Course description

INPSN-UC101
Power Line Carrier Communication Equipment
ETL-4x/8x

Course goal
This course provides fundamental know-how of power line carrier technology and detailed information about ABB’s PLCC ETL4x/8x. After the successful completion of this course, the participant will be familiar with the features and applications of the ETL 4x/8x product line and will be able to configure and maintain a communication link.

Learning objectives
Upon completion of this course the participants will be able to:
- understand the use of PLCC as a reliable means of communication
- appreciate the design principles and criticality in secure transmission of line trip commands
- understand the principles of data communication for mission critical applications

Participant profile
Personnel from Power Utilities, Power Generation, transmission companies & industries and Consultants responsible for engineering, commissioning, operation and Maintenance of substations training is targeted to ….

Prerequisites
Good knowledge of telecommunication basics
Basic knowledge of power system

Topics
- Fundamentals of PLCC Technology: SSB Technique, Coupling Devices, Line Traps
- ETL 4x/8x Family: Features & Applications
- Equipment Architecture
- Telephony, Tele-protection & Data Interfaces
- Protection signal transmission with NSD 50
- Data transmission using NSK-5
- Outdoor unit MCD80
- Equipment Programming, Testing & Maintenance
- PLCC exchange (Optional)

Course type and methods
This is an instructor led seminar with practical exercises. The language of the course is English.

Duration
The duration of the course is five days.
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#### Course outline

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<td>- ETL41 testing (as per ABB test protocol)</td>
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- **NSK5 testing (as per protocol)**
- **MCD80 testing (per protocol)**
- **Programming ETL41/NSD50/NSK5**
- **Level setting as per applications commissioning tests**
- **Maintenance/ fault rectification**