

CONTROL AND MODBUS COMMUNICATION

APPENDIX TO THE VTS2000 (SYv3) MANUAL ITEMS AS FOLLOW:

Index Number	Description	Model
1-2-1208-5028	FC 4kW 3PH 3~400V VFD	VTS2000-004G-4



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 VTS2000 MANUAL.

1. FOR ALL CONFIGURATIONS SET THE COMMON PARAMETER LIST

Parameter	Code	Value	Comments
Maximum frequency	F0.04	100	-
Upper limit frequency	F0.05	100	-
Lower limit frequency	F0.06	20	-
Acceleration time	F0.10	45	Recommended - 45 sec.
Deceleration time	F0.11	45	Recommended - 45 sec.
V / F curve setting	F0.13	1	Square curve
Motor rated voltage	F4.00	*	-
Motor rated current	F4.01	*	Scale: 0.1 A
Motor rated speed	F4.02	*	-
Motor rated frequency	F4.03	50	-
Motor overload protection	F5.00	1	Active

* - as per motor data

2. CONFIGURATIONS WITHOUT VTS CONTROLS

2.1 Local control using integrated control panel

Set additional parameters:

Parameter	Code	Value	Comments
Start signal selection	F0.02	0	Operation panel (FWD/REV/STOP)
Main frequency source selection	F0.03	0	Local keypad potentiometer setting mode
ACI input lower limit current	F2.04	-	0.00~ 【F2.05】
ACI input upper limit current	F2.05	-	【F2.04】 ~20.00mA
ACI lower limit corresponding setting	F2.06	-	-100.0%~100.0%
ACI upper limit corresponding setting	F2.07	-	

Use the RUN and STOP/RST buttons to control the drive

Use buttons to set frequency

2.2 Remote control with three speeds

Set additional parameters:

Parameter	Code	Value	Comments
Start signal selection	F0.02	1	I/O terminal
Main frequency source selection	F0.03	5	Multi-speed
Multi-speed 1 (speed 1)	F1.17	*	20 – 100Hz
Multi-speed 3 (speed 2)	F1.19	*	20 – 100Hz
Multi-speed 7 (speed 3)	F1.23	*	20 – 100Hz
SET multi function terminal X3	F2.15	13	Multi-speed selector bit 1
SET multi function terminal X4	F2.16	14	Multi-speed selector bit 2
SET multi function terminal X5	F2.17	15	Multi-speed selector bit 3

* - as per user preferences

Wire the I/O terminal of the inverter according to the figure below:

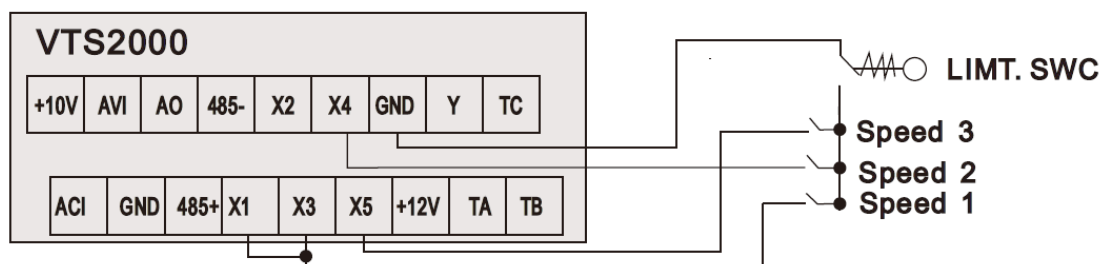


Figure 1

Use X1/X3/X4/X5 inputs to set desired drive function (1=on,0=off)

0000 = STOP	-
1100 = START, 1ST SPEED	Value is F1.17
1110 = START, 2ND SPEED	Value is F1.19
1111 = START, 3RD SPEED	Value is F1.23

3. EXHAUST UNIT WITH VTS CONTROL SYSTEM

Set additional parameters:

Parameter	Code	Value	Comments
Start signal selection	F0.02	1	I/O terminal
Main frequency source selection	F0.03	5	Multi-speed
Multi-speed 1 (speed 1)	F1.17	*	20 – 100Hz
Multi-speed 3 (speed 2)	F1.19	*	20 – 100Hz
Multi-speed 7 (speed 3)	F1.23	*	20 – 100Hz
SET multi function terminal X3	F2.15	13	Multi-speed selector bit 1
SET multi function terminal X4	F2.16	14	Multi-speed selector bit 2
SET multi function terminal X5	F2.17	15	Multi-speed selector bit 3

* - as per user preferences

Wire the I/O terminal of the inverter according to the figure below:

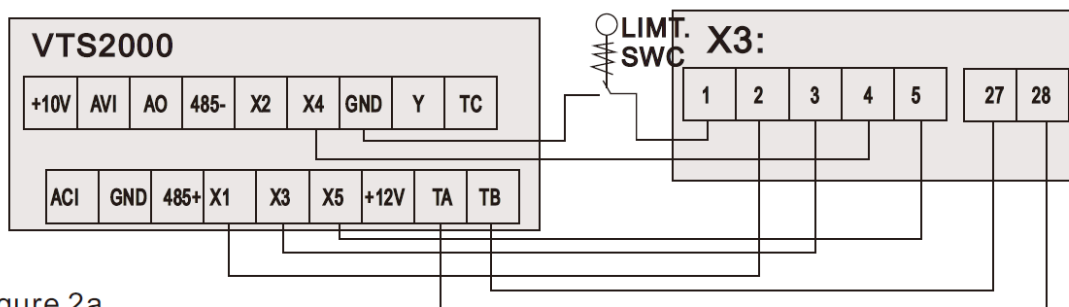


Figure 2a

Use X1/X3/X4/X5 inputs to set desired drive function (1=on,0=off)

0000 = STOP	-
1100 = START, 1ST SPEED	Value is F1.17
1110 = START, 2ND SPEED	Value is F1.19
1111 = START, 3RD SPEED	Value is F1.23

NOTE! If the AHU is equipped with more than one fan, follow the figure below for proper cabling:

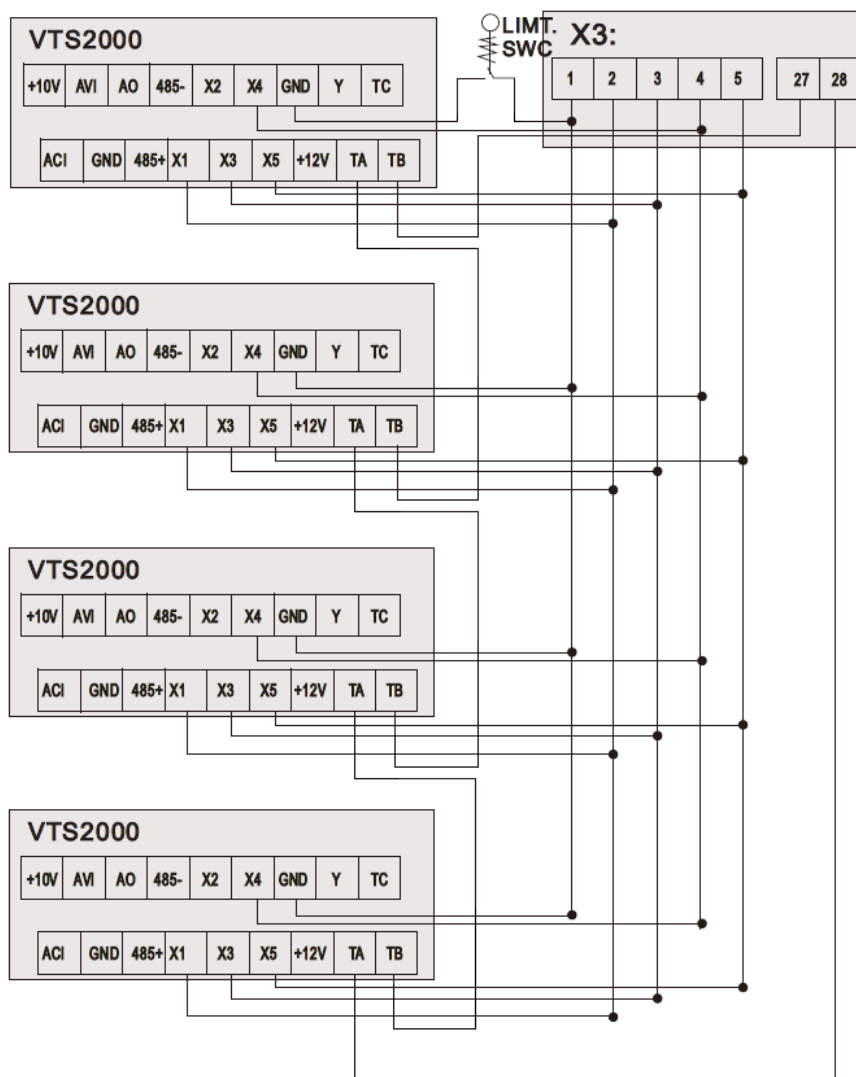


Figure 2b

4. AHU WITH VTS CONTROLS TYPE uPC3

NOTE! To allow control of the VTS2000 frequency drivers, set VFD type to SYv3 in uPC3 settings (HMI Advanced mask I03).

Set additional parameters:

Parameter	Code	Value	Comments
Start signal selection	F0.02	2	RS485 communication
Main frequency source selection	F0.03	6	RS485 communication
Converter's address in Modbus Network	F6.00	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		
Communication parameters	F6.01	0	Modbus RS-485 9600 8N1
Communication time-out detection time	F6.02	30	30 sec.

Wire the I/O terminal of the inverter according to the figure below:

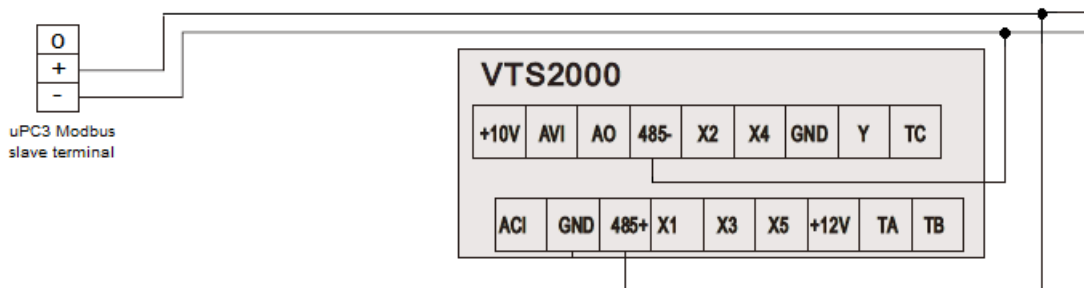


Figure 3

NOTE! To restore VTS2000 to default settings set F8.03 = 1 and switch off the power supply.