

# ETH Events - Transmission of States Between IO

## Introduction

When requesting the transmission of the state of inputs and outputs in the system, we use 2 basic methods:

- ❖ Transmission via multicast addresses and ETH events that can be used in LAN-RING.
- ❖ Transfer with MODBUS-TCP protocol that can be used in LAN-RING and IPLOG systems.

This application note describes typical examples of ETH events. Examples using MODBUS-TCP are described in other application notes.

## ETH Events with Using Multicast Addresses

### Example 1: Setting the IO Transmission in UDP Mode (Multicast)

After activation of the digital input on SW1, and on the remote switch SW2 the relay will be activated.

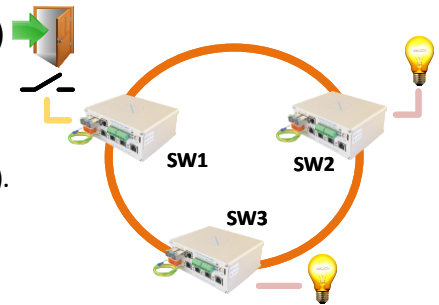
1. In menu „**Extension/ETH-Bus**“ set receiving and transmitting addresses in range 239.0.0.0 - 239.255.255.255 (multicast).

**Example:** SW 1: Receiving address - it is not necessary in this case

Transmitting address 1 - 239.191.168.20

SW 2: Receiving address - 239.191.168.20

Transmitting address 1 - it is not necessary in this case



## Event Settings

### SW1

<b>Input</b>	<b>Output</b>
Input MODULE: DIGITAL	Output MODULE: ETH
CHANNEL: IN1 [IN1]	ETH ID: ID #1
DIGITAL MODE: Direct	
ACTIVE: Closed	

### SW2

<b>Input</b>	<b>Output</b>
Input MODULE: ETH	Output MODULE: RELAY
ETH ID: ID #1	CHANNEL: OUT1 [OUT1]
	MODE: Set/Reset

SW1 sends input information to the network as a so-called ETH event with ID 1. ETH with ID 1 should therefore not be used repeatedly in the system elsewhere. Event management allows for the use of ETH events with IDs 1 to 999. For each set event, even if the input event is the same, it is necessary to create an ETH event with a unique ID. The switch, which will have the correct receiving multicast address will be set and the correct ETH ID will be set in the event and the frame will be processed.

For more information on available inputs, outputs and their capabilities, see the SIMULand manual.

### Example 2: After Activating the Digital Input on SW1, the Relay will be activated on SW2 and SW3.

**Example:** SW 1: Rx - it is not necessary in this case , Tx 1 - 239.191.168.20

SW 2: Rx - 239.191.168.20, Tx 1 - it is not necessary in this case

SW 3: Rx - 239.191.168.20, Tx 1 - it is not necessary in this case

OR

**Example:** SW 1: Rx - it is not necessary in this case, Tx 1 - 239.191.168.20, Tx 2 - 239.191.168.30

SW 2: Rx - 239.191.168.20, Tx 1 - it is not necessary in this case

SW 3: Rx - 239.191.168.30, Tx 1 - it is not necessary in this case

### SW1

Event 1	DIGITAL:IN1 [IN1]:Direct:Closed	ETH:ID #1
Event 2	DIGITAL:IN1 [IN1]:Direct:Closed	ETH:ID #2

### SW2

<b>Input</b>	<b>Output</b>
Input MODULE: ETH	Output MODULE: RELAY
ETH ID: ID #1	CHANNEL: OUT1 [OUT1]
	MODE: Set/Reset

### SW3

<b>Input</b>	<b>Output</b>
Input MODULE: ETH	Output MODULE: RELAY
ETH ID: ID #2	CHANNEL: OUT1 [OUT1]
	MODE: Set/Reset

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**Example 3:** When the digital input on SW1 is activated, the relay on SW2 and SW3 is closed. SW2 also sends information about activation of digital input to SW1, where the relay output is activated.

**Example:** SW 1: Rx - 239.191.168.10, Tx 1 - 239.191.168.20

SW 2: Rx - 239.191.168.20, Tx 1 - 239.191.168.10

SW 3: Rx - 239.191.168.20, Tx 1 - it is not necessary in this case

### SW1

Event 1	DIGITAL:IN1 [IN1]:Direct:Closed	ETH:ID #1
Event 2	DIGITAL:IN1 [IN1]:Direct:Closed	ETH:ID #2
Event 3	ETH:ID #3	RELAY:OUT1 [OUT1]:Set/Reset

### SW2

Event 1	ETH:ID #1	RELAY:OUT1 [OUT1]:Set/Reset
Event 2	DIGITAL:IN1 [IN1]:Direct:Closed	ETH:ID #3

### SW3

Input		Output	
Input MODULE	ETH	Output MODULE	RELAY
ETH ID	ID #2	CHANNEL	OUT1 [OUT1] ...
		MODE	Set/Reset