CONTROL AND MODBUS COMMUNICATION
APPENDIX TO THE LG iC5 MANUAL

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 LG iC5 MANUAL.

1. FOR ALL CONFIGURATIONS SET THE COMMON PARAMETER LIST

Parameter	Code	Value	Comment
Ramp up time	ACC	45	recommended 45 sec.
Ramp down time	dEc	45	recommended 45 sec.
Max. operation frequency	F21	100	
Rated motor frequency	F22	50	
U/f ratio	F30	1	square char.
Motor overload protection	F50	1	active
Number of motor poles	H31	*	12-lut
Rated motor slip	H32	**	Scale: 0.01 Hz
Rated motor current	H33	*	Scale: 0.1 A
Motor idle run current	H34	**	Scale: 0.1 A
Rotation speed conversion factor	H74	**	Scale: 1
P5 function: external trip B (EtB)	I24	19	

2. CONFIGURATIONS WITHOUT VTS CONTROLS

2.1. Local control using integrated control panel

- Set additional parameters:

Parameter	Code	Value	Comment
Way of Control	DRV	0	Local via the keypad
Frequency setting method	Frq	2	Local via potentiometer
Frequency corresponding to I 2	I3	20	
Frequency corresponding to I 4	I5	100	

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

2.2. Remote control with three speeds

- Set additional parameters:

Parameter	Code	Value	Comment
Way of Control	DRV	1	
Frequency setting metod	Frq	4	
Constant speed value 1 (speed I)	St1	*	20 – 100Hz
Constant speed value 3 (speed II)	St3	*	20 – 100Hz
Constant speed value 7 (speed III)	I33	*	20 – 100Hz
P2 function: selection of LOW constant speed	I21	5	
P3 function: selection of MED constant speed	I22	6	
P4 function: selection of HIGH constant speed	I23	7	

- Wire the I/O terminal of the iC5 inverter according to the **Figure 1**
- Use P1/P2/P3/P4 inputs to set desired drive function
  0000 = STOP
  1100 = START, 1ST SPEED
  1110 = START, 2ND SPEED
  1111 = START, 3RD SPEED

3. EXHAUST UNIT WITH VTS CONTROL SYSTEM

- Set additional parameters:

Parameter	Code	Value	Comment
Way of Control	DRV	1	
Frequency setting metod	Frq	4	
Constant speed value 1 (speed I)	St1	*	20 – 100Hz
Constant speed value 3 (speed II)	St3	*	20 – 100Hz
Constant speed value 7 (speed III)	I33	*	20 – 100Hz
P2 function: selection of LOW constant speed	I21	5	
P3 function: selection of MED constant speed	I22	6	
P4 function: selection of HIGH constant speed	I23	7	

- Wire the I/O terminal and the terminal X3 of the control box CG according to the **Figure 2a**
- The P1/P2/P3/P4 inputs force desired drive function
  0000 = STOP
  1100 = START, 1ST SPEED
  1110 = START, 2ND SPEED
  1111 = START, 3RD SPEED

NOTE! If the AHU is equipped with more than 1 fan, follow **Figure 2b** for proper cabling.

* *Parameter values to be determined by the user*
** *Parameter values to be calculated:*

motor_rated_slip = (1-No_of_motor_poles · Motor_rated_speed / 6000) · 50Hz

no_load_motor_current = 0,3 motor_rated_current

RPM_conversion_factor = 1/60 · No_of_motor_poles · Motor_rated_speed

4. AHU WITH VTS CONTROLS TYPE: VS … CG ACX36 EVO … or VS … CG uPC …

4.1. Manual configuration of the inverters

- Set additional parameters:

Parameter	Code	Value	Comment
Way of Control	DRV	3	
Frequency setting metod	Frq	8	
Converter's address in Modbus Network	I60	2	Air-supply fan
		3	Air-exhaust fan
		5	Air-supply fan No.2 / redundant
		7	Air-supply fan No.3
		9	Air-supply fan No.4
		6	Air-exhaust fan No.2 / redundant
		8	Air-exhaust fan No.3
		10	Air-exhaust fan No.4
Reaction on communication time-out	I62	2	Stop
Communication time-out	I63	30	30 sec.

- Wire the communication terminal of the iC5 inverter according to the **Figure 3**

CAUTION! It is recommended to apply an automatic procedure for the converters' configuration, which is available in advanced options of the HMI Advanced panel.

NOTE! To restore iC5 to default settings set H93 = 1 and switch off the power supply.

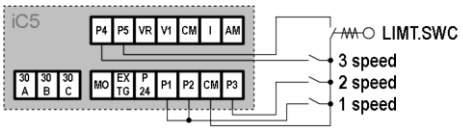

Figure 1

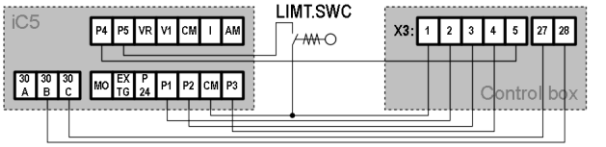

Figure 2a

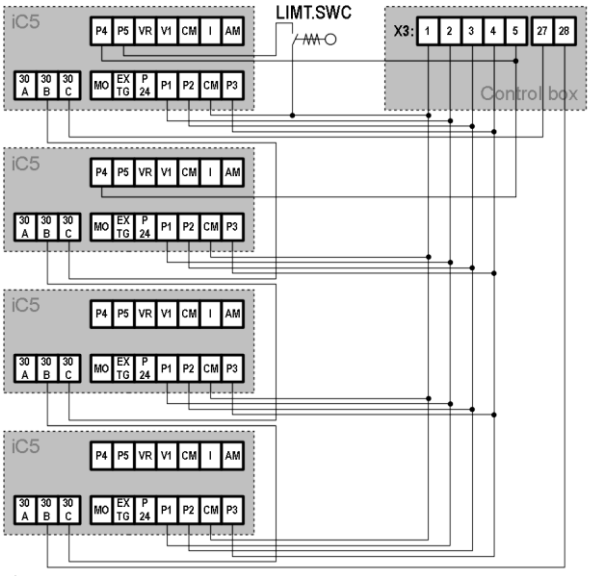

Figure 2b

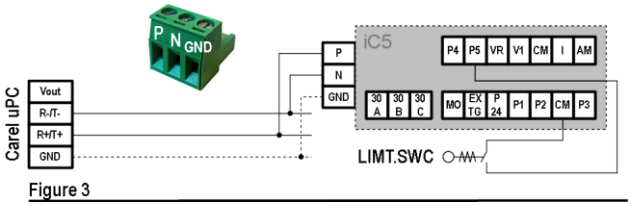

Figure 3