GIS ELK-04C/145 I&C Training

Level 2 Field Service Engineer Training

TRAINING CENTER CHINA – COURSE DESCRIPTION

PREPARED BY	STATUS	SECURITY LEVEL		
Zhiwu.Wu	Approved	Internal		
APPROVED BY	APPROVAL DATE			
Sam-QingZhong Shen	2022-12-28			
OWNER	DOCUMENT KIND			
Head of Training Function	Agenda			
TITLE				
GIS ELK-04C/145 I&C Training				
OWNING ORGANIZATION	DOCUMENT ID	REV.	LANG.	PAGE
2657-Service CN	2GHE004090	B	en	1/4

Hitachi Energy

Course goal:

This is the recommended course for LSC with a small installed Base (IB) and/or a customer service agreement in place where fast reaction time is needed of GIS type ELK-04C/145kV.

Main learning objectives:

- Understand the functions of all GIS components of ELK-04C/145kV
- Known about all relevant documents (drawings, instructions, protocols) to perform an installation
- Troubleshooting of MSD operating mechanism
- SF_6-Gas handling and measuring with analyzer
- Gas monitoring devices exchange and test
- Flange treatment (outdoor GIS)
- Failure reporting

Prerequisites:

- SF_6-Gas-handling course with certificate
- Heavy load course with certificate
- Good English skills (written and spoken)
- Ability to read wiring diagrams is required
- On-site experience on GIS Installation and/or Commissioning
- Attended the local required Health & Safety Training
- First aid course with certificate
- Own PSE
- Computer with admin rights

Topics:

- Circuit-breaker and breaker operating mechanism
- Disconnector, earthing switch, fast acting earthing switch
- Statically components like connecting elements, busbars
- Lateral dismantling elements, compensators
- SF_6-gas to-air bushing
- Surge arrester
- Site assembly instructions

Assembly steps and procedures:

- Overview and detailed drawings of assembly units, packing list and layouts
- Positioning and alignment of Bays
- Coupling and alignment of bays
- Secondary systems commissioning
- Isolator and earth switch testing
- Protocols and Reports

This is a theoretical and practical training course.

Certification:

A confirmation will be issued after successful participation in this course, as part of the certification process.

After passing an exam after the training, a certificate is issued, valid for 3 years

Duration:

7 days

Enrolments:

Send your request to

cn-hvtraining@hitachienergy.com

Day	Subject	Location
1	**Welcome / Introduction to Hitachi Energy China** ❖ Training Introduction / Presentation ❖ Safety Induction ❖ Certification Process ❖ Hitachi Energy China GIS-Product Portfolio **Electromagnetic induction when working on high voltage switchgear** **Introduction to all main components of the product** ❖ Circuit-breaker ❖ Circuit-breaker operating mechanisms **Product overview and components** ❖ Comparison “single line diagram” and “products” (x-ray view) ❖ Circuit breaker arcing chamber ❖ “HMB-operation mechanism” components and function ❖ Disconnector / Earthing Switch component and function incl. mechanism ❖ Fast Earthing Switch components and function incl. drive mechanism ❖ Transversal/lateral dismantling modules, compensators, elbow elements, ❖ Insulators ❖ Cable termination (transformer and cable housing) ❖ Current and voltage transformers, ❖ Bushings ❖ Density monitors and sensors working principle	Classroom
2	**Introduction to all main components of the product (continuation)** ❖ Disconnector (DS), earthing switch (ES) operating mechanism ❖ Fast earthing switch (FES) operating mechanism ❖ Schematics diagram for CB, ES and DS operating mechanism/drive	Classroom
3	**SF_6-Gas** ❖ SF_6-gas properties ❖ SF_6-gas handling (no SF6-gas certificate) ❖ SF_6-gas limit values and measuring with SF_6-gas analyzer ❖ Leak detection	Classroom
4	**Density monitor** ❖ Exchange and on-site testing of density monitors **MSD, troubleshooting** ❖ Handling of interlocking device ❖ Check of pump motor carbon brushes	Classroom

Day	Subject	Location
5	MSD, **troubleshooting** ❖ Handling of interlocking device ❖ Check of pump motor carbon brushes **Week Review** **Q and A session**	Classroom & Training field
6	**On-Site visit of a Substation** ❖ Identify components according to single line and gas diagram	Training field
7	**Flange treatment** ❖ Correct flange treatment and retreatment for outdoor GIS **CORRECT FAILURE REPORTING / TROUBLESHOOTING** **Final Q and A session** **Hand-over of certificates (if examination was passed)** ❖ **End of training**	Classroom Training field