

RS 232 communication

Configuration
Vestas
Quest controller

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2. Introduction

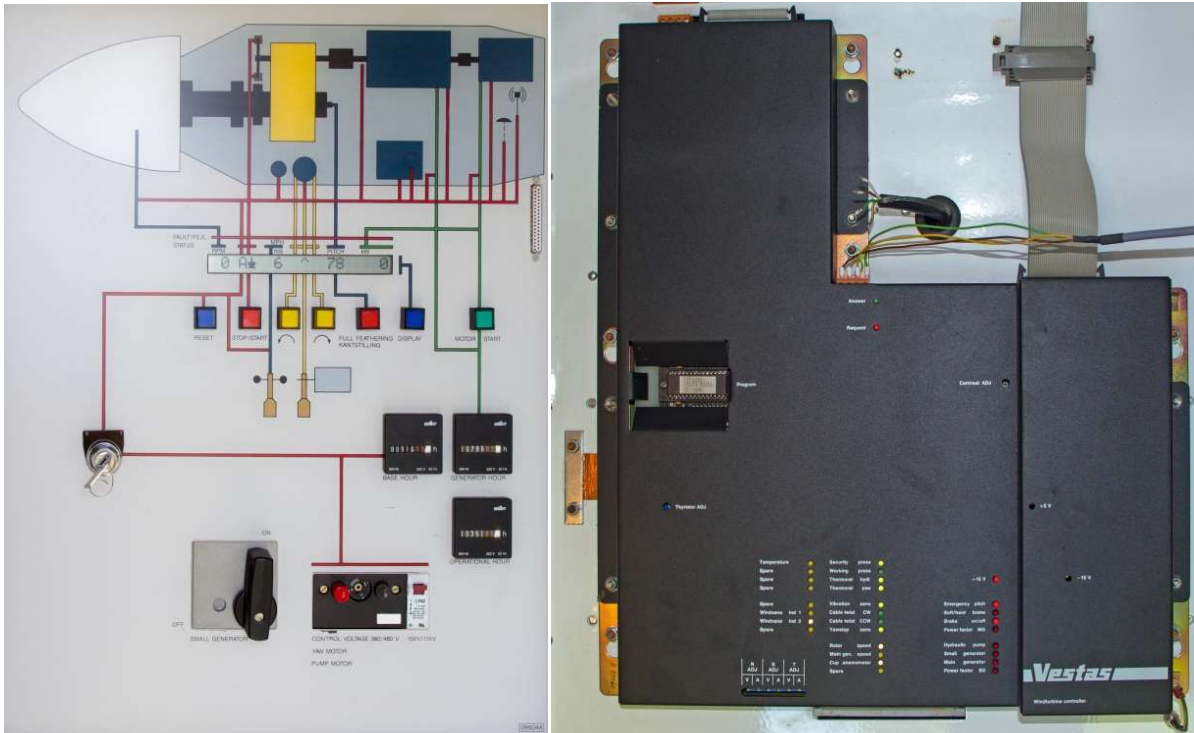
This document shows how to enable RS232 communication on a Vestas turbine using the Quest controller.

The document includes:

- How to change parameter and which settings needs to be changed.
- Hardware updates and changes.
- What new hardware is needed.
- Cable connections.

3. Vestas turbines

3.1. Quest Controller



It is not possible to change any parameters in the controller.

The communication uses the following configuration:

- 4464 Baudrate,
- 8 data bits,
- Odd parity
- 1 Stop bit.
- Id number 1
- It uses the Vestas Quest protocol

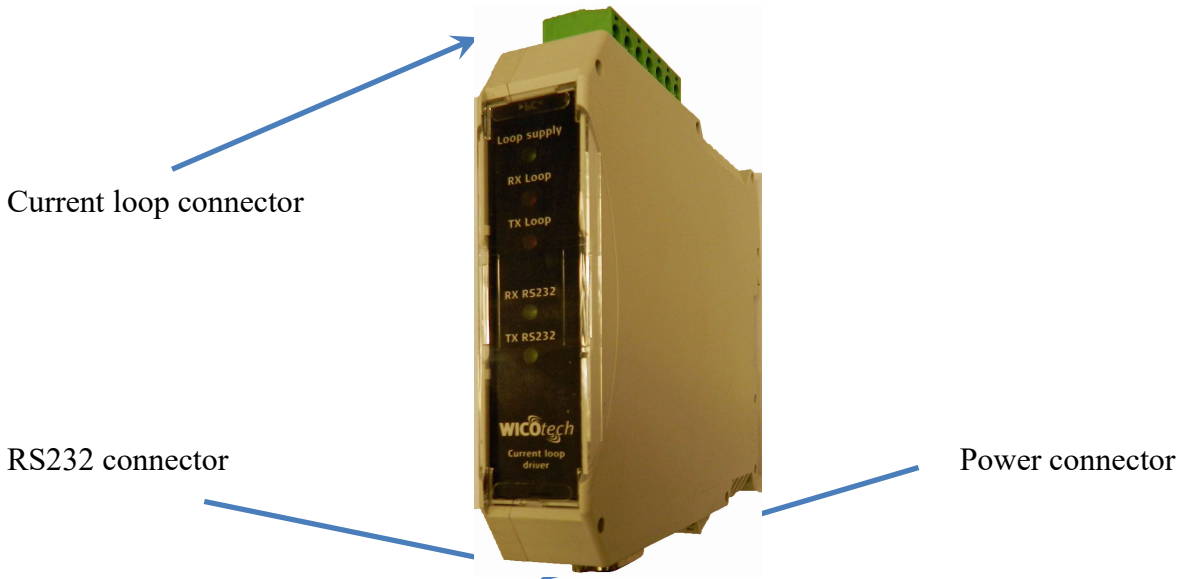
Be aware:

The current in the loop is extremely low on this turbine will the WICOTECH current loop drivers “TX loop” light not show any activity. The same goes with the request light on the controller. This light will always be slightly on and blink brighter whenever a question is received. This is normal.

Since the baudrate is special is it necessary to use the FourFaith modem with custom firmware. Please order the correct FourFaith unit.

3.2. Configuration of the WICotech Current loop driver

The universal current loop driver from WICotech is used to convert the Vestas loop signals to RS232.



There are two dip switched that are used to configure the unit:

Dip switch 1:	Loop mode, echo and control signals
Dip switch 2:	Current loop voltage setting.

The switched are located on the left side of the unit.

The current loop plug is located in the top.

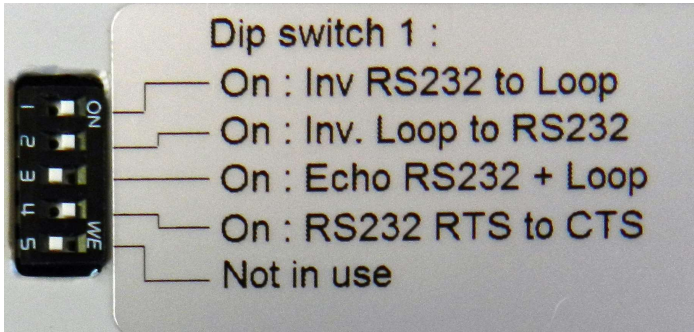
The RS232 connector is located in the bottom.

The power plug is located in the bottom. The power plug is used to supply 220 V to the unit. The same plug also gives the possibility to supply an external modem with 24 V from the internal power supply. This is used to feed the Four-Faith F2403 GPRS modem supplied by PS-Data.

RS 232 communication

Dip switch settings:

Dip switch 1: Default: Dip 1, 2 and 4 is ON and 3 and 5 is off.



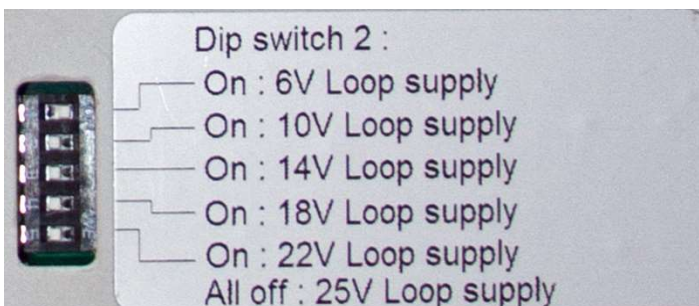
Dip 1 and 2 inverts the signal levels on the current loop. This must be on when communicating on a Vestas current loop.

Dip 3 is used to remove echo on the loop. If this setting is on will all questions send out on the loop be echoed back to the sender. This setting is normally off on a Vestas current loop

Dip 4 is used to short RTS and CTS in the RS232 connector. This setting is normally on.

Dip 5 is not used.

Dip switch 2: Default: Dip 1 is ON and the rest is off.



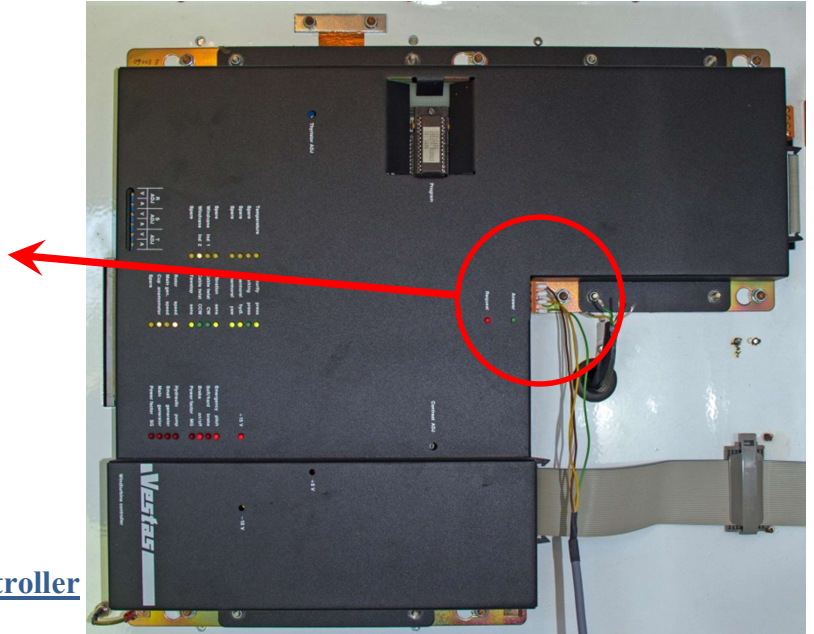
Dip switch 2 is used to set the voltage on the current loop.

Default current loop voltage is 6 V (Dip 1 on)

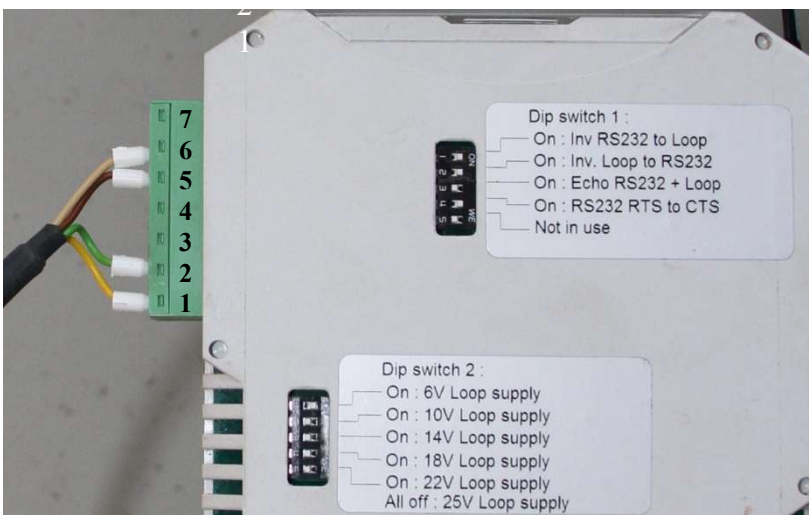
3.3. Connection of WICotech current loop driver

The WICotech current loop converter is connected directly to the Turbine controller.

Turbine controller



<u>WICotech</u>		<u>Turbine controller</u>
Pin 1	Yellow	Pin 2
Pin 2	Green	Pin 1
Pin 5	Brown	Pin 4
Pin 6	White	Pin 3

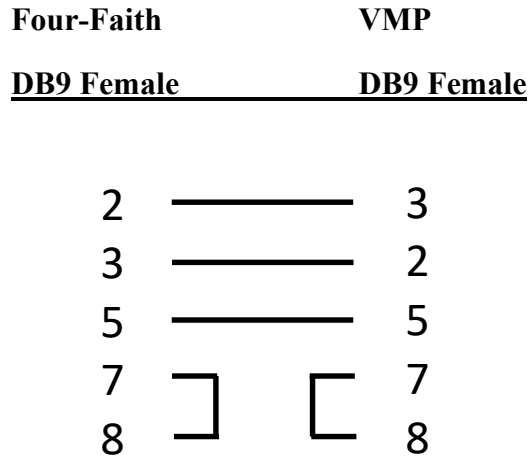


WICotech Current loop driver

The four current loop cables are mounted using the cable delivered together with the WICotech current loop driver

4. Cables

4.1. Cable layout for F2403



Same as the standard Four-Faith (Black) communication cable.

4.2. Cable layout for F2816 - COM 1

Four-Faith 2816		VMP	
<u>Terminal</u>		<u>DB9 Female</u>	
3	—————	3	White
4	—————	2	Green
5	—————	5	Brown
1 PWR		7	
2 GND		8	

4.3. Cable layout for F2816 - COM 2

Four-Faith 2816		VMP	
<u>Terminal</u>		<u>DB9 Female</u>	
6	—————	3	White
7	—————	2	Green
5	—————	5	Brown
1 PWR		7	
2 GND		8	

The Power (PWR) must be between +5V to +36V DC (Standard power supply is 12V DC)

An easy way to check if the wires on pin 3 and 4 (COM1) or pin 6 and 7 (COM2) is mounted correct is to measure the DC voltage on both pins in reference to GND (pin 5). If the Rx and Tx wires are mounted correct, should it be possible to measure a voltage on both pins (Above 3 volts). If there is only voltage on one pin is the wires wrong and they must be flipped.

5. Four Faith Signal monitoring

5.1. F2403 Signal monitoring

The Four Faith F2403 GPRS modem can be used to monitor the signal strength during installation.

This can be done on units bought after October 2014 and with firmware versions after this date.

The Signal mode is activated using a special DB9 adaptor that is inserted into the RS232 port on the Four Faith modem. When the adaptor is inserted will the online LED on the modem not display the online status anymore but instead will the signal strength be display. The signal level is illustrated by a number of blinks that is repeated every 3 seconds.

There are 5 different blink levels.

Level	Signal strength (dBm)	Quality
1	-113 -> -103	Bad
2	-101 -> -95	Marginal
3	-93 -> -85	OK
4	-83 -> -75	Good
5	-73 or higher	Excellent



The GPRS modem will not attempt to connect unless the signal strength is 2 or above but the signal should be no less than 3 or more before a stable connection can be expected.

Be aware that when the Signal tester adaptor is inserted will the modem NOT attempt to go online. The modem will return to normal operation when the adaptor is removed.

5.2. F2816 Signal monitoring

The Four Faith F2816 GPRS modem can be used to monitor the signal strength during installation.

The Signal mode is activated by pressing the signal tester button on the “Multiport interface” unit. The button has to be kept pressed during the signal testing.

If the kit is not equipped with the signal tester button can the signal mode be activated by connecting pin 11 (IO2) to the ground pin 2 or 5.

When the connection is established will the online LED on the modem not display the online status anymore but instead will the signal strength be display. The signal level is illustrated by a number of blinks that is repeated every 3 seconds.

There are 5 different blink levels.

Level	Signal strength (dBm)	Quality
1	-113 -> -103	Bad
2	-101 -> -95	Marginal
3	-93 -> -85	OK
4	-83 -> -75	Good
5	-73 or higher	Excellent



The GPRS modem will not attempt to connect unless the signal strength is 2 or above but the signal should be no less than 3 or more before a stable connection can be expected.

Be aware that when the Signal tester is active will the modem NOT show the online signal anymore. The modem will return to normal operation when the adaptor is removed.