RS 232 communication

Configuration

DCE - TAC-II

1. Table of contents

2. Introduction

This document shows how to enable RS232 communication on a DCE TAC-I 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.

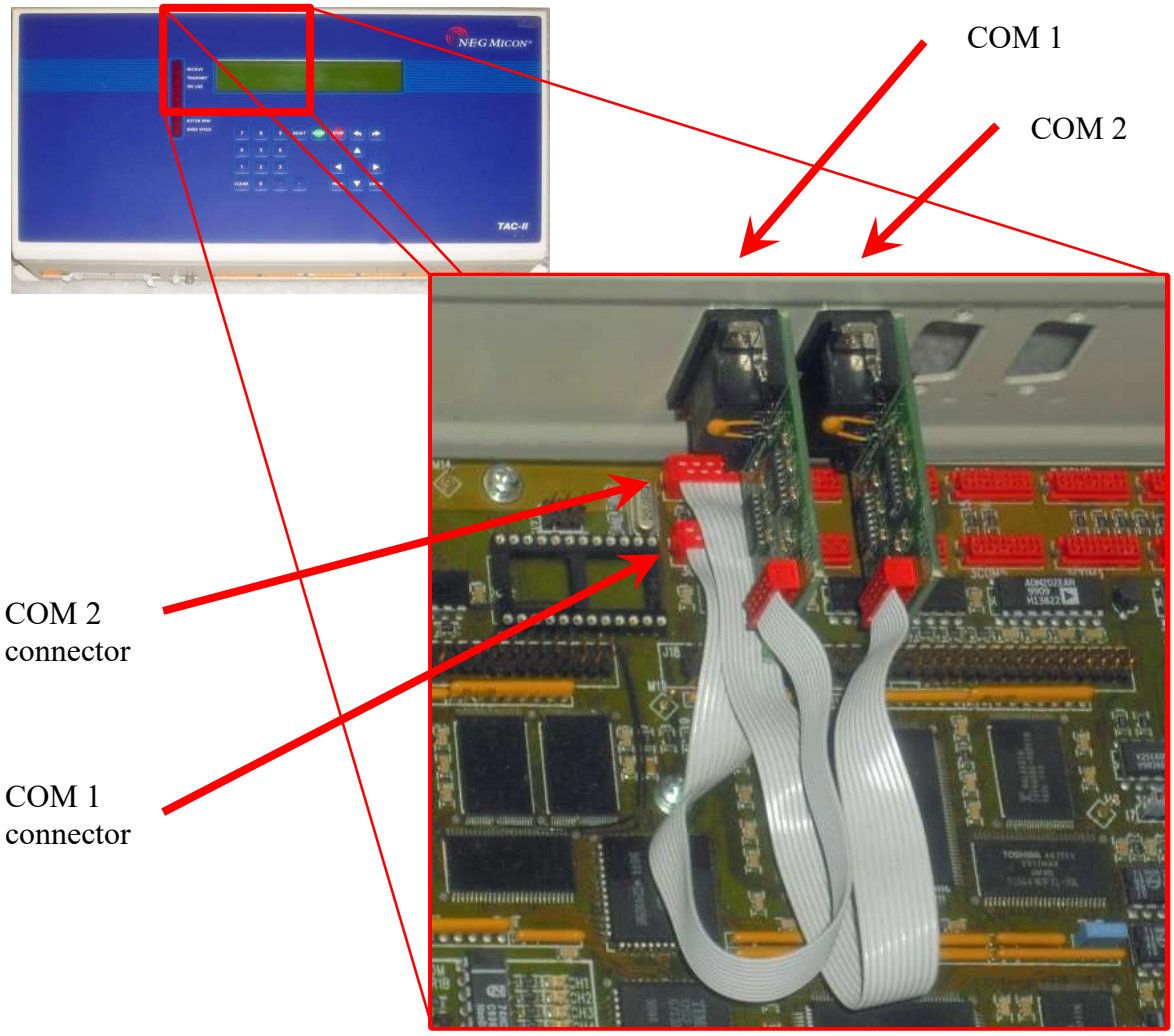
3. Communication ports

To be able to communicate with a TAC-II controller is it necessary to have a communication card installed.

A TAC-II normally has two ports: Com1 and 2 that can be used for serial communication. Either one can be used. It is only necessary to set the parameters for the selected port.

The com ports are located on the top of the TAC computer. COM1 is to the left and COM 2 is to the right when seen from the front of the computer.

Correct mounted RS232 cards must be installed as displayed in the picture beneath.



COM 1 is to the left and COM 2 is to the right, when seeing the ports from the front.

4. DanControl, NEG-Micon, Vestas – TAC-II

The following parameters have to be set to get a TAC-II working.

- DCE3 Protocol must be activated
- Baud rate
- Data bits
- Parity
- Stop bit
- Modem handling
- Echo
- Id number
- Alarm call port

The parameters are found in the menu system:

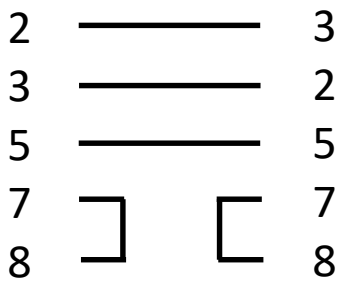
The menu system has the following structure. It is navigated using the arrow keys and enter is used to select menu or accept a data input. Data is entered directly in the selected line.

- Status
- Grid
- Operation Counters
- Temperatures
- Pressure
- **User parameters**
  - Set user parameters
  - Set date/time
  - **Set communication protocol**
    - DCE1 com port
    - DCE1 com port
    - DCE2 com port
    - **DCE3 com port** **Set to 1**
    - **DCE3 com port** **Set to 2**
    - FDV 2.00 com port
    - **Alarm call com port** **Set to 0**
  - **Set communication parameters**
    - **Set communication parameters com1**
      - **Baud** **Set to 9600**
      - **Data bits (7/8)** **Set to 8**
      - **Parity (0/1/2)** **Set to 0**
      - **Stop bit (1/2)** **Set to 1**
      - **Modem control (0/1)** **Set to 0**
      - **Handshake (0/1)** **Set to 0**
      - **…**
      - **Echo control** **Set to 0**
    - **Set communication parameters com2**
      - **See com port 1** **(Use the same settings))**
    - Set communication parameters com5
    - Set communication parameters com6
  - Set communication links
  - **Set alarm call parameters**
    - **WTG id. no.** **Set to serial no**
    - WTG telephone no. Not used on direct com
    - WTG name: Not used on direct com
    - 1 Alarm call 1 Not used on direct com
    - 2 Alarm call 2 Not used on direct com
    - 3 Alarm call 3 Not used on direct com
    - 4 Alarm call 4 Not used on direct com
    - 5 Alarm call 5 Not used on direct com
    - 6 Service call 1 Not used on direct com
    - 7 Service call 2 Not used on direct com
    - …
    - **Com number alarm call** **Set to 0**
    - …
- Alarm log
- …

5. Cables

5.1. Cable layout for F2403

Four-Faith	TAC-II
DB9 Female	DB9 Female



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

5.1. Cable layout for F2816 - COM 1

Four-Faith 2816 Terminal		TAC-I DB9 Female	
3	———	3	White
4	———	2	Green
5	———	5	Brown
1 PWR	⌐	7	
2 GND	⌙	8	

5.2. Cable layout for F2816 - COM 2

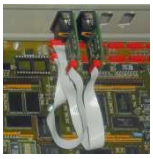
Four-Faith 2816 Terminal		TAC-I DB9 Female	
6	———	3	White
7	———	2	Green
5	———	5	Brown
1 PWR	⌐	7	
2 GND	⌙	8	

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.

6. Installation checklist

This is a checklist for the steps needed to install the GPRS modem into a turbine with a TAC-I controller. Follow the steps beneath and report the final settings to the administrator of the Alarm center server.

Step	Description	Done
	Hardware installation	
1	Install the Four-Faith GPRS modem and antenna	
2	Check if the TAC has a RS232 port If board is missing install it Note what port it is installed on Board to the left = COM1 Board to the right = COM2 	
3	Install the RS232 cable between TAC computer and the Four-Faith modem.	
4	Power up Four-Faith modem Verify power light is on Verify that online light is coming on (Can take a minute)	
	TAC parameter configuration:	
5	Check the turbine id number. It is default set to 11 but it is recommended to enter the serial no of the turbine.	
6	Check / Activate the DCE3 port on the COM port where the RS232 driver card is installed	
7	Check the turbine port setting. Remember to check the right port number according to where it RS232 driver board are located. The port settings must be the same as the GPRS modem. Set Baud rate. Typically 9600 Baud Set data bits: Typically 8 databits Set parity: Typically set to None (0) Set stop bits: Typically 1 stop bit	
8	Remove alarm call in the turbine by setting the Alarm port to 0	
	Report the settings to the Alarm Center administrator for server configuration.	
9	Example value Modem device number 11 Modem baud rate 9600 Modem data bits, parity settings and stop bits 8N1 (8, None, 1) Turbine name Test park Turbine id number 11 Turbine model NM-48 Turbine size 750	

	Turbine GPS coordinates	56.094985, 10.136058	

7. Four Faith Signal monitoring

7.1. 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.

7.2. 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.