

Application Note –

Unitronics UMI inverter setup

Equipment: 7” Unistream
UMI-0004BE-B1 0.4kw single phase inverter.
Unilogic 1.24.56

Unilogic program: Unistream to INVT.ulpr

Connect the CPU RS485 port to the inverter control terminals 485+ and 485- with a piece of suitable cable, for workshop use a piece of CAT5 cable will suffice, for factory installations use a good quality Belden comms cable or equivalent.

Do not alter any parameters on the inverter.

VFD Help pages do not all appear in the Help Index, search for “VFD” in the Search tab of Help.

Issues

Unclear labelling

VSD Status is actually the inverter communication fault code, not the inverter running fault code. If the code is -1 or -2 this indicates either the drive is not a Unistream inverter or it is a different type.

Status > SW 1 of the inverter and SW 2 of the inverter are the status words used to monitor the current mode of the inverter.

Current Configuration Name is not contained in the inverter, it is the name of the last configuration file written to the inverter and is only held in the VFD STRUCT.

Function queries

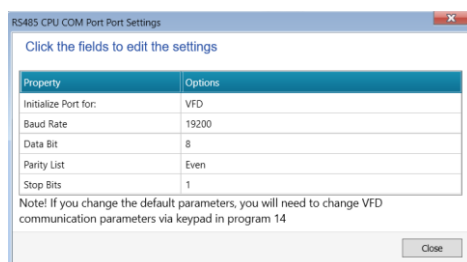
Reading parameters is not allowed for Group 14 (Comms settings) which is an R&D decision.

VFD STRUCT does not seem to monitor until a configuration is written even though you can control the inverter. The VFD>Status parameters are monitored when the ‘Periodic status read’ is enabled but other parameters such as VFD>Input terminals are not monitored until a configuration is written down to the inverter. The parameters show a zero when monitored even though they are set to a variety of non zero values.

Unilogic setup

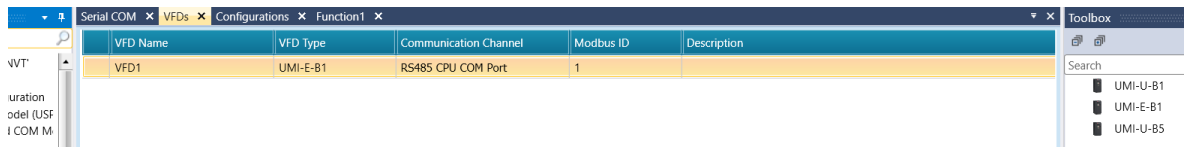
Note that the Modbus communication blocks read values from the VFD and write them to the VFD STRUCT and they read values from the VFD STRUCT and write them to the VFD.

Define the inverter comms channel in PLC Communications > Physical > Serial COM and change the RS485 port settings to VFD, do NOT alter any of the other comms settings.

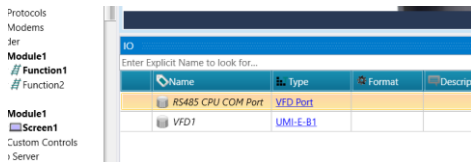


Define the inverter in the Hardware Configuration > Motion > VFD section select the appropriate comms

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 channel and inverter type.



This will create a STRUCT which contains all of the variable needed to monitor and control the inverter.



In online test mode set the Enable Communication bit which should bring on the VFD is Connected bit. Set the Enable Periodic Status Read bit.

Name	Type	Test	Format	Alias Name
Enable Communication	BIT	1	Binary	
VFD is Connected	BIT	1	Binary	
Enable Periodic Status Read	BIT	1	Binary	
VFD Status	INT16	0	Dec	

The PLC is now communicating with the inverter.

Popular parameters

P14.04 Set to anything other than zero to trip the inverter on loss of comms.

P00.01 Set to 2 to enable commands via Modbus and disable the keypad.

P00.06 Set to 8 to allow the speed reference to come via Modbus.

P14.00 Modbus ID

P00.18 Set to 1 to reset the VFD to its default setting (factory reset)

Group P14 are the Modbus parameters.

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Reset inverter to factory default

Set P00.18 to 1, the inverter will then reset P00.18 to 0.

With the inverter stopped push PRG/ESC	Display goes to P00
Push DATA/ENT to select Group 0	Display goes to P00.00
Use the up arrow to go to P00.18 and push DATA/ENT	Display goes to 0
Use up arrow to go to 1 and push DATA/ENT	Display goes to P00.00

All parameters are now at default and the alarm log is clear.

Default parameter values

P00.03	Maximum output frequency	50 Hz
P00.04	Upper limit of frequency	50 Hz
P00.05	Lower limit of frequency	0 Hz
P00.11	Acceleration time	10 secs
P00.12	Deceleration time	10 secs

Configuration 1

Slow acceleration with speed limited to between 10 & 30 Hz.

P00.03	Maximum output frequency	50 Hz
P00.04	Upper limit of frequency	30 Hz
P00.05	Lower limit of frequency	10 Hz
P00.11	Acceleration time	20 secs
P00.12	Deceleration time	20 secs

Configuration 2

No speed limit with fast acceleration

P00.03	Maximum output frequency	50 Hz
P00.04	Upper limit of frequency	50 Hz
P00.05	Lower limit of frequency	0 Hz
P00.11	Acceleration time	3 secs
P00.12	Deceleration time	3 secs

Enable Modbus control

At the inverter end

Set P00.01 to 2
Set P00.06 to 8

On the PLC display

Go to setup screen and switch on both the comms and the polling switches.

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Modbus map

2000H Command register
2001H Set speed reference
3000H Running frequency
3001H Motor current.