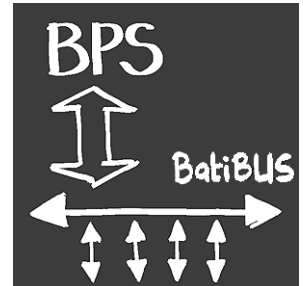


VISONIK®

## BPS communication with BATIGYR®

Function sheet

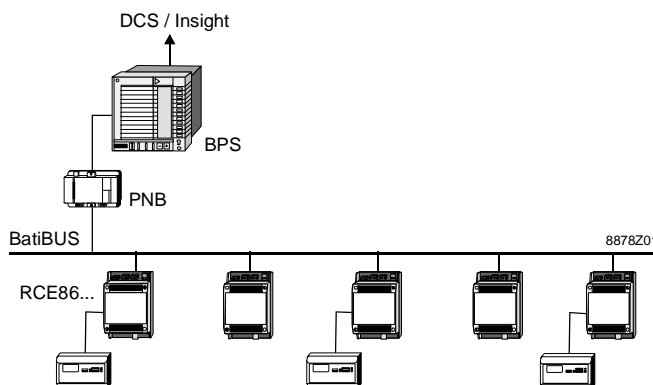


**BATIGYR is a communicative individual room control system for fan coils. Communication takes place via the BatiBUS. If a VISONIK system is used for higher room management, the building process station (BPS) server as the communication master.**

### Use

#### Topology

The BATIGYR room temperature controllers and room units RCE86... control the temperature of individual rooms and zones. The room temperature controllers communicate with the VISONIK BPS (equipped with communication card COM1) via the BatiBUS and the PNB interface. The BPS coordinates the individual devices and integrates them in the higher management station.



#### BatiBUS

The BatiBUS is a global building field bus. It is promoted by the "BatiBUS Club International" founded in 1989. The bus consists of a twisted 2-wire conductor. The communications protocol is open and defined in different standards (NFC, CENELEC, ISO/IEC).

#### Communication master tasks

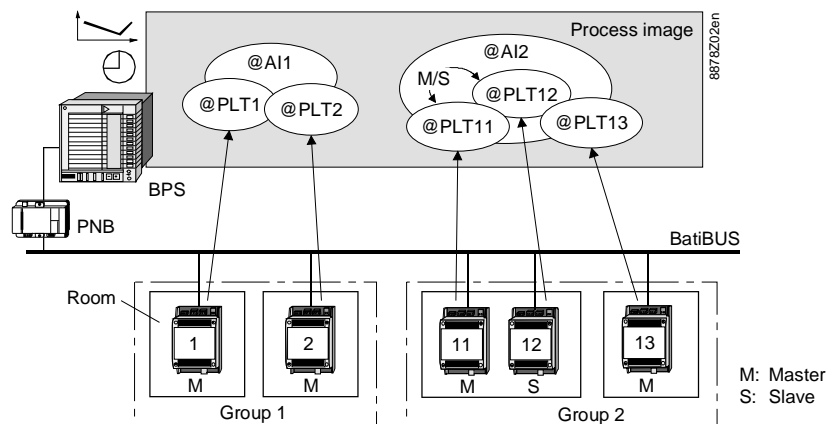
In BATIGYR, the BPS has the following communication master tasks:

Tasks	Examples
Providing information	Operating mode, actual values, setpoints, changeover.
Coordinating the RCE86...	Grouping, master-slave relations.
BatiBUS supervision	Communication between controllers and PNB.
Handling of electrical energy	Controller outputs for the electrical heating coils.

## Integration

### Principle of integration

The room temperature controllers on the BatiBUS are mapped as data points to the BPS process image. During engineering, each controller is assigned an address and a data point, and master/slave combinations and groups are formed in accordance with the room assignment. On startup, the BPS transmits the configuration to the PNB and requests the current controller values. During operation, all changes are sent to the BPS, thus rendering their process image up-to-date at all times.



### Point types and information

Two VISONIK point types were used for the image. They have parameters containing the information of the BATIGYR controllers and groups:

Point types	Information
@PLT Controller	The parameters of the controller data points comprise: <ul style="list-style-type: none"> <li>– Current room or return air temperature.</li> <li>– Operating mode (Comfort, Economy, Standby).</li> <li>– Setpoints for heating and cooling during Comfort and Economy.</li> <li>– Window contact position and changeover status.</li> <li>– Fan stage, valve position for hot and cold water.</li> <li>– Energy values. See topic "Energy handling " on page 4.</li> </ul>
@AI Groups	Groups comprise several individual room controllers and master/slave combinations (M/S). The parameters of these data points comprise: <ul style="list-style-type: none"> <li>– Operating mode (Comfort, Economy, Standby).</li> <li>– Setpoints for heating and cooling during Comfort and Economy.</li> <li>– Changeover status and fan stage.</li> </ul>

### Communication master functions

The information from the integrated data points and from the project-specific configuration allows the BPS to carry out the following central functions:

- Coordinate the controllers with respect to scheduler program, operating mode, setpoints.
- Master/Slave function if there is more than 1 controller per room: Operating mode, setpoints for heating and cooling, changeover, VCF (ensures that heating and cooling outputs are not active at the same time), window contact.
- Force (COLBAS task): Resets all controller setpoints to the group values.
- For energy handling, refer to page 4.

### System capacity

Max. 120 BATIGYR controllers can be integrated in one VISONIK BPS with the following limits and rules:

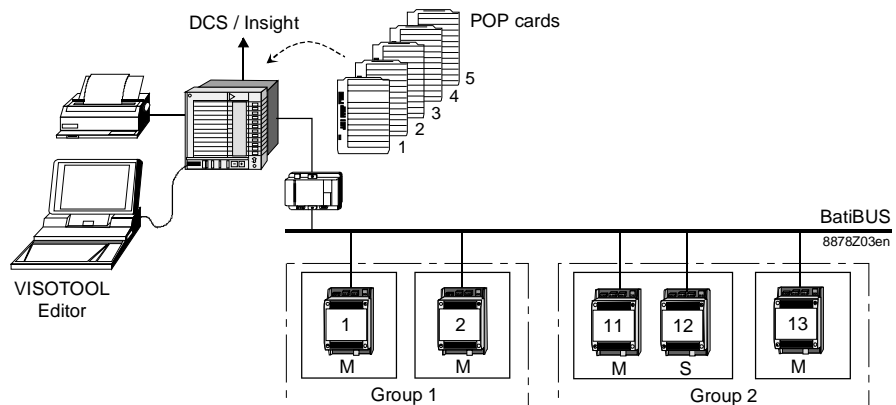
- Up to 24 groups at max. 16 master controllers per group. The following applies:
  - All master controllers must belong to a group.
  - Each controller with a room unit must be a member of a group.
  - Each controller can be a member of just one single group.
- Max. 60 master/slave configurations at max. 10 controllers per configuration.
- Max. 1 room unit per master/slave configuration (linked to the master).

## Operation

### Options

The BATIGYR controllers integrated as data points can be operated via:

- POP cards.
- Insight station on the DCS.
- VISOTOOL Editor.



### POP cards

There is a POP card set for local operation at the BPS. This set consists of 5 cards with the following operating options:

Card	Operating option
1 Read controller	After selecting the desired controller, read all controller values. See page 2, @PLT.
2 Operate controller	After selecting the desired controller, change the values for: <ul style="list-style-type: none"> <li>– Operating mode (Comfort, Economy, Standby).</li> <li>– Setpoints for heating and cooling during Comfort.</li> <li>– Changeover command.</li> </ul>
3 Operate group	After selecting the desired group, read all group values. See page 2, point type @AI. If VCF is set from Auto to 1, 2, or 3, the hot and cold water valves can be closed manually for service.
4 Operate all controllers	For commissioning and service: Change the operating mode, setpoints, limit values, and rules for heating and cooling during Comfort and Economy. Each parameter change is transmitted to all controllers.
5 Energy handling	Selected controller: The energy values of the controller can be read. Selected group: The energy values of the group can be read and changed.

### Insight station on the DCS

The same concept as shown above for the POP cards can be implemented for controllers and groups in Insight.

### VISOTOOL Editor

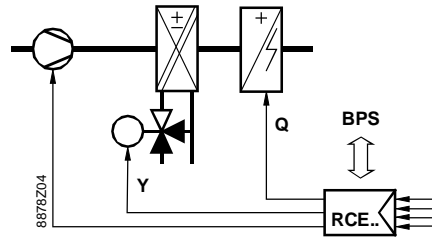
The VISOTOOL Editor on a PC allows for operating all previously described controller or group parameters. Additional, special tasks for the BPS are available for configuration and commissioning purposes:

- Define the controllers, groups, and master/slave relations (TSK 18).
- Automatically generate the data points and check the controllers (TSK 19).
- Print the configuration (TSK 42).
- Status report: Values or all configured BATIGYR controllers and groups (TSK 41).

## Energy handling

### Introduction

BATIGYR was developed for energy efficient operation of fan coils. Plant example



The following functions are available to handle electrical heating coils:

- Read energy information.
- Enable electrical heating.
- Limit electrical energy.

The BPS supports these functions as briefly described below. However, the associated task (TSK 17) must be enabled.

### Read energy information

The BATIGYR controllers have information on the consumption of the electrical heating coil. This helps them calculate the energy consumption of the controlled device since the last query. The default value for consumption is 3kW. Heating for one minute thus results in an energy consumption of 0.05 kWh.

The BPS reads the energy consumption calculated for each controller and maps the value to the associated parameter of the respective @PLTx. The values determined for all controllers of a group (master and slave) are then totaled in the parameter allocated to the group point @Alx.

Change the default value

Normally, the default value of the device consumption is saved in parameter @PLTx.DELF. If the device on controller x has another consumption, the parameter can be changed accordingly:

- Default consumption (3 kW).  $\Rightarrow$  @PLTx.DELF = 30
- If total device consumption = 1 kW  $\Rightarrow$  @PLTx.DELF = 10
- If total device consumption = 0.5 kW  $\Rightarrow$  @PLTx.DELF = 5

### Enable electrical heating

To enable the controller outputs according to application needs, BATIGYR provides a parameter with the values AE1 .. AE3.

AI	Valves (Y)	EI. heating (Q)
1	Enabled	Enabled
2	Enabled	Locked
3	Locked	Enabled

All controllers of the associated group function according to this default setting, if the associated parameter is set to the above values in the BPS.

### Limit electrical energy

A further parameter allows to limit the output signal for the electrical heating coil in increments of 10% for all controllers of a group:

- 100 % means: No limitation.
- 10 % means: Output set periodically to 6 sec "On" and 54 sec "Off".

The output, of course, is switched on and off only if electrical heating is enabled and if there is a heating demand.

### Additional information

For further information, refer to the data sheets on the BATIGYR product range.