OEM6™ Development Kit

QUICK START GUIDE

The OEM6 Development Kit (Dev Kit) provides a convenient way to access OEM6 input and output signals.

BOX CONTENTS

In addition to this *Quick Start Guide*, the following is provided with your OEM6 Dev Kit:

- PCB assembly (NovAtel part number 01018313)
- Dev Kit power assembly cable (NovAtel part number 01018570)
- 6 foot USB cable type A to mini B 5-pin (NovAtel part number 60723111)
- 6 foot null modem cable (NovAtel part number 01017658), DB-9 female/female, to connect to COM1, COM2 or COM3. Users will provide cables for AUX, CAN1 and CAN2 connection, as necessary.
- Six adhesive rubber feet
- Six standoffs, with associated screws and nuts
- Four jumpers

ADDITIONAL EQUIPMENT REQUIRED

Depending on the application, you will require the following additional equipment:

- OEM6 receiver
- A Microsoft Windows-based computing device with an RS-232 DB-9, USB port or 10/100BASE-T port
- A +4.5 to 24 V DC power supply, capable of at least 10W
- A quality GNSS antenna, such as NovAtel's GPS-703-GGG (GPS+GLONASS+Galileo), as shown in *Table 6*
- A 50 ohm coaxial cable with a male TNC connector at the Dev Kit end, for connecting to the ANT port
- If necessary, a 50 ohm coaxial cable with a male BNC connector at the Dev Kit end, for connecting to an EXT OSC port (see *External Oscillator on page 2*)
- An RJ-45 Ethernet cable

Figure 1 shows the location of the Dev Kit connectors and indicators.

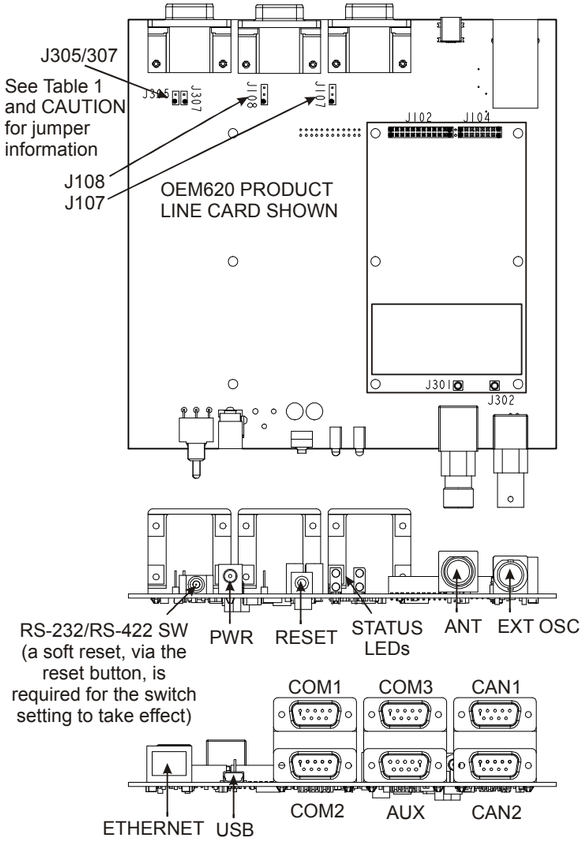

Figure 1: OEM6 Dev Kit

USING THE OEM6 DEV KIT

***CAUTION*:** Follow the ESD practices outlined in Appendix B of the *OEM6 Family Installation and Operation User Manual*.

1. If you have not done so already, install NovAtel PC utilities (CDU and Convert4) on your computing device. These utilities are available from Support | Firmware/Software and Manuals | Product Updates on the NovAtel Web site.
2. If desired, affix the rubber feet (or standoffs) to the underside of the Dev Kit board, on the white landing pads.
3. Jumper the board as necessary, as outlined in *Table 1* and the CAUTION note below it.
4. Place the Dev Kit on a flat surface so that it is supported, for example, by the rubber feet.
5. Install the OEM6 receiver on the Dev Kit board.
6. Set the power supply to 4.5 to 24 VDC, then turn off the power supply.
7. Connect the power cord to the Dev Kit and to the power supply, then turn the power supply on.
8. Connect the Dev Kit to other equipment (antenna, for example), as necessary, as illustrated in *Table 2* and *Figure 3*. You can connect to other equipment with the power on.

Table 1: Dev Kit Jumpers

Jumper	2-to-1	2-to-3	None
J107	EVENT-2	Enable COM3[a]	NC
J108	User GPIO	Enable COM3[a]	NC
J305	If jumpered, Dev Kit provides 3.3 VDC to pin 9 CAN2. See CAUTION below.		
J307	If jumpered, Dev Kit provides 3.3 VDC to pin 9 CAN1. See CAUTION below.		

a. COM3 also needs to be enabled in software using the INTERFACEMODE command.

***CAUTION*:** Do not connect J305 or J307 if you have an external voltage on the CAN bus.

CONNECTORS, SWITCHES AND STATUS LEDS

Table 2: Dev Kit Connectors

Connector	Description
COM1[a]	DB-9 male connector
COM2[a]	DB-9 male connector
COM3[ab]	DB-9 male connector
AUX	DB-9 female connector
CAN1	DB-9 male connector, providing support for CAN bus
CAN2	DB-9 male connector, providing support for CAN bus
USB	USB Mini AB
ETHERNET	RJ45 connector, 10/100BASE-T
RS-232/RS-422 SW	Switch to configure COM1 as RS-232 or RS-422 (labelled on board). Setting will take effect on power cycle.
PWR	Connect the power cord to this connector.
RST	Pressing this button performs a soft reset on the card.
STATUS LEDs	See *Figure 2*
ANT	TNC female connector
EXT OSC	BNC female connector, for applications involving a customer-provided external oscillator

a. COM1, COM2 and COM3 can be configured, using the SERIALCONFIG command, to a baud rate from 300 to 921600 bps.
b. Use the INTERFACEMODE command to enable COM3, as outlined in *OEM6 Family Firmware Reference Guide*.

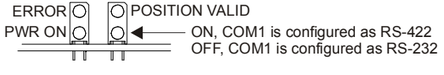

Figure 2: Dev Kit Status LEDs

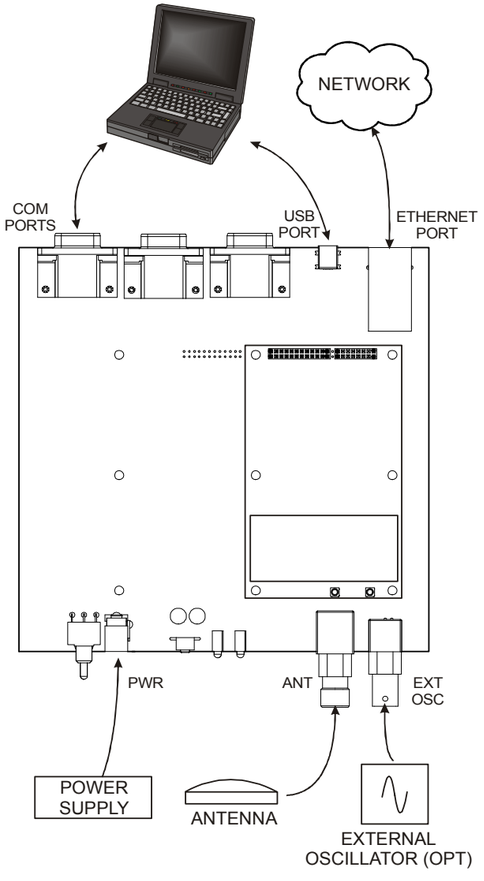

Figure 3: Connecting to the OEM6 Dev Kit

Table 3: COM/AUX Pin-Outs

Pin	COM1	COM2	COM3	AUX
1	NC	NC	NC	EVENT 1
2	RXD1	RXD2	RXD3	EVENT 2
3	TXD1	TXD2	TXD3	PVALID
4	NC	NC	NC	PPSOUT
5	GND	GND	GND	USER_RESET
6	NC	NC	NC	GND
7	RTS1	RTS2	NC	VARF
8	CTS1	CTS2	NC	GPIOH(0)
9	NC	NC	NC	GND

Table 4: CAN1/CAN2 Pin-Outs

Pin	CAN1	CAN2
1	NC	NC
2	CAN_L	CAN_L
3	GND	GND
4	NC	NC
5	SHIELD	SHIELD
6	GND	GND
7	CAN_H	CAN_H
8	NC	NC
9	OPTIONAL 3V3 (see *Table 1*)	OPTIONAL 3V3 (see *Table 1*)

Table 5: USB Pin-outs

Pin	Description
1	VBUS
2	D-
3	D+
4	UID
5	GND

EXTERNAL OSCILLATOR

Some applications require greater precision than that possible with the OEM6 VCTCXO, in which case you may need to connect the OEM6 to an external high-stability oscillator, either 5 MHz or 10 MHz. For further information, refer to *Chapter 3 Installation, OM-20000128 OEM6 Family Installation and Operation User Manual*.

ANTENNA SELECTION

An active antenna is recommended to compensate for the cable loss between the antenna and receiver. The GNSS antenna you choose will depend on your particular application. NovAtel offers a wide range of antennas, as shown in *Table 6*:

Table 6: NovAtel GNSS Antennas

Models	Frequencies Supported	GPS	GLO-NASS	Galileo
ANT-35C1GA-TW-N ANT-26C1GA-TBW-N	L1 only	✓		
ANT-35C2GA-TW ANT-A72GA-TW-N ANT-C2GA-TW-N	L1 and L2	✓		
GPS-702L ANT-A72GLA4-TW-N ANT-A72GLA-TW-N	L1 and L2 plus L-band	✓		
GPS-701GGL ANT-A71-GLA4-TW	L1 plus L-band	✓	✓	
GPS-701-GG	L1 only	✓	✓	
GPS-702-GGL, ANT-A72GOLA-TW	L1 and L2 plus L-band	✓	✓	
GPS-702-GG	L1 and L2	✓	✓	
GPS-703-GGG	L1, L2, L5, E5a and E5b	✓	✓	✓

REGULATORY NOTICE

WARNING!: The OEM6 Development Kit is an electronic subassembly intended for evaluation purposes only - it is not a finished end-user product.

As an electronic subassembly, it is not subject to the technical requirements for CE marking or for CFR47 FCC Part 15, subpart B.

This equipment is intended for use in a laboratory test environment only. It generates, uses, and can radiate radio frequency energy and has not been tested for compliance with the limits of digital devices pursuant to subpart B of part 15 of FCC rules, which are designed to provide reasonable protection against radio frequency interference. Operation of this equipment in other environments may cause interference with radio communications, in which case the user at his own expense will be required to take whatever measures necessary to correct this interference.

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QUESTIONS OR COMMENTS

The Dev Kit BOM, schematics and assembly drawings are available on the Support page of the NovAtel Web site. If you have any questions or comments regarding your OEM6 Dev Kit, please contact NovAtel using one of these methods:

Email: support@novatel.com
Web: www.novatel.com
Phone: 1-800-NOVATEL (U.S. & Canada)
403-295-4900 (International)
Fax: 403-295-4901

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