Cards of typical signatures
ABB UZ

Version 0 **Rev.0**

December 17, 2009

Cette version est une version préliminaire et temporaire pour **diffusion très limitée**.
Cette version fait référence au logiciel DIAC dont le développement est arrêté par Hydro-Québec.

Le logiciel OpenZen - Zensol (issu de nos logiciels existants CbaWin, GenWin, CbvWin, etc., copyright 1992 à 2009) remplacera DIAC totalement à court terme.

Il sera donc nécessaire de réviser et de corriger cette version, en supprimant notamment toutes les références à DIAC et en les remplaçant par les références équivalentes à OpenZen.

Merci de me contacter directement pour tout commentaire (bon ou mauvais), toute nouvelle idée, ainsi que toute suggestion d'amelioration de ce document ou du logiciel OpenZen et ces documents associés, dans le but ultime de l'obtention d'un logiciel et d'une documentation claire et pratique pour vous et tous nos utilisateurs. Tous vos retours d'information seront très appréciées.
Vous remerciant par avance pour votre collaboration,

Fouad Brikci, Ph.D.
Président
Zensol Automation Inc.
(514)333-3488 ext 223
zensol@zensol.com

This version is a draft and temporary version for **limited distribution ONLY**.
This version refers to DIAC software whose development by Hydro-Québec is stopped.

The OpenZen – Zensol software (based on our existing softwares CbaWin, GenWin, CbvWin, etc., copyright 1992-2009) will completely replace DIAC in the short term.

This version needs to be reviewed and corrected by Tap-Changer specialists. Among other things, all references to DIAC software will be replaced by their equivalents in the OpenZen Software.

Text in red requires special attention and will be corrected.
If you want the original version of this text, please download the French document.

Please do not hesitate to contact me directly for any comment (good or bad), any new idea, or any suggestion regarding the improvement of this document or the improvement of the OpenZen software and any of its related documents, in order to ultimately obtain clear and useful documentations for you and all of our users. All of your feedbacks will be appreciated.
Thank you for your cooperation.

Fouad Brikci, Ph.D.
President
Zensol Automation Inc.
(514)333-3488 ext 223
zensol@zensol.com

Cards of typical signatures
ABB UZ

Table 1: Features

Features of the family			
Motor	1. Single phase 2. Three phase	**Drive**	With springs
Brake	1. Mechanical 2. At DC current injection thru capacitor 3. At DC current injection thru diode	**Types of mechanisms**	1. BUF 1 2. BUF 2 3. BUF 3 4. BUE 2
		Number of OLTP	1
		Number of phases	3

Section I : Types of Taps

Figure 1 below shows the setup of the fixed contacts of an ABB UZ operating with 17 taps with an inverter. As seen, there is a representation of two types of contacts, either as:

- Contact bridges;
- Single contacts.

There are so many types of switchings, depending on the type of departure and arrival contact:

- Single contact to a contact bridge;
- Contact bridge to a single contact;
- Switching over the same contact bridge;
- Contact bridge to a contact bridge;
- Switching over the same contact bridge with an operation of the inverter;
- Single contact to a single contact.

Each type of switching has a distinct signature since the mechanical mechanisms are themselves distinctive. Section III shows the typical signatures of each type of switching**.**

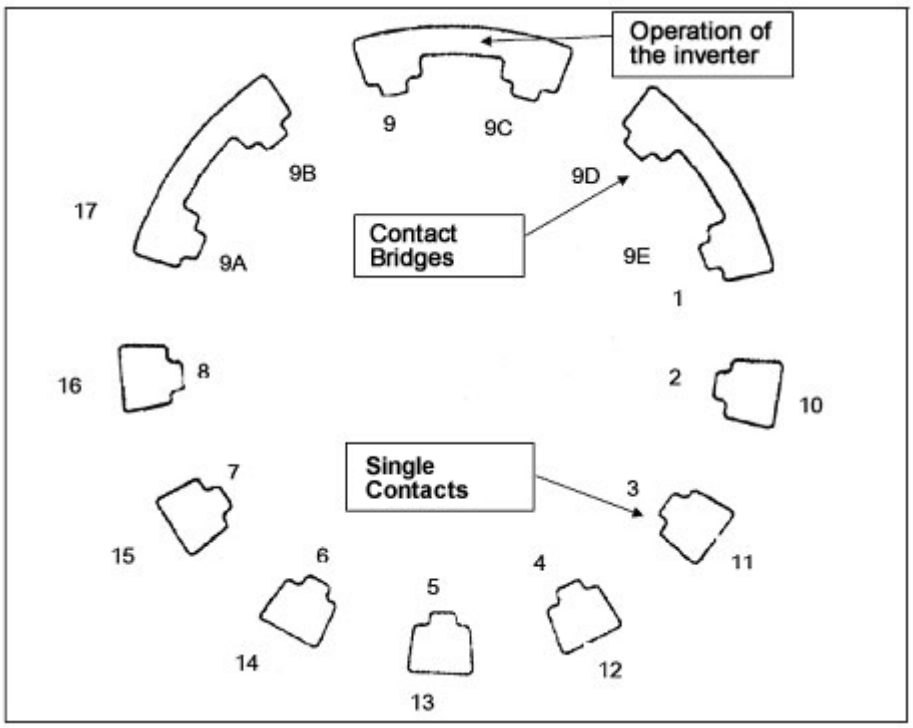

Figure 1 : Taps setup on a ABB UZ operating with 17 taps with an inverter

Section II : Typical complete signatures

1. Single Operation

The single operation is a upward or a downward movement of the selector, followed by a transfer of the load through the switch.

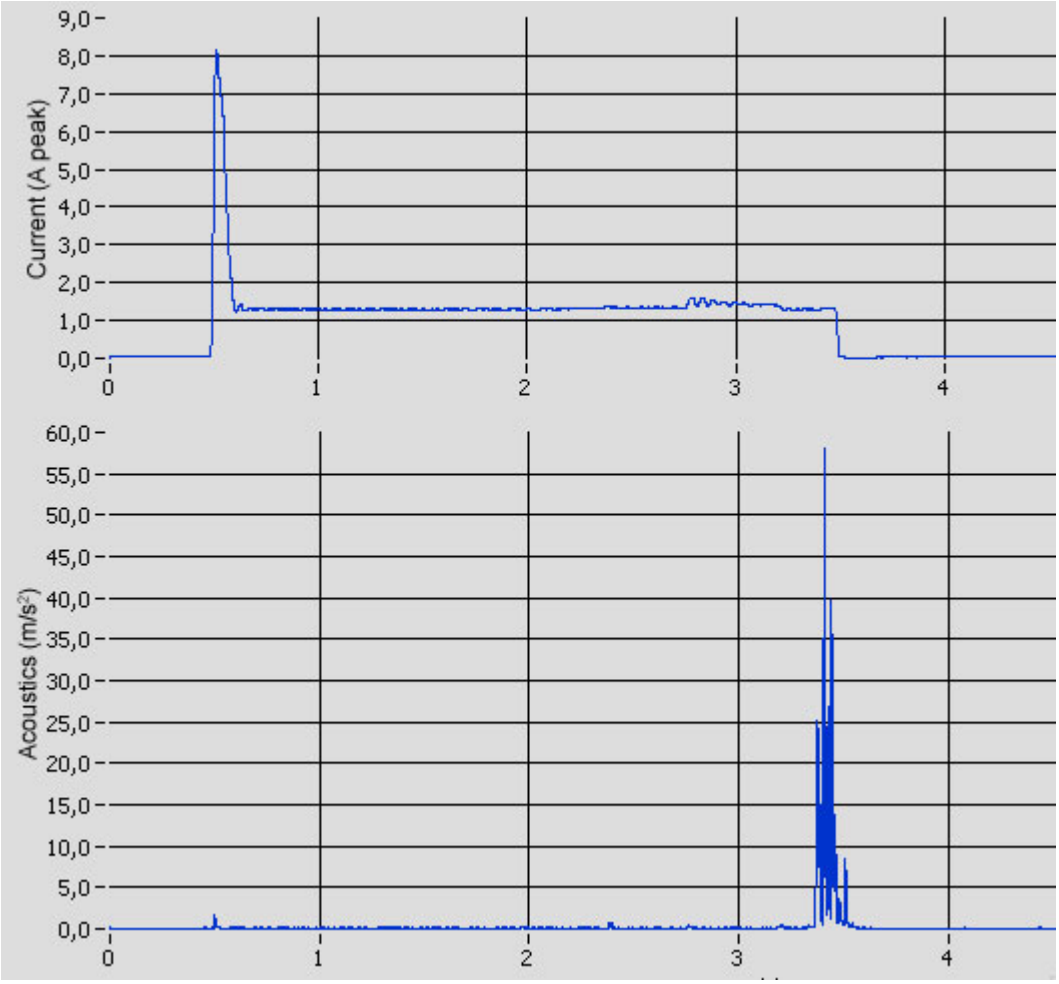

Figure 2 : Single operation upward of an ABB UZCRN (tap +8')

2. Multiple Operation

As shown previously, tap changers of models ABB UZC, ABB UZE and ABB UZF have two different taps, and several types of switchings. When a moving contact must pass through several intermediate positions before reaching the next tap, the operation is called « multiple operation ». Multiple operations include triple and quadruple operations.

For example, when a moving contact is switched from tap 8 to tap 9, the switch passes through the intermediate positions 9A and 9B. This operation is a triple operation and is expressed by multiple switchings (3) on the acoustic signature, as shown in the Figure 3 below.

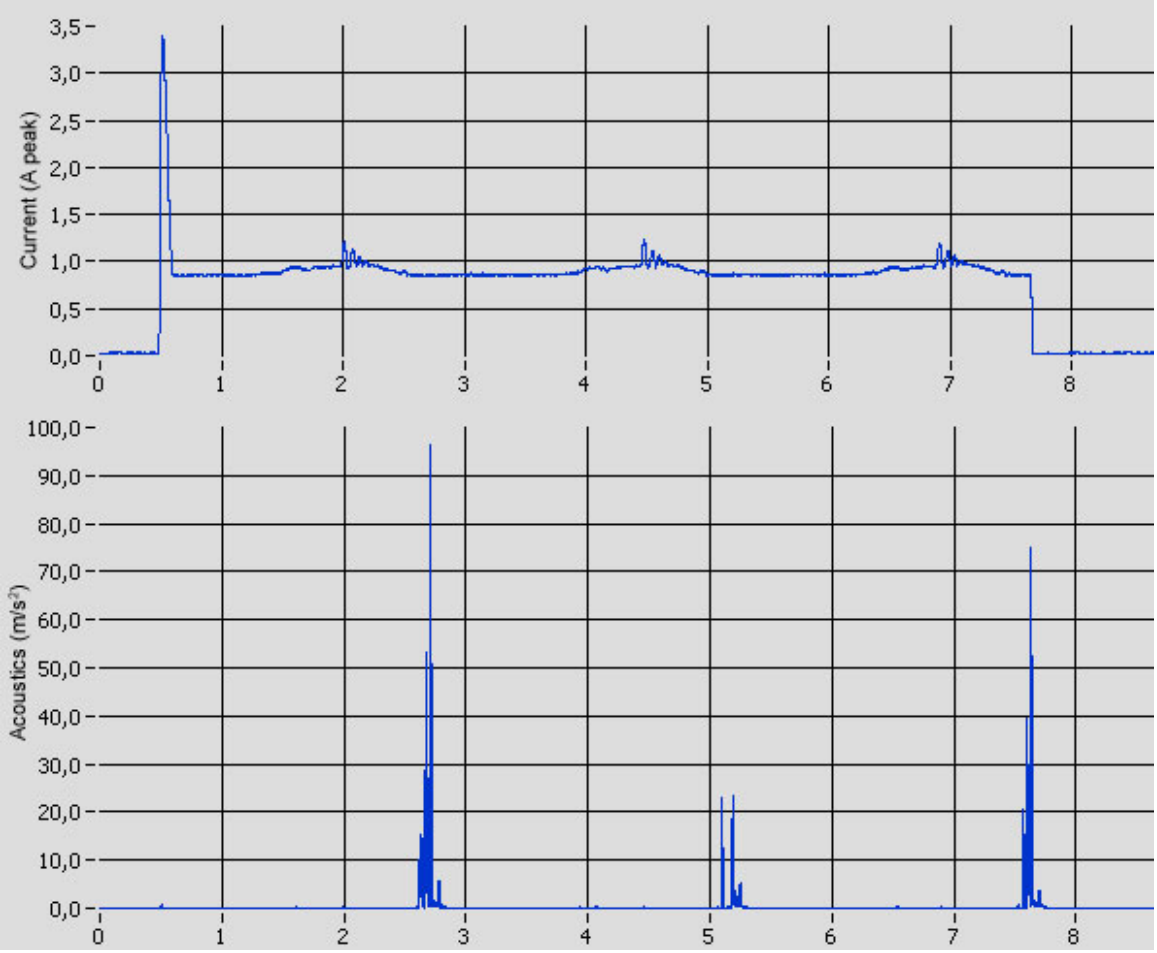

Figure 3 : Triple operation (9A, 9B and 9) for an ABB UCZCRN (tap +9)

Section III : Typical switching
ABB UZC, ABB UZE, ABB UZF

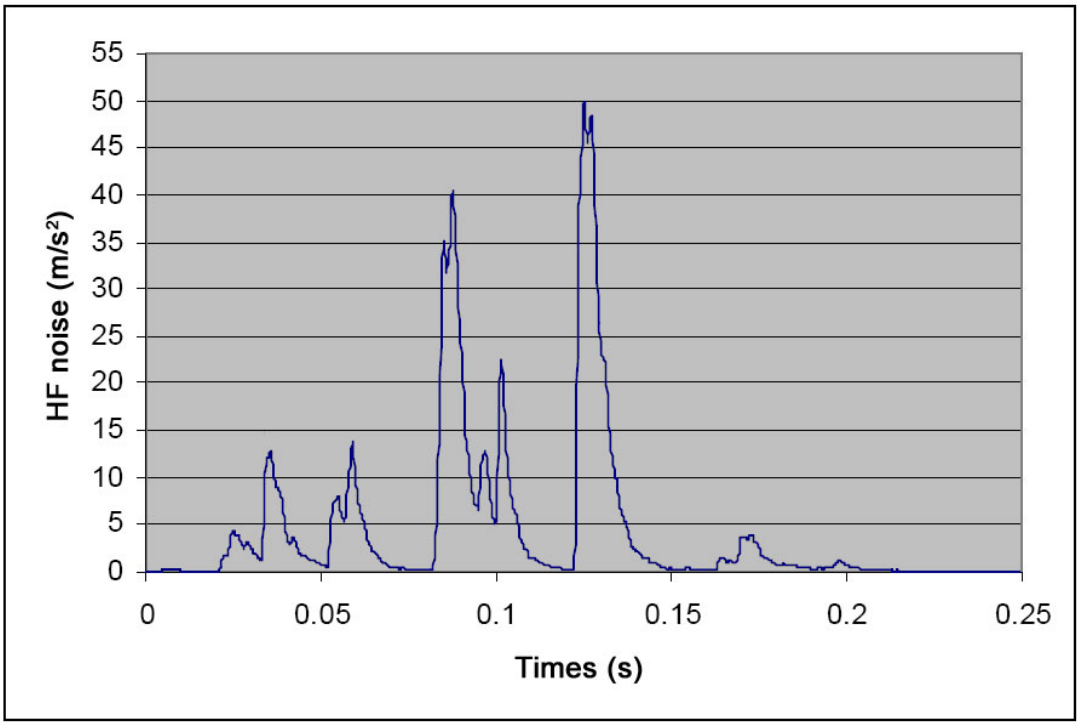

Figure 4 : Switching of a single contact to a contact bridge – **Operations** 8-9A; 16-17; 2-1 and 10-9-E

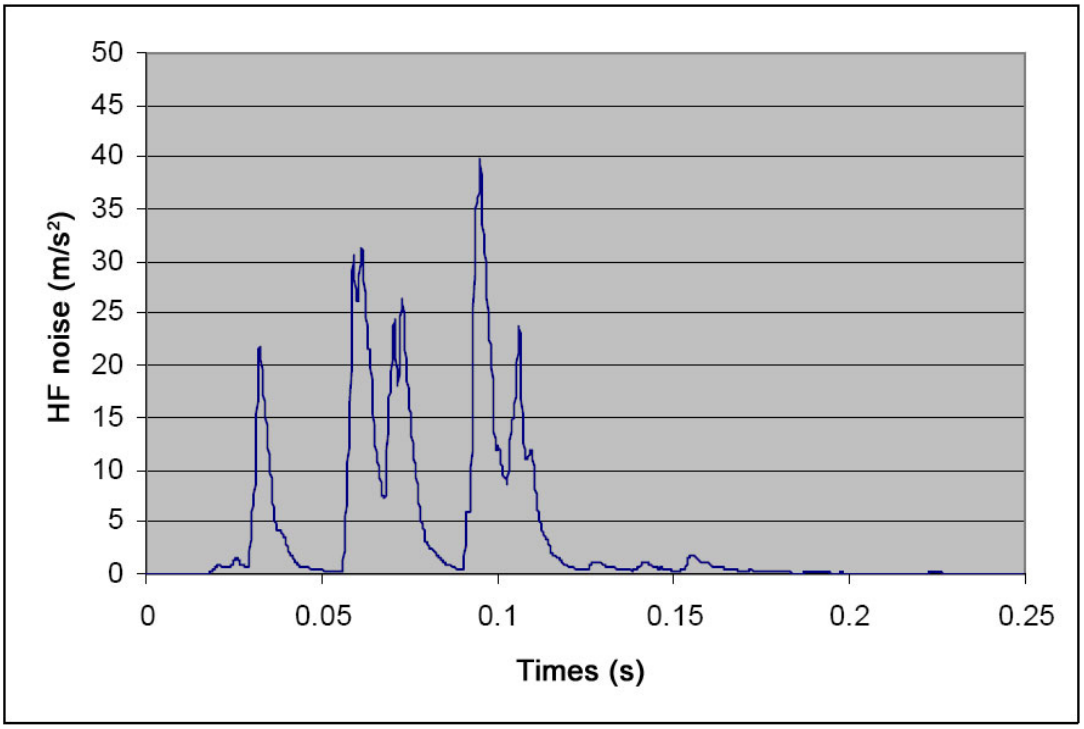

Figure 5 : Switching of a contact bridge to a single contact – **Operations** 9A-8; 17-16; 1-2 and 9E-10

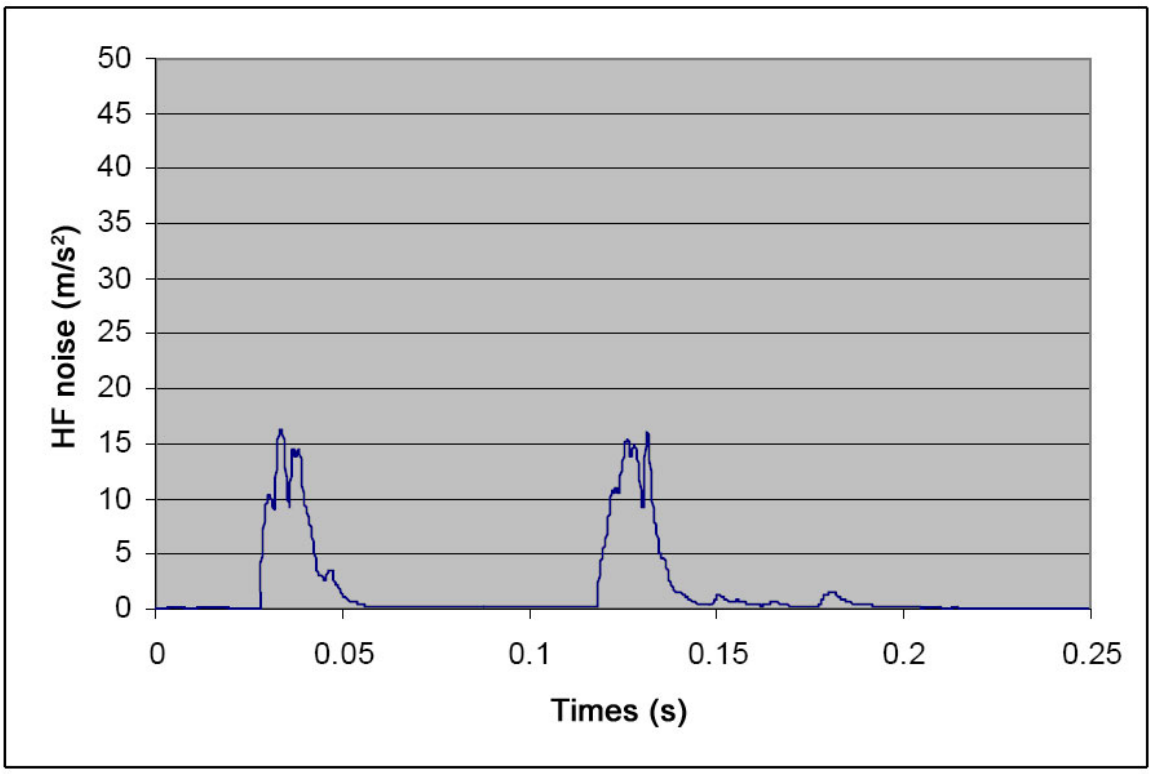

Figure 6 : Switching on a contact bridge – **Operations** 9A-9B, 9D-9E; 9B-9A and 9E-9D

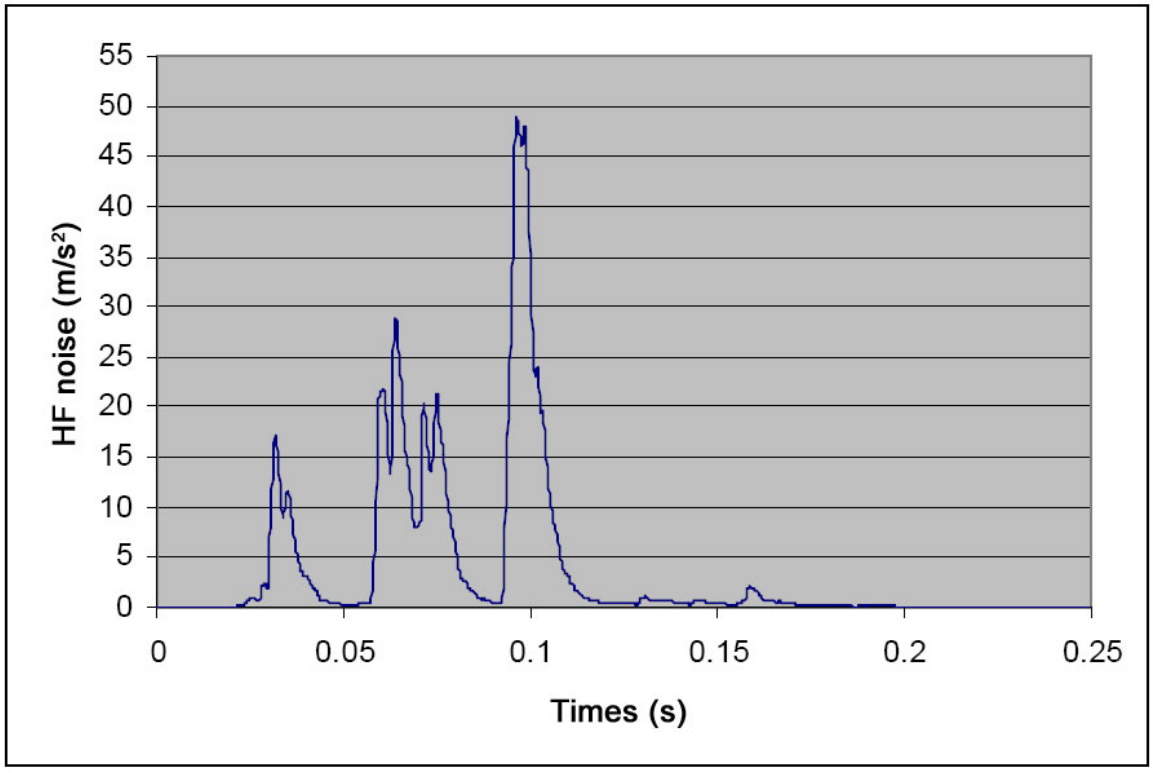

Figure 7 : Switching of a contact bridge to a contact bridge – **Operations** 9B-9; 9C-9D; 9-9B and 9D-9C

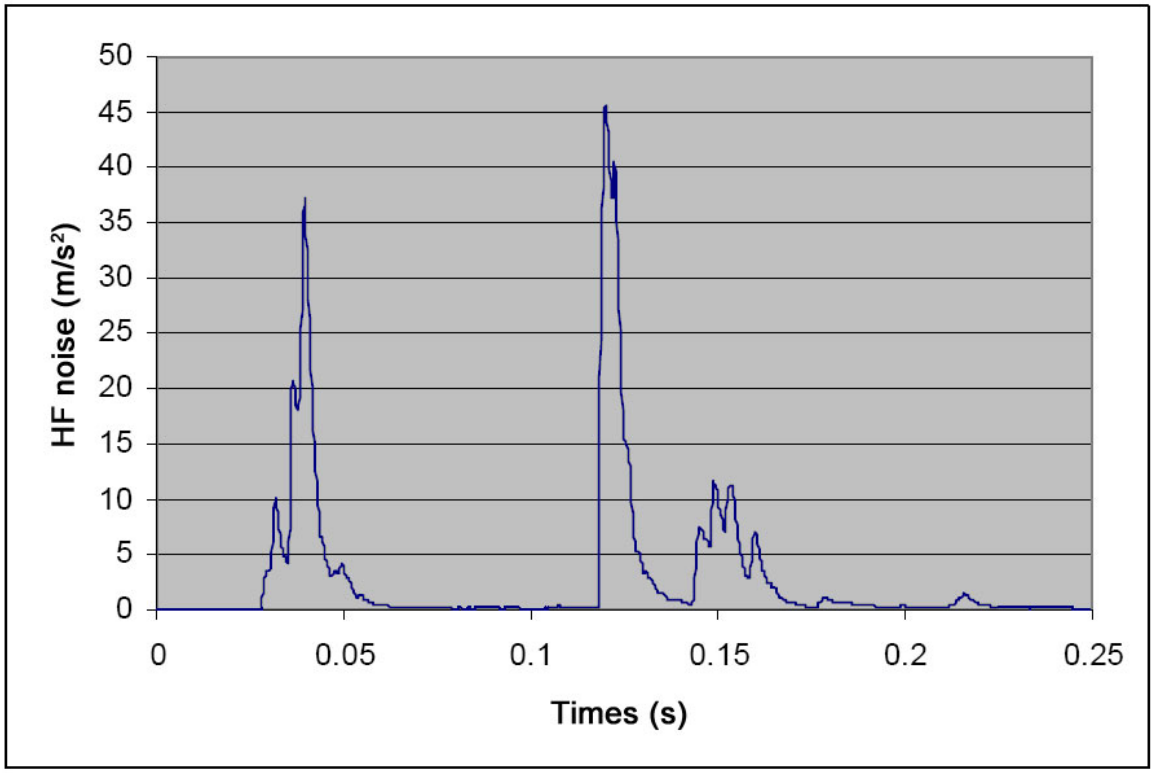

Figure 8 : Switching of a contact bridge with an inverter – **Operations** 9-9C; 9C-9

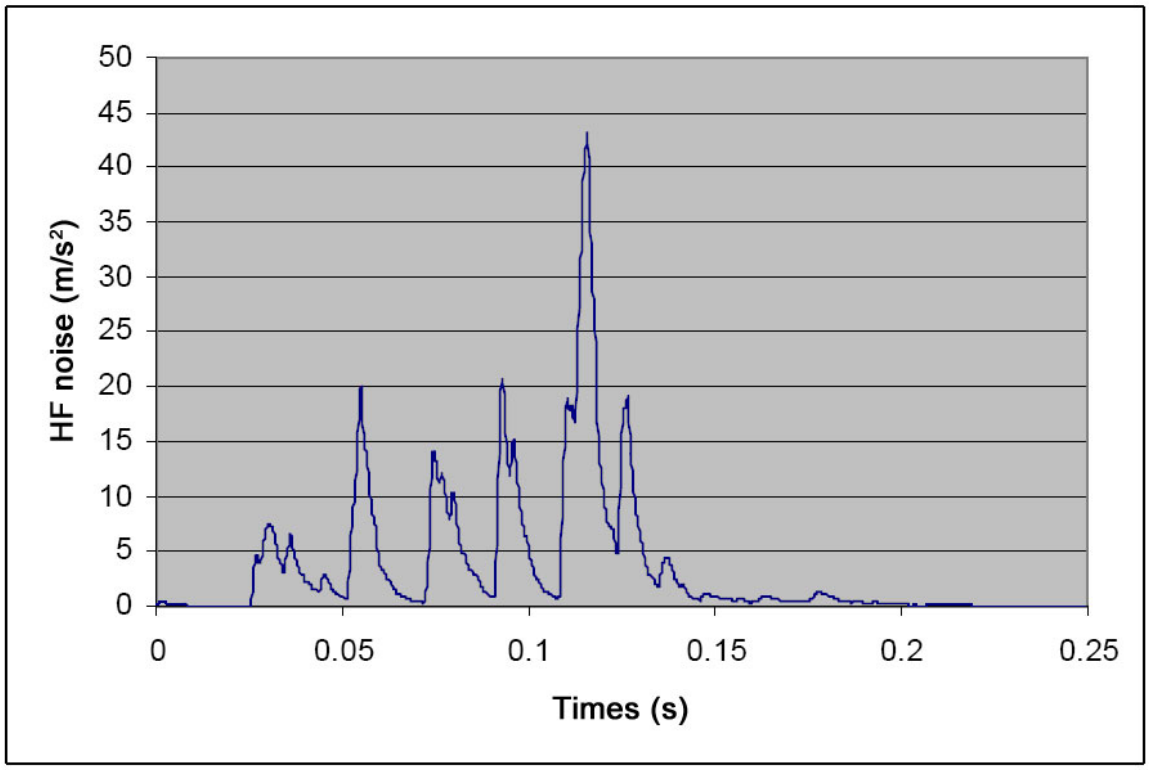

Figure 9 : Switching of a single contact to a single contact – **all the other operations**

ABB UZB

The ABB UZB has a configuration of 17 fixed positions. This allows the operation without a pre-selector or an inverter for the usual settings of our network. This eliminates all multiple switching operations.

The ABB UZB is different from the other ABB UZ models due to the signatures of non-symmetrical upward and downward operations.

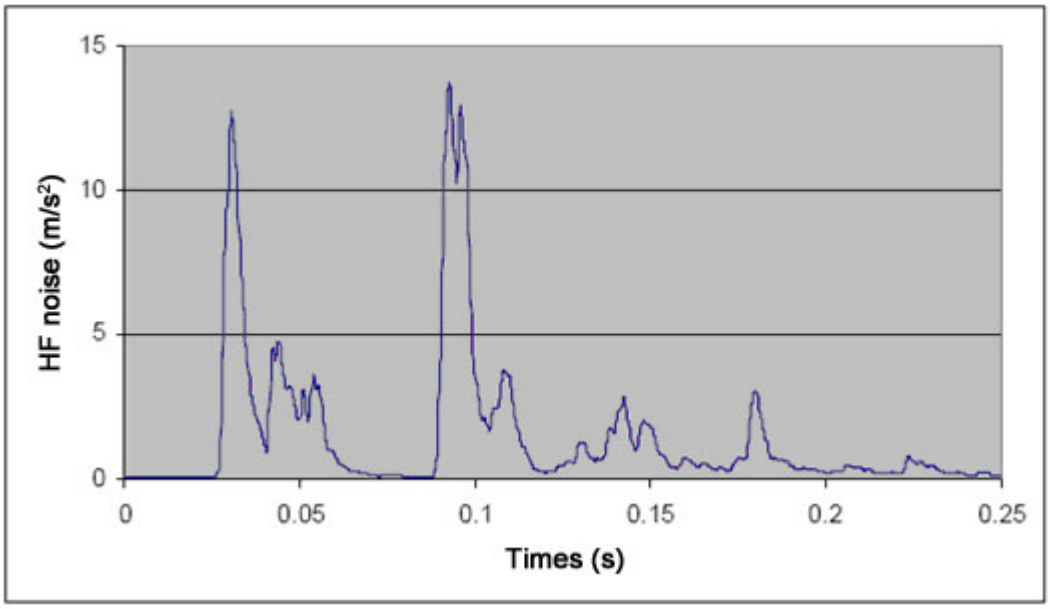

Figure 10 : Upward movement

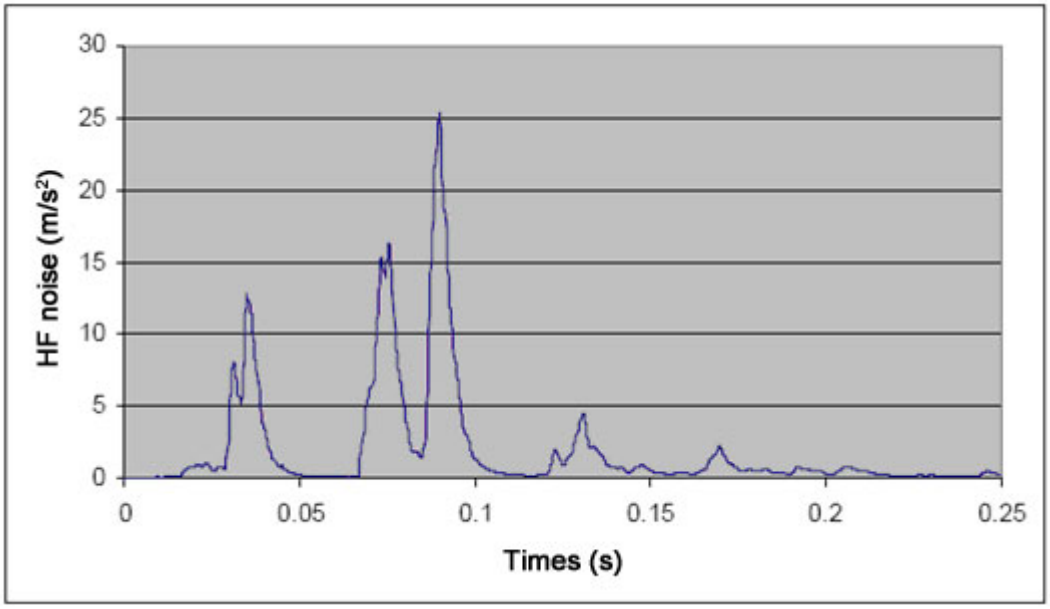

Figure 11 : Downward movement