Requirements for 400Hz Automatic Transfer Switch (ATS)

1) Input Power (VA): The ATS unit shall be able to switch between static frequency converters with an output power rating of 10KVA

2) Nominal Operating Voltage Rating

   120/208 V AC 3 Phase at a nominal frequency of 400Hz

3) Maximum Switch Current:

   25 A (rms) per phase

4) Transfer Info:

   The ATS unit shall be able to detect an out of tolerance input from a static frequency converter; once the abnormality has been detected it is the unit's primary function to switch to a redundant input with a maximum transfer time of 100ms. This function is to include a small delay before transferring to assure the true presence of an abnormal condition according to figures 1 and 2.

   The ATS unit shall monitor and detect frequency & voltage with the following characteristics:

   Voltage Transients: Shall be limited to the operating area shown in Figure 1.

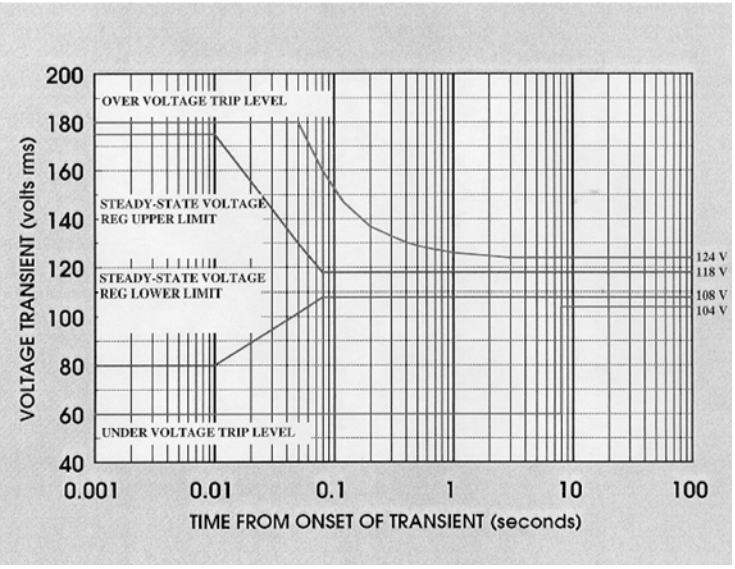
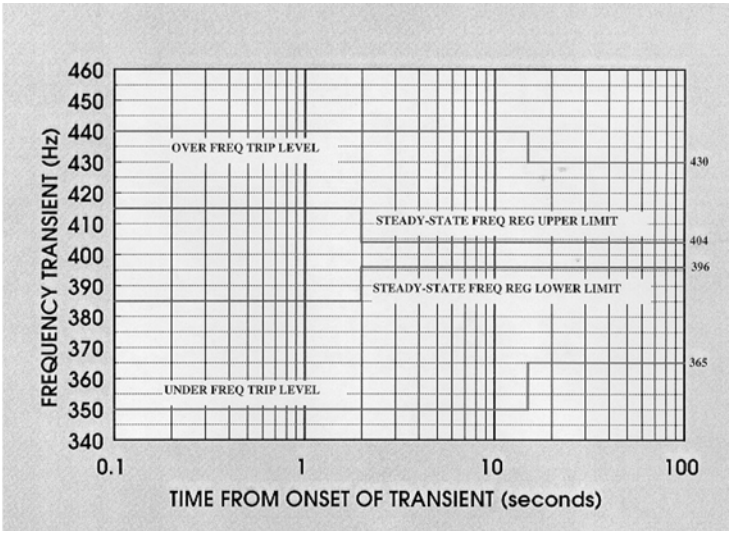


Figure 1 Voltage Tolerance

NOTE: Any voltage to exceed these limits shall cause the ATS to active and switch to a redundant input.

The steady state output frequency shall stay within 400 Hz ± 4 Hz at all steady state loads up to full rated load.

Frequency Transients: The instantaneous frequency shall not be greater than 415 Hz or less than 385 Hz during full load application or removal as shown in Figure 2.



NOTE: Any frequency to exceed these limits shall cause the ATS to active and switch to a redundant input.

Figure 2 Frequency Tolerances

5) Alarms:

The unit shall have a local and remote indication of abnormal condition and current estate.

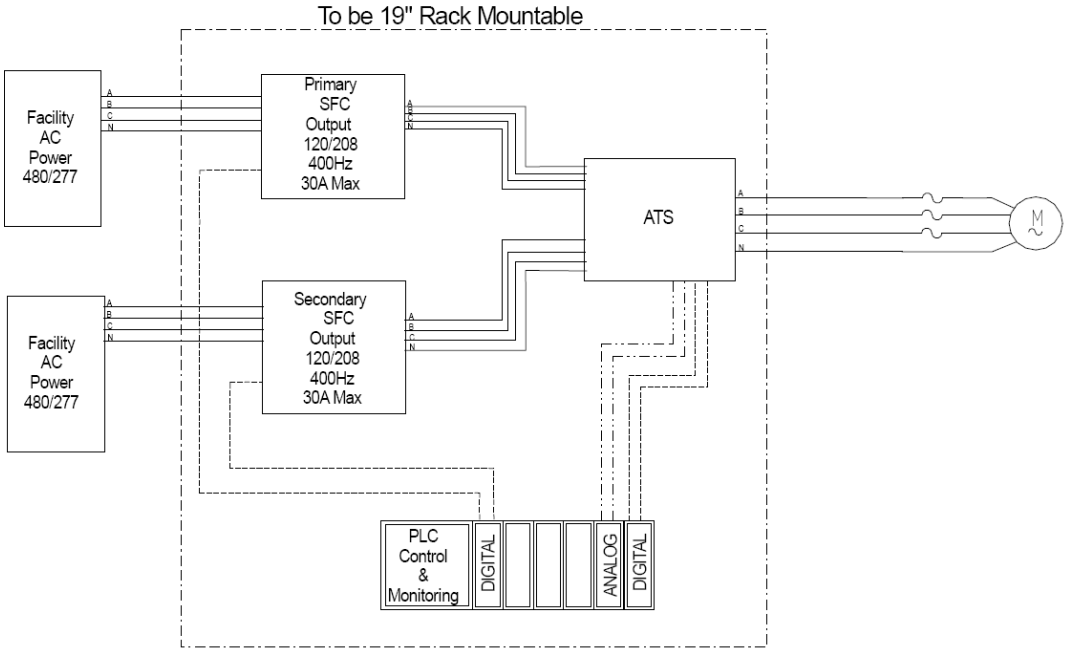
6) Rack Mountable:

The ATS unit shall be on a 19” rack mountable chassis.

7) Interface

The unit shall have means for remote interfacing via a auxiliary contactor or formal communication protocol i.e RS-232, Ethernet.

System Diagram



Acronyms:
AC – Alternating Current
ATS – Automatic Transfer Switch
PLC – Programmable Logic Controller
SFC – Static Frequency Converter