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## Technical/Commercial information leaflet

Number 1VCD850138

Division: Electrification Products

Issued by: AP-PM

Date: 16th June 2016

Title: **New auxiliary contacts, wiring and electrical schemes for circuit breaker series HD4 and VD4 type /R and /R-Sec with lateral command**

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**Summary:**

1. Introduction
2. Products
3. Pricelist
4. Availability and delivery time
5. Sales support tools

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### 1. Introduction

This technical/commercial information leaflet informs the sales force that:

- Starting from October 1st 2016, the orders of circuit breakers VD4 type /R and /R-Sec with lateral command will be loaded and manufactured with auxiliary contacts Kraus&Naimer and wiring H05Z-K Low Smoke Zero Halogen (LSOH) extinguishing grade V0.
- Starting from November 1st 2016, the orders of circuit breakers HD4 type /R and /R-Sec with lateral command will be loaded and manufactured with auxiliary contacts Kraus&Naimer and wiring H05Z-K Low Smoke Zero Halogen (LSOH) extinguishing grade V0

The electrical schemes of the circuit breakers are modified for the introduction of the new auxiliary contacts and for the update of the electrical designations according to IEC 81346.

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## 2. Products

This leaflet applies to the following circuit breaker types:

- a) HD4/R fixed, from 12 kV to 36 kV, all ratings and phase distances
- b) HD4/R-Sec removable, from 12 kV to 24 kV, all ratings
- c) VD4/R fixed, from 12 kV to 24 kV, all ratings and phase distances
- d) VD4/R-Sec removable, from 12 kV to 24 kV, all ratings

Please, see below the table for the matching between the electrical schemes of the auxiliary contacts currently in use and the new electrical schemes with auxiliary contacts Kraus&Naimer (hereafter referred as K&N) and wiring H05Z-K.

The new electrical schemes are interchangeable with the old ones.

		HD4		VD4	
Auxiliary contacts		Current use	Kraus&Naimer	Current use	Kraus&Naimer
Electrical designation		IEC 61346	IEC 81346	IEC 61346	IEC 81346
<b>Fix</b>	Without REF601 With PR521	1VCD400017	1VCD400185	1VCD400097	1VCD400173
	With REF601	1VCD400114	1VCD400186	1VCD400115	1VCD400174
<b>Removable</b>	With/Without REF601	1VCD400119	1VCD400189	1VCD400118	1VCD400177

The availability of the number of auxiliary contacts is according to the following table (\*):

	HD4/R	HD4/R-Sec	VD4/R	VD4/R-Sec
Without REF601/with PR521	10	10	6 / 10 / 16	6 / 10
With REF601	10	10	16	6 / 10
With REF601 and Datalogger	10	10	10	10

(\*) The main shunt opening release and/or the additional shunt opening release use 1 e/o 2 contacts (normally open), thus reducing the available number of auxiliary contacts.

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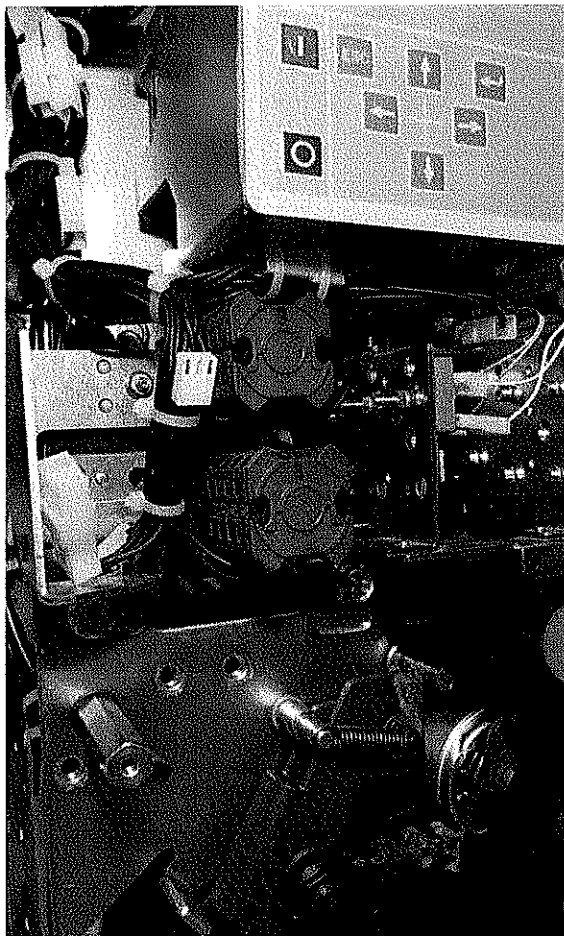
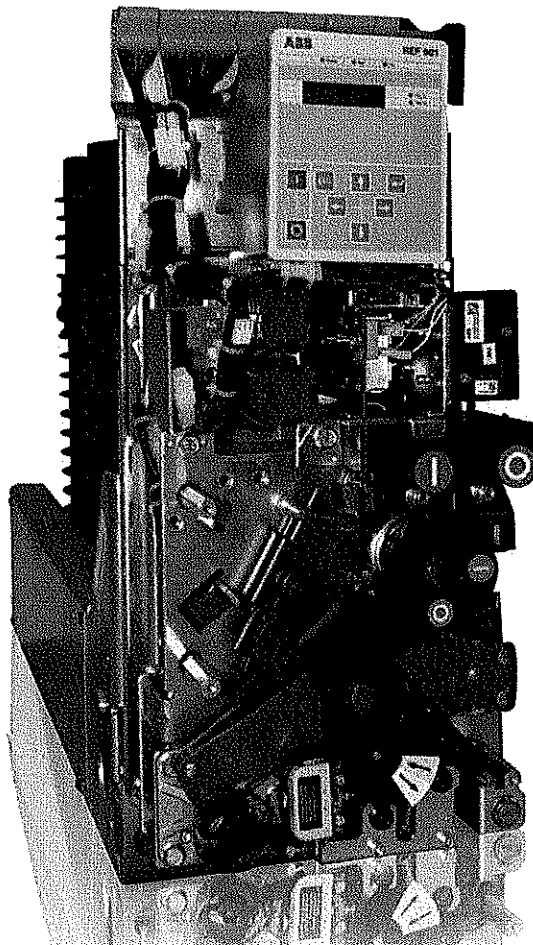
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In the following pictures: (on the left) HD4/R with phase distance 230 mm equipped with auxiliary contacts K&N and wiring H05Z-K; (on the right) details of the auxiliary contacts K&N and wiring H05Z-K.



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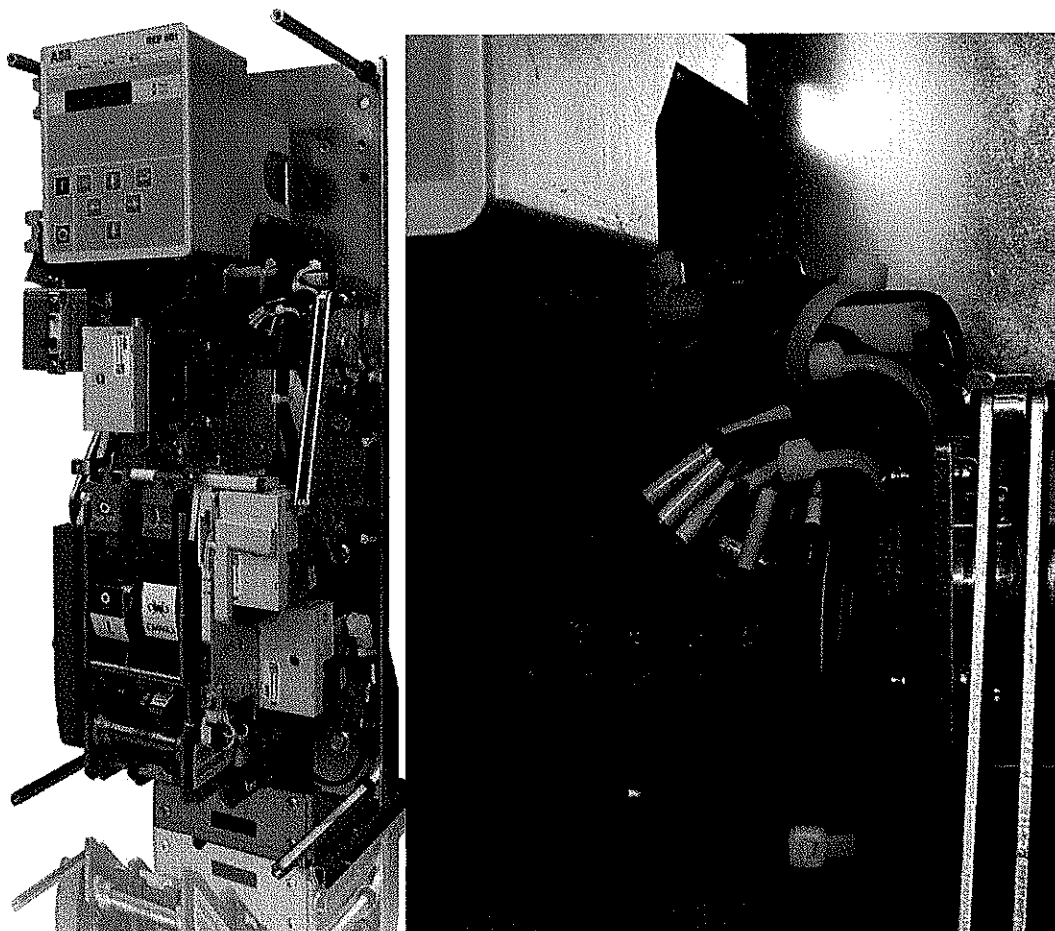
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In the following pictures: (on the left) VD4/R equipped with auxiliary contacts K&N and wiring H05Z-K; (on the right) details of the auxiliary contacts K&N and wiring H05Z-K.



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### 3. Pricelist

No price increase is foreseen for the introduction of auxiliary contact K&N and wire H05Z-K.

### 4. Availability

The auxiliary contacts K&N and wiring H05Z-K will be introduced in mass production with the orders loaded from October 1st 2016 for VD4 type /R and /R-Sec and from November 1st 2016 for HD4 type /R and /R-Sec. The current auxiliary contacts and wiring will be phased out.

ABB will verify the possibility to supply such circuit breakers with the current auxiliary contacts and within only for limited quantities and limited time (max 2 months), with extra price and delivery time.

### 5. Sales support tool

The new electrical schemes are attached to this information leaflet.

Additional information will be available on products catalogue, instruction manual and order form (currently under update).

Auxiliary contacts K&N are compliant with the following standards/rules/guidelines:

- IEC 62271-100
- IEEE C37.54
- EN61373 cat.1 class B / vibration test
- EN61373 cat.1 class B / impact test
- Regulation Germanischer Lloyd/ vibrations according to marine register
- UL 508
- EN 60947 (DC-21A DC-22A DC-23A AC-21A)
- Guideline RoHS

Caratteristiche elettriche dei contatti K&N:

- |   |  |
|---|--|
| • isolating voltage (norm VDE 0110, group C): | 660 V AC, 800 V DC                     |
| • rated voltage:                              | 24V ... 660 V                          |
| • testing voltage:                            | 2 KV for 1 min                         |
| • maximum rated current:                      | 10 A - 50/60Hz                         |
| • breaking capacity:                          | Class 1 (IEC 62271-1)                  |
| • number of contacts:                         | 6 / 10 / 16                            |
| • contacts range:                             | 90°                                    |
| • actuation force:                            | 0,6 Nm                                 |
| • resistance:                                 | < 6,5 mΩ                               |
| • stocking temperature:                       | -30 °C ... +120 °C                     |
| • working temperature:                        | -20 °C...+70 °C (-30° rif. ANSI 37.09) |
| • contact overtemperature:                    | 10 K                                   |
| • mechanical endurance:                       | 30,000 mechanical operations           |
| • protection degree:                          | IP20                                   |
| • wire cross section:                         | 1 mm <sup>2</sup>                      |

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Additional requirements (according to IEC 60947)

Rated voltage Un		Breaking capacity (10,000 breaking)
220 V AC	$\cos\phi = 0,70$	20 A
220 V AC	$\cos\phi = 0,45$	10 A
24 V DC	1 ms	12 A
	15 ms	9 A
	50 ms	6 A
60 V DC	1 ms	10 A
	15 ms	6 A
	50 ms	4,6 A
110 V DC	1 ms	7 A
	15 ms	4,5 A
	50 ms	3,5 A
220 V DC	1 ms	2 A
	15 ms	1,7 A
	50 ms	1,5 A
250 V DC	1 ms	2 A
	15 ms	1,4 A
	50 ms	1,2 A

Wire H05Z-K is compliant with the following standards/rules/guidelines:

- CEI 20-19/9
- EN 50525-3-41
- HD22.9
- BS 7211 Type 2491B
- IEC 60228
- IEC 60332-1
- IEC 61034-1
- IEC 61034-2
- IEC 60754-1
- IEC 60754-2

Technical characteristics of wire H05Z-K:

- |  |                                  |
|--|----------------------------------|
| • Color:                                       | Black                            |
| • Maximum working temperature                  | +90°C on the conductor           |
| • Minimum curvature radius (IEC 60092-352)     | 4 x external diameter            |
| • Rated voltage (Uo/U)                         | 300/500 V *                      |
| • Maximum voltage (Um)                         | 1 kV                             |
| • Maximum temperature in case of short circuit | 250°C on the conductor (max 5 s) |
| • Nominal cross section                        | 1 mm <sup>2</sup>                |
| • Maximum diameter of the conductor's wires    | 0,21 mm                          |
| • Isolation thickness                          | 0,6 mm                           |

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- Wire external diameter 2,5 mm
- Maximum conductor resistance at 20°C 19,5  $\Omega$ /km
- Weight 15 kg/km

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