



# VTS LS G100 Control and Modbus Communication User Manual

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**VTS LS G100 Control and Modbus Communication**



THE FOLLOWING MANUAL ASSUMES GOOD KNOWLEDGE OF TECHNICAL DOCUMENTATION INCLUDED WITH THE AIR HANDLING UNIT (AHU). THIS MANUAL CONSIDERS ONLY THE CONTROL AND COMMUNICATION CIRCUITS. THE INSTALLATION OF THE FREQUENCY CONVERTER AND INSTALLATION OF MAINS AND MOTOR CABLES SHOULD BE DONE ACCORDING TO THE LS G100 MANUAL.

#### FOR ALL CONFIGURATIONS SET THE COMMON PARAMETER LIST

| Parameter             | Code  | Value | Comments              |
|-----------------------|-------|-------|-----------------------|
| Ramp up time          | ACC   | 45    | Recommended 45 s.     |
| Ramp down time        | dEC   | 45    | Recommended 45 s.     |
| Maximum frequency     | dr-20 | 100   | —                     |
| Rated frequency       | dr-18 | *     | —                     |
| U/f ratio             | Ad-01 | 1     | Square characteristic |
| Overload protection   | Pr-40 | 2     | Active                |
| Number of motor poles | bA-11 | *     | 2-12                  |
| Rated slip            | bA-12 | **    | —                     |
| Rated current         | bA-13 | *     | —                     |
| Idle run current      | bA-14 | **    | —                     |
| P5 input function     | IN-69 | 4     | Limit switch          |

- as per motor data
- parameters to be calculated:

rated slip =  $(1 - \text{number of motor poles} * \text{rated speed} / 6000) * 50 \text{ Hz}$  idle run current =  $0,3 * \text{rated current}$

## CONFIGURATIONS WITHOUT VTS CONTROLS

### Local control using integrated control panel

Set additional parameters:

| Parameter           | Code | Value | Comments      |
|---------------------|------|-------|---------------|
| Start / stop source | drv  | 0     | Keypad        |
| Frequency source    | Frq  | 0     | Potentiometer |

Use the RUN and STOP/RST buttons to control the drive Use buttons / potentiometer to set frequency

### Remote control with three speeds

Set additional parameters:

| Parameter           | Code | Value | Comments            |
|---------------------|------|-------|---------------------|
| Start / stop source | drv  | 1     | Programmable inputs |
| Frequency source    | Frq  | 4     | Constant speeds     |
| Constant speed 1    | St1  | *     | 0-100 Hz            |
| Constant speed 1    | St2  | *     | 0-100 Hz            |
| Constant speed 1    | St3  | *     | 0-100 Hz            |

- as per user preferences

Use P1/P3/P4/P5 inputs to set desired drive function (1=on,0=off)

|                         |
|-------------------------|
| 0000 = STOP             |
| 1100 = START, 1ST SPEED |
| 1110 = START, 2ND SPEED |
| 1111 = START, 3RD SPEED |

## EXHAUST UNIT WITH VTS CONTROL SYSTEM

Set additional parameters:

| Parameter           | Code | Value | Comments            |
|---------------------|------|-------|---------------------|
| Start / stop source | drv  | 1     | Programmable inputs |
| Frequency source    | Frq  | 5     | Constant speeds     |
| Constant speed 1    | St1  | *     | 0-100 Hz            |
| Constant speed 1    | St2  | *     | 0-100 Hz            |
| Constant speed 1    | St3  | *     | 0-100 Hz            |

- as per user preferences

Use P1/P3/P4/P5 inputs to set desired drive function (1=on,0=off)

|                         |
|-------------------------|
| 0000 = STOP             |
| 1100 = START, 1ST SPEED |
| 1110 = START, 2ND SPEED |
| 1111 = START, 3RD SPEED |

### AHU WITH VTS CONTROLS TYPE uPC3

**NOTE:** To allow control of the G100 frequency drivers, set VFD type to G100 in uPC3 settings (HMI Advanced mask I03).

Set additional parameters:

| Parameter           | Code  | Value | Comments              |
|---------------------|-------|-------|-----------------------|
| Start / stop source | drv   | 3     | Modbus RS-485         |
| Frequency source    | Frq   | 6     | Modbus RS-485         |
| Address             | CM-01 | 2     | Supply 1              |
|                     |       | 3     | Exhaust 1             |
|                     |       | 5     | Supply 2/ redundant   |
|                     |       | 7     | Supply 3              |
|                     |       | 9     | Supply 4              |
|                     |       | 6     | Exhaust 2 / redundant |
|                     |       | 8     | Exhaust 3             |
|                     |       | 10    | Exhaust 4             |
| Comm. protocol      | CM-02 | 0     | Modbus RS-485         |
| Comm. speed         | CM-03 | 3     | 9600 bps              |
| Comm. parameters    | CM-04 | 0     | 8N1                   |

**NOTE:** To restore G100 to default settings set dr-93 = 1 and switch off the power supply.

## Documents / Resources

|                                                                                     |                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><a href="#">VTS LS G100 Control and Modbus Communication</a> [pdf] User Manual<br/> LS G100 Control and Modbus Communication, LS G100, Control and Modbus Communication,<br/> Control and Modbus, Modbus</p> |
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