
  - If you have to service a permanent during a extended utility outage
  - Backing up the permanent during a load bank test.

Kirk Key Accessible Docking Station with feedthru lugs,  
Kirk Key for Generator Breaker and Load Bank Outlets



Key is captive in Main breaker Kirk Key assembly until the Main breaker is turned off or opened.

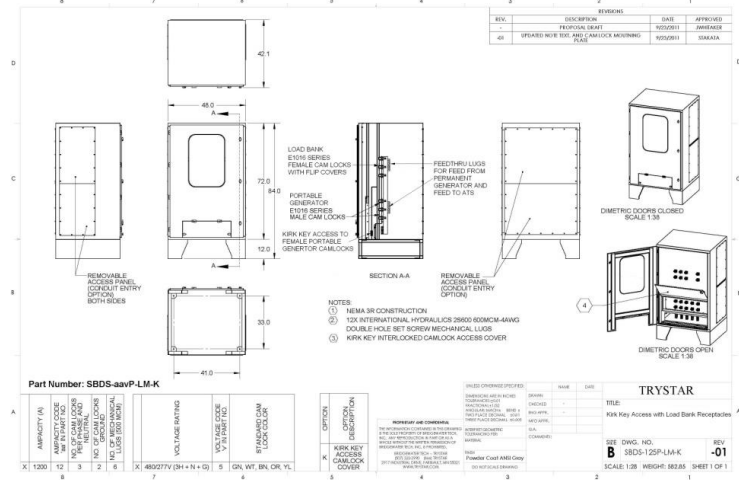
Once opened the key can be locked, removed and placed in and used and used to unlock the Kirk Key assembly in the door access to the cam-locks and/or lugs for the portable generator hookup.

The key is captive as long as the access door is open. All cables have to be removed in order to close the door, lock the Kirk Key and remove the key to unlock and close the Main Breaker.

Dual mechanical lugs for feedthru from permanent generator to ATS.

Load bank female cam-lock outlets with padlockable cover. This allows for loadbanking and servicing while leaving the generator main breaker closed or in the "On" position.

A SCADA communication port for the load bank is also available to allow shutdowns of load bank load if standby power is required, with out turning off it's cooling fans.

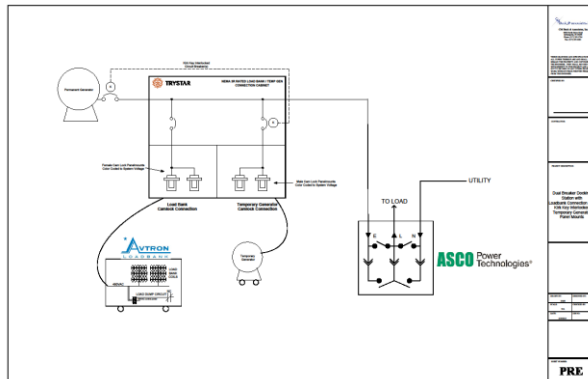






# GLDS One Line

## Dual purpose, Load Bank and Portable Generator port



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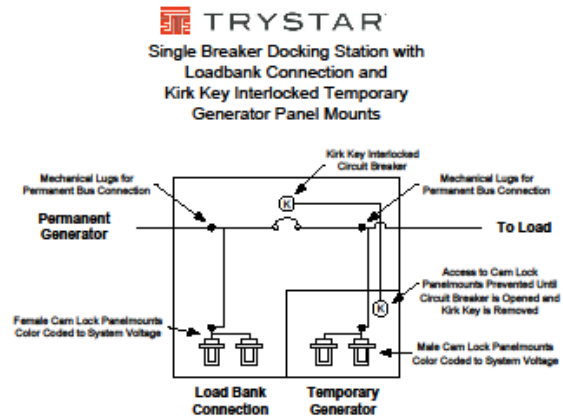
A SCADA communication port for the load bank is also available to allow shutdown of load bank load if standby power is required, with out turning off it's cooling fans.

# Breakered Dual & Single Kirk ® Key Docking Stations

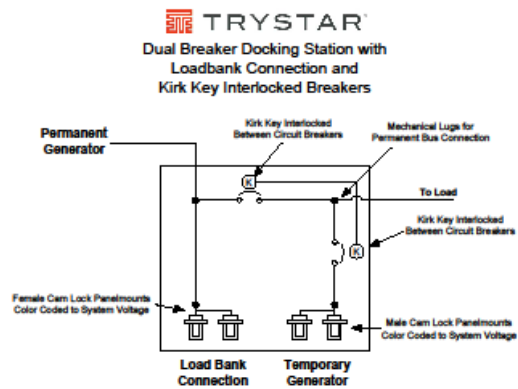
- Applications where there is a permanent generator
- Simultaneous load banking and standby generator
- Load bank connection point, and portable connection point



# DBDS-SBDS One Lines



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# **3 NEC Articles that cover common generation systems**

- Article 700**
- Article 701**
- Article 702**



# Article 700-Emergency Systems

Hospitals, health care facilities, large assemblies, etc.

- Rules that need to be followed in these locations are:
- Provide power in 10 seconds automatically
- Two (2) hours of fuel supply
- Automatic connection
- Test periodically



# Article 701-Standby systems

**Sewage Plants, Water Plants,  
Communication facilities, etc.**

- Rules that need to be followed are:
- Provide power in 60 seconds automatically
- Two (2) hours of fuel supply
- Automatic connection
- Testing periodically



# Article 702-Optional Standby Systems

- Article 702 deals with optional standby systems (All other types where the power is to protect property, not life. Examples – Heating Systems, Data Centers, Farms, Gas Stations, etc)
  
- Rules to be followed:
  - Can be manually automatically hooked up (no time limit)
  - Can be portable or permanent



# Hard Wire only Connection Tap Boxes

- Includes mechanical lugs suitable up to 800MCM THHN cable
- Trap door access for easy hard wire connection
- Secondary door offers additional protection between generator and electrical load





# Mounting to transfer-switches



- Quick NEC note-Should this slide be dropped



# Docking Station Features to

- ❑ Aluminum or Stainless Steel Construction
- ❑ Phase Rotation Monitor – Indicates correct phase rotation of generator hookup for phase sensitive equipment such as ac, chillers and pumps.
- ❑ “Utility On” LED – Lets you know that utility power is back on.
- ❑ Power Outlets – When required for battery chargers and block heaters
- ❑ 2 Wire Auto Start – Required for ATS interface and/or load bank drop out.
- ❑ SCADA Monitoring Port – Communication with load-bank
- ❑ TVSS – Surge Suppression