

Visible Break Discussion Group

October 11, 2016 – Pittsburgh, PA – Sheraton



Chair: Francois Soulard

Under ADSCOM/RODE Subcommittee

Meeting Minutes

1. Call to order and introduction:

By Francois Soulard. Introduction and group representation.

2. Attendees:

A list of persons present at the meeting circulate to take the presence.

34 total attendees (see annexed list)

Low Voltage Switchgear Devices (LVSD)	– Allan Morse
High Voltage Switches (HVS)	– Carl Reigart - James Houston
Switchgear Assemblies (SA)	– Doug Edwards
Reclosers and Other Distribution Equipment (RODE)	– Nenad Uzelac
High Voltage Circuit Breakers (HVCB)	– Mauricio Aristizabal

3. Previous Meeting Minutes:

First official meeting.

4. Meeting Highlights:

1. Subjects

- What is a visible break?
- What is it for?
- Visible indication vs visible isolation (Disconnect)?
- Test requirements
- Construction
- Safety

Subjects were divided in two main topics;

Definition of a visible break; will cover the subjects a, b and c

Requirements covering test, construction and safety

2. Reference to NEC 230.204ⁱ

It was raised that the NEC only applies to commercial & industrial owned installations. In the case of utility users the NESC applies^{ii iii}.

NEC section 225.51 Isolating Switches also references "visible break contacts" directly as a phase / term: "Where oil switches or air, oil, vacuum, or sulfur hexafluoride circuit breakers constitute a building disconnecting means, an isolating switch with visible break contacts and meeting the requirements of 230.204(B), (C), and (D) shall be installed on the supply side of the disconnecting means and all associated equipment."

3. Preliminary definition discussed

Visible isolating gap (visible break);

An isolating distance in the current path where the open gap can be visually confirmed.

Disconnecter;

Disconnecter is a mechanical switching device which provides, in the open position, an isolating distance in accordance with where the open gap can be visually confirmed.

5. Topic Teams works:

Definition teams;

- Mike Whitney, leading
- Anil Dhamon
- Jean-Marc BIASSE
- Kenedy Darko
- Rahul Jain
- Sterlin Cochran
- Doug Edwards
- David Dunne
- James Houston – HVS Subcommittee

Requirements teams;

- Kenedy Darko, leading
- Nenad Uzelac
- Paul Found
- Tim Royster
- Ian Rokser
- Matt Williford

6. Schedule

Definitions;	planned to be delivering in December 2016
Requirements;	will following definition
Report to ADSCOM;	Spring 2017 - on next meeting

7. Next meeting:

Spring 2017; Apr 23-28, Hilton Charlotte University Place, Charlotte, NC, USA

8. Meeting was adjourned at 12:00 PM

Annex: Member Attendance

Last	First	Attended	Company
Ambrose	Chris	x	Federal Pacific (Div. of Electro-Mechanical Corp.)
Biasse	Jean-Marc	x	Schneider Electric
Byron	Eldridge		Schneider Electric
Cochran	Sterlin	x	Hubbell Power Systems
Darden	Raymond	x	Thomas and Betts
Darko	Kennedy	x	G&W Electric Co
DeCesaro	Frank	x	Eaton's Cooper Power Systems Division
Dhawan	Anil	x	ComEd
Door	Jeffrey	x	H-J Family of Companies
Dunne	David	x	Schneider Electric
Ernst	William	x	Thomas & Betts
Found	Paul	x	BC Hydro
Gieger	Jeffrey	x	Thomas & Betts
Glaesman	Peter	x	PCORE Electric Company, Inc.
Golze	Roger		Trayer Switchgear
Henard	Elizabeth	x	Hubbell Power Systems, Inc.
Hurst	Bill		Alstom Grid
Jain	Rahul	x	S&C Electric Company
Johnson	Travis		Xcel Energy
Kirkpatrick	Brendan	x	Southern California Edison
Kowalik	Peter		Cleveland/Price Inc.
Kowdley	Ryan		Pacific Gas & Electric
Lettow	Chris	x	S&C Electric Company
Lewis	Bradley	x	AEP
Li	Wangpei		Eaton
Livshitz	Albert		CE Power Solutions
Martin	Donald	x	G&W Electric Co.
Meyer	Peter	x	S&C Electric Company
Olivares	Roberto	x	Siemens
Pell	Stephen	x	Siemens
Reed	Geoffrey	x	Thomas & Betts
Reigart	Carl	x	Hubbell Power Systems/USCO
Rogerson	Kevin	x	Eversource
Rokser	Ian	x	Eaton Corp
Royster	Timothy	x	Dominion Virginia Power
Soulard	Francois	x	Hydro-Quebec
Spencer	Jon	x	Thomas & Betts Hi-Tech
Trost	Karla	x	G&W Electric
Uzelac	Nenad	x	G&W Electric
Walter	William	x	We-Energies
Whitney	Michael	x	S&C Electric Company
Williford	Matthew	x	Schneider Electric

Submitted by:
 Name Francois Soulard
 Date 10/11/2016

FURTHER OBSERVATIONS - NOT FROM MEETING – by Michael Whitney

ⁱ NEC 230.204 Isolating Switches .204 Isolating Switches. - NOT FROM MEETING

(A) Where Required. Where oil switches or air, oil, vacuum, or sulfur hexafluoride circuit breakers constitute the service disconnecting means, an isolating switch with visible break contacts shall be installed on the supply side of the disconnecting means and all associated service equipment.

Exception: An isolating switch shall not be required where the circuit breaker or switch is mounted on removable truck panels or metal-enclosed switchgear units where both of the following conditions apply:

(1) Cannot be opened unless the circuit is disconnected.

(2) Where all energized parts are automatically disconnected when the circuit breaker or switch is removed from the normal operating position.

(B) Fuses as Isolating Switch. Where fuses are of the type that can be operated as a disconnecting switch, a set of such fuses shall be permitted as the isolating switch.

(C) Accessible to Qualified Persons Only. The isolating switch shall be accessible to qualified persons only.

(D) Connection to Ground. Isolating switches shall be provided with a means for readily connecting the load side conductors to a grounding electrode system, equipment ground busbar, or grounded steel structure when disconnected from the source of supply.

A means for grounding the load side conductors to a grounding electrode system, equipment grounding busbar, or grounded structural steel shall not be required for any duplicate isolating switch installed and maintained by the electric supply company.

ⁱⁱ NOTE: FURTHER OBSERVATIONS - NOT FROM MEETING

The NESC Rule 123 "Protective Grounding", Part C "Provision for Grounding Equipment During Maintenance" only references disconnecting or isolating switches in the the official text, but the annotated edition's explanation references "visible break switch". It appears the "visible break switch" term was in active use in the NESC in the past (1971 to 2007) and was specifically in regards for working on circuits with a visible break without applying grounds to the circuit (Rule 173C). The terminology was removed completely when Rule 173 was deleted.

ⁱⁱⁱ NESC Rule 170 "Arrangement" (under section 17 - Circuit breakers, reclosers, switches, and fuses) states:

"...When the contact parts of a switching device are not normally visible, the device shall be equipped with an indicator to show all normal operating positions."

NESC Rule 173C "Visible Break Switch" was completely removed from the NESC in 2007. The NESC no longer refers to a visible break in any official clauses.