

# Transmitter Transfer Switch

## For 60 Watt, FM Transmitters operating in 1+1 mode

This equipment is developed by BECIL for selecting any one of the transmitters operating in 1+1 configuration either on antenna for broadcasting or on to the internal dummy load for the standby transmitter. The equipment is also provided with built in audio distribution amplifier for providing audio to both the transmitters. For switching the RF outputs of the transmitters either to the antenna or dummy load, RF change over relay in DPDT configuration is employed. The RF switch are to be invariably operated in passive mode i.e. with both transmitters in RF muted condition otherwise, the DPDT switch is very likely to get damaged. To safeguard the expensive RF switch against accidental operation with RF ON, suitable hardwire based interlock system is provided. The equipment can be operated either in **manual** or **auto** mode. When in **manual** mode, the user selects the transmitter for broadcasting or standby. In **auto** mode, depending on the pre-selection and health of the transmitter, the change over occurs in case of fault or abnormal condition of the in-circuit transmitter. In the former case, there is no need to keep the standby transmitter in ON condition, whereas in auto mode, the standby transmitter is to be kept ON for obvious reasons. The controller based electronics provides status indication and RF output power readings of both the transmitters.

**Functional description:** The transmitters are termed as **on-air**, the transmitter which is connected to the antenna and the **standby** connected to the internal dummy load. User can pre-select either of the transmitters as **on-air** and **standby** to ensure that, the life of both the transmitters is equally consumed, if so desired by the user. The equipment can be operated either in **manual** or **auto** mode. In **Auto** mode, both the transmitters are to be kept in power ON condition so that, the output of the pre-selected transmitter is selected to the antenna and the **standby** transmitter to the internal dummy load. While in **Auto** mode, if the **on-air** transmitter develops fault and unable to provide the rated RF power, the equipment will automatically switch ON the preselected standby transmitter on air and put the defective transmitter on dummy load for testing. If the **on-air** transmitter develops fault when the operating mode is manual, then the user has to manually select the other transmitter as **on-air** transmitter. In manual mode, it is not necessary to keep both the transmitters in ON condition as the changeover is done manually. Hence, it is sufficient to keep the preselected transmitter powered ON.

In **auto** mode, the **standby** transmitter will be ON but, in **RF muted** state. It is necessary to sense the status of the transmitter and perform switching in case the circuit transmitter is defective. For this purpose, appropriate control signals are generated by the unit's micro controller and applied to both the transmitters. The transmitters developed by BECIL are compatible to accept this control signals from the Transmitter Transfer Switch. However, for testing purpose, the standby transmitter can be made to deliver the rated RF output power by pushing momentary push button switch **Test the standby transmitter**. This facility is provided to test the health of the standby transmitter.

The on-board micro controller will be utilized for status monitoring, transmitter power indication and remote operation purpose. The alphanumeric display will indicate the power of both the transmitters and actual output power delivered to the antenna and also the state of pre selection made by the user. The Unit will remotely monitor the health of both the transmitters. In case of problem in any one of the transmitter, it

will indicate the status to the operator and also disable the switching action to the defective transmitter in *Auto* mode.

**Application:** For user selection, the front panel has been provided with two numbers of DPDT toggle switches. The first one is to select the mode of function of the unit viz in *manual* or *auto* mode. The second switch will pre-select the transmitters to either to *on-air* or *standby*. If the Unit is Switched OFF, the default position will be Transmitter#1 *on-air* and Transmitter#2 on *standby* position terminated on dummy load.

Audio from the Broadcast mixer console will be routed to both the transmitters by this equipment. For this purpose, a high quality audio distribution amplifier circuit is provided in the unit to make the unit complete Transmitter Transfer switch thus switching both RF output of the transmitters and also the input audio to both the transmitters.

