

# REG216, REG216 Compact REC216

1MDU02005-EN  
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Numerical Generator Protection  
Numerical Control Unit

Operating Instructions

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**ABB**

### 2.5.7. **Binary I/P unit 216EB61**

The I/P unit has 32 I/P channels, which are used to transfer the external signals from the I/P relay unit 216GE61 to the processing unit 216VC62a via the bus (see also Section 2.6.4.). The I/P's are neither electrical insulated from each other nor from the auxiliary supply.

- connector "a" (upper) : I/P channels CHI01...CHI16
- connector "b" (lower) : I/P channels CHI17...CHI32

Where a system requires several 216EB61 units, the I/P channels are designated within the system according to Table 2.1.

#### **Design**

Figure 12.45 shows the front view of the binary I/P unit, which is a plug-in unit with a width of 1 standard division (1T). The internal auxiliary supply voltage of 5 V is derived inside the unit from the 24 V auxiliary d.c. supply. The unit's main components are:

- a bus interface (64 kByte DPM/RAM)
- an I/P register
- a microprocessor for pre-processing signals (80C188)
- a program memory (128 kByte EPROM)
- a main memory (64 kByte RAM).

#### **Frontplate signals and controls (see Fig. 12.45)**

LED "AL" (red):

Alarm. Lights when the unit has an internal defect. See Section 6.1. for possible causes.

LED "MST" (yellow):

Lights (usually only briefly or weakly) when the unit communicates with the bus and exchanges data.

LED's "L1-L4" (yellow):

System status, error messages: None of these LED's should light apart from briefly after the unit is initialised.

LED's "BINARY CH IN" (yellow):

I/P channels. Indicate which of the I/P's CHI01...CHI32 are energised.

The I/P channels are assigned to the activated protection functions with the aid of the portable user interface (HMI) connected to the 216VC62a unit.

The exclusion of individual I/P's from the event recording function and the definition of the filter time are also performed using the HMI (Edit/List edit parameters/List binary input channels).

The auxiliary relays K1...K16 are energised by the external auxiliary supply. The signals are then relayed to the binary I/P and tripping unit 216DB61 or 216EB61 by contacts, which are isolated from the coil circuits and obtain their auxiliary supply from the auxiliary d.c. voltage UP. Fig. 2.14 shows the basic circuit of the 216GE61 unit.

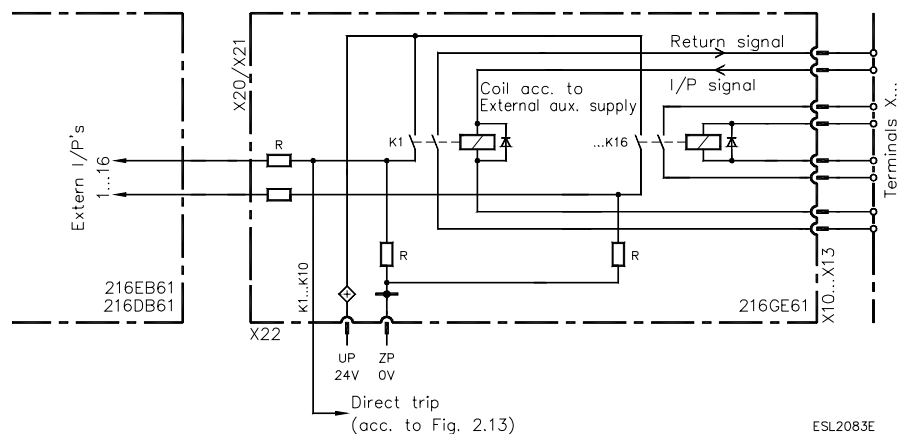


Fig. 2.14 Basic control circuit for the external signal I/P relays K1...K16

K1...K16 : auxiliary I/P relays; rated coil voltage = external auxiliary supply

The auxiliary relay channels K1...K10 are also connected to the matrix tripping logic to enable them to directly energise tripping relays.

A second contact on each of the relays K1...K16 is wired to terminals to remotely signal that the corresponding channel is energised.

The relationship between the auxiliary relays and the numbering of the I/P channels is:

- 1st. 216GE62 unit, K1...K16 correspond to CHI01...CHI16
- 2nd. 216GE62 unit, K1...K16 correspond to CHI17...CHI32
- 3rd. 216GE62 unit, K1...K16 correspond to CHI33...CHI48
- 4th. 216GE62 unit, K1...K16 correspond to CHI49...CHI64

Refer also to [Section 2.5.5.](#) and [Table 2.1.](#)

### Settings:

There are no settings on the 216GE61 unit.

### 3.2.2. **Binary inputs (binary addresses)**

In a RE. 216 scheme, a binary signal can have one of the following values:

- logical "0" (fixed value) = FALSE
- logical "1" (fixed value) = TRUE
- binary input values (216DB61, 216EB61)
- Double indication signals; two consecutive binary inputs are combined.
- binary protection values (trips) as defined by the function number and the corresponding signalling output.

All the above can also be set as binary inputs of protection functions.

All the binary addresses set may be used either directly or inverted.

### 3.2.3. **Signalling outputs (signal addresses)**

All the RE. 216 signalling outputs (signal addresses) can be configured for one of the following modes of operation:

- 1) Control a signalling relay and be recorded as an event.
  - Full information in relation to important signals.
  - Pick-up signals activate "General start" (signal and event)
  - Tripping signals activate "General trip" (signal and event)
- 2) Be recorded as an event without control of a signalling relay.
  - No signalling relay needed.
  - Information nevertheless available on changes in the status of the signal.
  - Pick-up signals activate "General start" (only event)
  - Tripping signals activate "General trip" (only event)
- 3) Neither control of a signalling relay nor record as an event.
  - No signalling relay needed.
  - No information available on changes of status, i.e. no memory space occupied by unnecessary information.
  - No influence on "General start" or "General trip".

The auxiliary signalling relays are energised via the binary O/P unit 216AB61/216AC61. RE. 216 can have a maximum of six 216AB61 and six 216AC61 units.

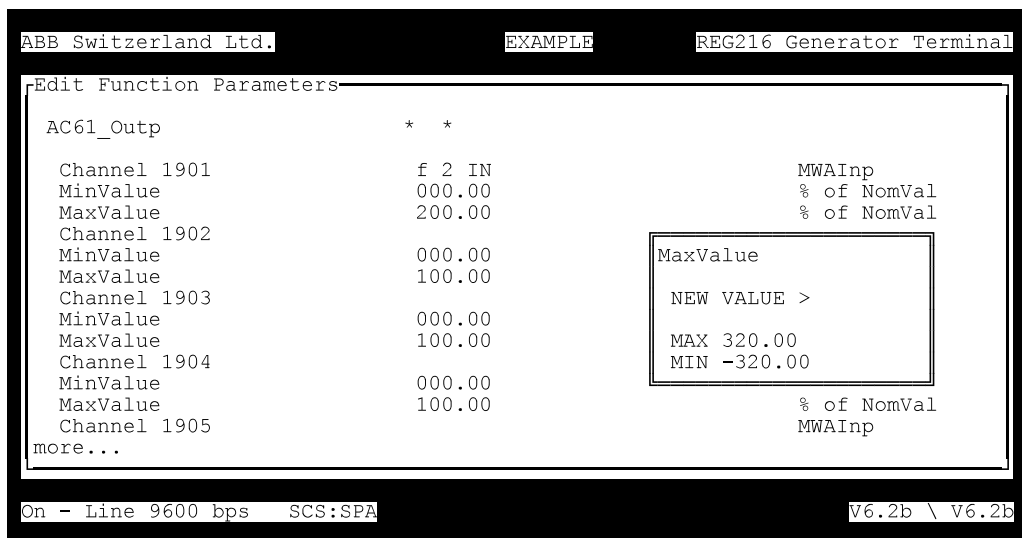


Fig. 3.4.5.1 Edit analogue outputs

### 3.4.6. **Binary channels**

The following settings can be changed in the 'Edit binary channels' menu:

#### **Enable/Change event mask**

- Create event ON/OFF. This can be set individually for every binary input.
- 216DB61 enable/disable.
- 216EB61 filter times.

#### **Edit comment**

A user comment of 25 characters can be entered for every binary input.

#### **Edit double indication signals**

Two consecutive binary inputs can be configured as a 'duplicate signal'.

The SCS displays an input as follows:

```

E1                1-0
E2                0-1
E3                0-0
E4                1-1

```

In the event list of the MMC, signals appear as 1-0, 0-1, 1-1 and 0-0 (instead of ON and OFF).