ELECTRONICS & DEFENSE

# NetClock/NENA Breakout Cable

## For SecureSync 2400 Model

**Product Option Guide** 



Part Number: 2400-5000-0705

Revision: 2



## Introduction

The NetClock/NENA Option is a user-selectable kit for the SecureSync 2400 that serves as a drop-in replacement for the NetClock 9483 NENA-Compliant Master Clock interfaces.

The NetClock/NENA Option Kit uses the 15-pin multi-I/O connector (found on the main board of the unit), and the 1204-OF Alarm Relay option card, to connect to the NetClock/NENA Breakout Cable. This cable provides the same three output interfaces as found on the NetClock 9483: BNC IRIG Out, RS-232 on DB9, and RS-485 and Alarm Relay on a shared terminal block, allowing users to swap in the 2400 system with seamless integration to end devices.

## Components

The NetClock/NENA Option Kit (2400-0000-0705) includes the following materials:

- NetClock/NENA Breakout Cable (CA08R-0000-0010)
- NetClock/NENA Option Manual (this document, 2400-5000-0705)

Also required (must be ordered separately):

• Alarms/Relay Option Card (1204-0F):

The 1204-OF card can be installed in any open slot. The terminal block connector will be used in conjunction with the NetClock/NENA Breakout Cable. For information on this card, see <a href="https://safran-navigation-timing.com/manuals/2400/Content/NC">https://safran-navigation-timing.com/manuals/2400/Content/NC</a> and SS/Com/Topics/OPTCARDS/OC List/Alrm Rlay O.htm

## Installation

#### 1204-0F Option Card Installation

For customer installation of the 1204-0F card on a SecureSync 2400 unit already in your possession, follow the instructions in the Option Card Field Installation Guide to ensure that you safely install the 1204-0F. The Option Card Field Installation Guide is shipped with option cards ordered separately from SecureSyncs, and is also found here:

https://safran-navigation-timing.com/document/option-card-installation-guide/

**Warning:** Field installation of option cards by end users is potentially dangerous and requires strict adherence to all safety warnings and cautions. Personal injury and permanent equipment damage can occur. Do not attempt to install the card without referring to the Option Card Field Installation Guide.

(If you are receiving this kit with an order for a SecureSync 2400 and a 1204-0F card, your 1204-0F card will be already installed in your unit).



### NetClock/NENA Breakout Cable Installation

Once a 1204-0F card is installed in your SecureSync 2400, you can attach the NetClock/NENA Breakout Cable (see image below).



- 1. On the NetClock/NENA Breakout Cable, connect the terminal block marked CONNECT TO 1204-0F to the terminal block on the 1204-0F card on the rear panel of the SecureSync.
- 2. Connect the HD15 male marked CONNECT TO 2400 I/O on the NetClock/NENA Breakout Cable to the multi-I/O connector on the main board of the SecureSync 2400.
- 3. Log on to the Web UI to further configure the Pin Layout. Navigate to MANAGEMENT > Network > Pin Layout. From here, you can either:
  - a. Upload a Pin Layout configuration:
    - Download the preset pin layout configuration file here: <u>https://safran-navigation-timing.com/document/securesync-2400-netclock-nena-breakout-cable-pinout/</u>
    - ii. In the Actions panel of the Pin Layout page, select Upload Layout and upload the netclockcablepins.json file.
    - iii. In the Actions panel, select Ally Changes.

**Caution:** Do not skip this step, or your changes will not take effect.

- b. OR, you can manually adjust your pin layout settings using the following steps:
  - i. To eliminate later confusion, first delete four unnecessary signals: DELETE Pins 1,2, IRIG\_IN DCLS
    DELETE Pins 3, 13, 8 HQ\_OUT RS485

DELETE Pins 15 ATC\_IN RS232

DELETE Pins 4,14, 9 HQ\_IN RS485

| -          |          |        |              |  |
|------------|----------|--------|--------------|--|
|            |          |        |              |  |
| Pin Number | Signal   | Туре   |              |  |
| BNC        | PPS_OUT  | DCLS   | © Delete     |  |
| BNC_GND    |          | GND    |              |  |
|            | IFIO_OUT | DCLS   | Detete       |  |
|            |          | GND    |              |  |
|            | IRIG_IN  | DCLS   | $\sim$       |  |
|            |          | GND    |              |  |
| 15         | ATC_IN   | R6232  | $\sim$       |  |
|            | ATC_OUT  | R8232  | Delote       |  |
| 10         |          | GND    |              |  |
|            | HQ_OUT   | R3485  | $\mathbf{M}$ |  |
| 13         | HQ_OUT   | RS485  |              |  |
|            |          | OND    |              |  |
| 4          | HQ_IN    | R3485  | $\sim$       |  |
|            | HQ_IN    | R\$485 |              |  |
| 9          |          | GND    |              |  |
|            | IRIG_OUT | AM     |              |  |
| 12         |          | GND    |              |  |



ii. Click on the plus sign in the upper right corner, and

ADD pins 3, 13, & 8 to ATC\_OUT | RS485 (as in the following figure) and click Submit.

| Add | Pin         |                 |         | ×                                      |
|-----|-------------|-----------------|---------|--|
|     |             |                 |         |  |
|     | Signal      | ATC_OUT   RS485 | ~       |  |
|     | Type Filter | R\$485          | ~       |  |
|     | Pins        | 3, 13, 8        | ~       | li ili ili ili ili ili ili ili ili ili |
|     |             |                 |         |  |
|     |             |                 | ✓ Submi | 1                                      |
|     | L and       | -7.0            | - Re-   |  |

**Note:** If your setup requires an IRIG AM output rather than DCLS, you will also need to **ADD pins 6 & 7 to IRIG\_OUT | RS485** to change the signal.

| L | Layout +   |          |       |          |   |
|---|------------|----------|-------|----------|---|
|   |            |          |       |          | _ |
|   | Pin Number | Signal   | Туре  |          |   |
|   | BNC        | PPS_OUT  | DCLS  | - Delete |   |
|   | BNC_GND    |          | GND   |          |   |
|   | 6          | IRIG_OUT | DCLS  | - Delete |   |
|   | 7          |          | GND   |          |   |
|   | 1          | None     | GND   |          |   |
|   | 2          |          | GND   |          |   |
|   | 15         | None     | GND   |          |   |
|   | 5          | ATC_OUT  | RS232 | Delete   |   |
|   | 10         |          | GND   |          |   |
|   | 3          | ATC_OUT  | RS485 | - Delete |   |
|   | 13         | ATC_OUT  | RS485 |          |   |
|   | 8          |          | GND   |          |   |
|   | 4          | None     | GND   |          |   |
|   | 14         | None     | GND   |          |   |
|   | 9          |          | GND   |          |   |
|   | 11         | IRIG_OUT | АМ    |          |   |
|   | 12         |          | GND   |          |   |
|   |            |          |       |          |   |

iii. Your pin layout should now be configured like the following image:

iv. In the Actions panel, select Apply Changes to confirm your new pin layout.

Caution: Do not skip this step, or your changes will not be reflected on the unit.



4. Additional Web UI configuration may be necessary based on your application of the inputs and outputs. You can select each output to change specifications (on your IRIG or ASCII signals, for instance). See the following image for reference.



In the Web UI, the following interfaces apply to the NetClock/NENA Breakout Cable:

- 1. **IRIG-OUT** (found on the BNC connector of the NetClock/NENA Breakout Cable).
- 2. ASCII OUT RS232 (found on the DB9F connector of the NetClock/NENA Breakout Cable).
- 3. ASCII OUT RS485 (found on the terminal block connector of the NetClock/NENA Breakout Cable).
- 4. **ALARM/RELAY** signals Alarm Output 0 and 1 (found on the terminal block connector of the NetClock/NENA Breakout Cable. Note: in this setup, Alarm Output 2 is not functional).

| PIN | SIGNAL        | FUNCTION             |  |
|-----|---------------|----------------------|--|
| 1   | PPS_OUT       | 1PPS output          |  |
| 2   | SERIAL_OUT_TX | RS-232 Transmit data |  |
| 3   | SERIAL_OUT_RX | RS-232 Receive data  |  |
| 4   | NC            | No connection        |  |
| 5   | GND           | Ground               |  |
| 6   | NC            | No connection        |  |
| 7   | NC            | No connection        |  |
| 8   | NC            | No connection        |  |
| 9   | NC            | No connection        |  |

DB9 Pinout



DB9 Output Pins From terminal end of NetClock/NENA Breakout Cable



Terminal Block Output Pins, From terminal end of NetClock/NENA Breakout Cable



| c c        | 2400 |          | o      | <u> </u> | D 0   |
|------------|------|----------|--------|----------|-------|
| SecureSync | 2400 | NetClock | Option | Guide,   | Kev 2 |

| Pin | Signal         | Direction | Characteristics                                 |
|-----|----------------|-----------|---|
| 1   | RS-485 TX+     | Out       | OV to 3VDC differential, 120 $\Omega$ load      |
| 2   | RS-485 TX-     | Out       | OV to 3VDC differential, 120 $\Omega$ load      |
| 3   | GROUND         | N/A       | GROUND  |
| 4   | Relay 0 NO     | Out       | Normally Open 30 VDC, 2A max. switching power   |
| 5   | Relay 0 NC     | Out       | Normally Closed 30 VDC, 2A max. switching power |
| 6   | Relay 0 COMMON | Out       | Common Contact 30 VDC, 2A max. switching power  |
| 7   | Relay 1 NO     | Out       | Normally Open 30 VDC, 2A max. switching power   |
| 8   | Relay 1 NC     | Out       | Normally Closed 30 VDC, 2A max. switching power |
| 9   | Relay 1 COMMON | Out       | Common Contact 30 VDC, 2A max. switching power  |
| 10  | GROUND         | N/A       | GROUND  |

#### Terminal Block Pinout

| Relay 0                        |               |               |  |  |  |
|--------------------------------|---------------|---------------|--|--|--|
| From Common (pin 6)            | To NO (pin 4) | To NC (pin 5) |  |  |  |
| Power applied. No alarms       | Short         | Open          |  |  |  |
| Power applied. Alarm active.   | Open          | Short         |  |  |  |
| No power applied to SecureSync | Open          | Short         |  |  |  |
|                                |               |               |  |  |  |
|                                | Relay 1       |               |  |  |  |
| From Common (pin 9)            | To NO (pin 7) | To NC (pin 8) |  |  |  |
| Power applied. No alarms       | Short         | Open          |  |  |  |
| Power applied. Alarm active.   | Open          | Short         |  |  |  |
| No power applied to SecureSync | Open          | Short         |  |  |  |

#### Alarm Relay Power Source

More information on standard unit behavior or any other feature or function of the SecureSync 2400 can be found in the user manual at <u>https://safran-navigation-timing.com/manuals/</u>



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