INS401-Firmware Upgrade Instructions

Application Note
Revision 1.5

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Introduction

The INS401's FW can be upgraded by using acenav CLI Software and the Ethernet interface.

Items needed to upgrade the firmware are:

- PC running Window 8 or later with RJ45 Port
- 100base-T1 to Tx adapter board
- Power Source (12V)
- acenav-cli v2.6.7 or later
- PowerShell
- Binary(s):
  - INS401_v28.01.bin as example

Instructions to update new FW

1. Save FW binary file(s) to be installed into a folder on PC where you can locate them later for installation.
2. Download Aceinna official SW acenav.exe, link
3. Power on INS401
4. Connect INS401(3-ETH_TRX_N-, 4-ETH_TRX_P+) by ethernet transfer board (100base-T1 to Tx) or similar instrument, then the board should be connected with PC by network cables
5. Run PowerShell on the same folder as acenav.exe, then input command '.\acenac.exe –i 100base-t1 --cli' to run acenav.exe in CLI mode, see in Figure 1, after this
   # Console display with connection information
   # Prompt for user input, type in command and file path after the arrow symbol

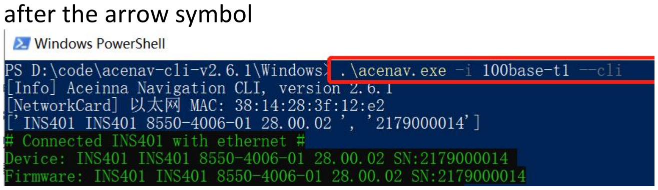

Figure 1

6. Input update command 'upgrade <INS401 FW file path>', see in Figure 2, when console shows 'done 100%' upgrade is finished.

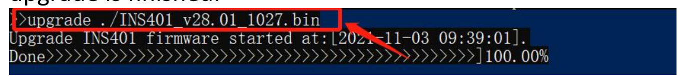

Figure 2

7. After the firmware update complete, reconnect the device, check the FW version in connection information, see in Figure 3, if FW version is right, it means update successfully.

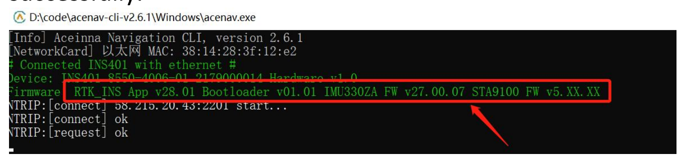

Figure 3

Main Connector and Pin Description

The main connector carries all the other power and I/O signals to and from the INS401 module. This connector is also of automotive grade and is manufactured by JAE Electronics. The male end which is installed in the INS401 housing has part number MX23A18NF1; the female end, which is attached to the external wiring harness, has part number MX23A18SF1. Figure 1 illustrates the location of the 18 pins in the male part, as seen facing the connector from outside the module.

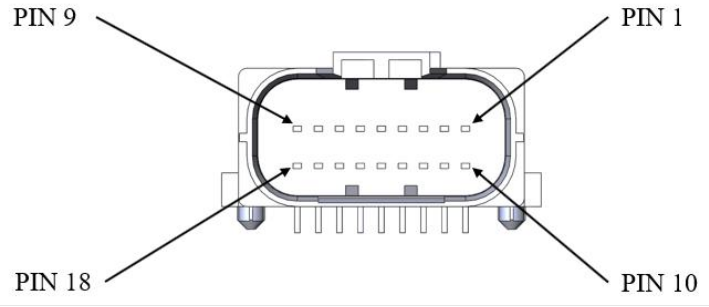

Figure 1 Pin Diagram of the Male End

Table 1 shows the functional description of the 18 pins in the main connector.

Table 1. Pin Description of the Main Connector

Pin Number	Type	Pin Name	Pin Function
1	Reserved	N/A	Reserved
2	Reserved	N/A	Reserved
3	I/O	ETH_TRX_N	Ethernet (negative)
4	I/O	ETH_TRX_P	Ethernet (positive)
5	Reserved	N/A	Reserved
6	Reserved	N/A	Reserved
7	Reserved	N/A	Reserved
8	Reserved	N/A	Reserved
9	Power	VCC_IN	9V ~ 32V DC power input
10	Reserved	N/A	Reserved
11	Reserved	N/A	Reserved
12	Reserved	N/A	Reserved
13	Reserved	N/A	Reserved
14	Power	GND	Negative power supply input
15	Power	GND	Negative power supply input
16	O	PPS	1 Pulse per Second output, synchronized to GNSS
17	Power	GND	Negative power supply input
18	Power	GND	Negative power supply input