Protection Signaling Equipment.

Tele-protection equipment transmits the trip commands from the protection panels in power station and substations. Tele-protection links using power line carrier channels are the most economical way of performing all the tasks associated with transmitting tripping signals. Security, dependability and transmission time are the important characteristics of any Tele-protection equipment. Interference on the communication channels should neither be interpreted as a trip command (security) nor in admissibly delay the transmission of genuine trip commands (Dependability and Txn time).

C Series.: MODEL 6710, C42 / C22 / C21 / C11

The 6710-C series has been designed to provide a modular building block approach to the Tele-protection equipment. This system offers high degree of security, dependability and speed of response. It can detect a valid trip during an instantaneous drop in the signal level as much as 20dB while at the same time, maintaining a relatively high degree of security. The equipment is a completely self contained system using frequency shift keying principles. CMOS integrated circuits are extensively used in this equipment to achieve high noise immunity and low power consumption.

67 PWR: 67PWR DC – DC Converter is designed to supply necessary dc power to the 6710 equipment.

67OSC: 67 OSC consist of 8 oscillator circuits, 2 for generating Guard signals and 6 for Trip frequencies.

67LOGIC: 67LOGIC circuit provides the functions necessary to determine the status of the received signal and qualify it as valid or invalid, whether it is a guard signal or trip signal.

67REC: The module 67REC is the receiving component. At any receiving terminal, at least two receivers will be required, one to receive the guard frequency, the other for trip frequency. Depending upon the complexity of the system, as when two or more trip frequencies are used, more than 2 receivers may be needed.

67LOTS: Loop test mode enables the user to establish the healthiness of the remote end equipment and to test the transmit and receive functions of the system as a whole.

67INOP: This is used for the interface between the local distance protection relays and protective relaying equipment and for transferring the trip command received from the distant protection equipment to the local distance protection relays.

67TIME: The test and Interface module, 67TIME contains the circuitry required for performing Local Test, End to End Tests and Loop Tests and the control circuitry for initiating and receiving genuine trips. It also provides the visual indication for guard, trip and alarm conditions.

67COUNT: Consists of four non resetable five digit electromechanical counters to indicate the advancement of Transmit and Receive Trip commands

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Features

- Available up to 4 Commands
- Signal Boosting for reliable transmission of every Trip signal
- No additional Bandwidth required

Test facilities

- Local Test, End to End test, Loop Test
- Trip counters to indicate number of trips Transmitted/Received
- Visual Indications provided through LEDs to indicate presence of Trip & Guard Frequencies
- Audible Alarm is provided to indicate that the system is in test mode.

Test Mode

- Actual test trip can be simulated.

Flexibility

- The system can be reconfigured for 2 commands or single command as required.

Technical data

Power Supply	:	48V DC +15% -10%
Operating Frequencies:		
Guard	:	G1 - 2550Hz; G2 - 2720Hz
Trip	:	F1 - 1300Hz; F2 - 1500HZ; F3 – 1700 Hz; F4 – 1900 Hz; F5 – 2100 HZ; F6 – 2300 Hz
Loop Test frequency	:	3825 Hz
Frequency tolerance	:	0.25%
Transmission time	:	<20ms
Ambient temperature:		
Guaranteed range	:	0 to +45 Degree Centigrade
Operating range	:	-20 to +55 Degree Centigrade
Transmitter		
Trip Input	:	+110V / +220V DC
Output level	:	Set to -20 dB for Guard and -8 dB for Trip
Output Impedance	:	600 Ohms
Trip Boost Level	:	As per requirement (Normally set to 12 dB)
Receiver		
Sensitivity	:	-40dbm to +10dbm
Dynamic range	:	20dbm (approx)
Input Impedance	:	600 ohms
Trip Output	:	One Form-C contact (protected) for each command.
	:	One Form-C contact for each command
Auxiliary Outputs	:	One Form-C contact for each command
Alarm output	:	Three sets of Form-C contacts
Un-blocking output	:	Two sets of Form-C contacts

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Networking and Information Technologies

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