Digital Protection Signalling Equipment

Tele-protection equipment transmits the trip signal from the protection equipment 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 inordinately delay the transmission of genuine trip commands (Dependability and Tx time).

Dc Series.: Model 6710, Dc42

DC42 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. DSP, Microcontroller and other CMOS integrated circuits are extensively used in this equipment to achieve high noise immunity and low power consumption. In this series the old mechanical counters are replaced and the types of modules are minimized without effecting the performance and efficiency.

In DC Series, Digital Signal Processing techniques are used for transmission, reception and validation of signals. This Single Chip solution helps to reduce the total number of cards thus improving reliability and also ensures secure and dependable operation with short transmission times.

DC PSU

DC – DC Converter is designed to supply necessary dc power to the equipment.

DC CPU

The CPU Module of DC series Protective Relaying system, provides the commands necessary to generate the guard and trip frequencies An LCD display and four navigational keys are provided in the front panel through which the user can access the different menus.

DC REC – Transciever

The module DC REC is the Transmitting-receiving component in the digital series Protective Relaying System. A series of validation tests are required before validating the genuiness of a trip. The REC is also responsible for transmitting the frequency corresponding to command issued by CPU card. Log information is also stored in the REC module card about the time and type information about the trip. It can be retrieved at any time by connecting to the RS232 port of PC.

DC COMIO - Command input output module

DC COMIO, the input output module consists of two cards: DC C1C and DC COC

DC CIC provides the interface between the local distance protection relays and protective relaying equipment. DC C0C provides the necessary interface for transferring the trip command received from the distant protection equipment to the local distance protection relays.

There are two modes of operation, NORMAL and TEST, which can be selected through navigational switches provided in the front panel of CPU

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	:	0 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

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
- LCD based Trip counters to indicate No of trips Transmitted/Received
- Visual Indications provided through LEDs to indicate presence of Trip & Guard Frequencies.
- Audible Alarm is provided to indicate 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.

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