MARINE POWER AMPLIFIERS

INSTALLATION / OWNER'S MANUAL

IP66 Rated

❖ Bluetooth®
(DMA4100BT)

Dual®

Preparation

Amplifier Features

- Meets or exceeds ASTM d4329 (UV exposure)
- Built-in professional Bluetooth® signal processor module(DMA4100BT)
- Intelligent switching between Bluetooth® and RCA signal(DMA4100BT)
- Automatic Bluetooth® on and off(DMA4100BT)
- SMD dedicated audio chip device
- Full MOSFET DC-DC PWM power supply
- Overload, short circuit, overheat, under voltage protection

Please read entire manual before installation. Due to the technical nature of amplifiers, it is highly recommended that your amplifier is installed by a professional installer or an authorized dealer.

Before You Start
- Disconnect negative battery terminal (consult qualified technician for instructions).
- Avoid installing the amplifier where it will be subject to high temperatures (such as from direct sunlight) or subject to dust, dirt or excessive vibration.
- Use extreme caution when drilling holes to avoid damaging fuel lines or existing wiring.
- All amplifier installations require power, signal and speaker wires (not included).
- An amplifier installation kit (sold separately) is highly recommended to facilitate the installation. Consult your dealer for recommendations.

Mounting Location
- Choose a mounting location for the amplifier.
- The amplifier can be mounted horizontal (recommended) or vertical. For optimum performance, make sure to provide at least 1" of space around all sides. Do not mount the amplifier under carpets or where airflow is restricted.
- The optimum mounting location varies. Remember to test all amplifier functions before completing the final mounting procedure.

TYPICAL MOUNTING METHOD

Connection Descriptions

NOTE:
Be sure to follow specific instructions included with your amplifier installation kit (not included with this amplifier). The information below should be used as a general guideline only.

Power Wire (+12V)
- Disconnect negative battery terminal before proceeding. Consult a qualified technician for instructions if you are unsure.
- Plan wire routing before cutting any wires to length. Begin by routing the power +12V wire from the battery to the amplifier location. Use a grommet when running wires through the firewall or metal openings. Avoid running the power wire near existing vehicle wiring to prevent induced noise from entering the audio system.
- Use extreme caution when drilling holes to avoid damaging fuel lines or existing wiring.
- The +12V wire MUST be fused within 18" of the battery for protection of the vehicle's electrical system.

Ground Wire (GND)
- The amplifier ground wire should be as short as possible (no more than 36" or 1 meter). Choose a clean unpainted section of metal or the boat chassis when attaching the ground connection. Be sure to clean the area of any dirt or grease.

Remote Turn-on Wire (REM)
- The remote turn-on wire connects to the head unit's amplifier turn-on lead or power antenna output.

Speaker Wires
- Choose adequate gauge speaker wire depending on your exact amplifier/speaker combination. Be sure to observe polarity when connecting.
- Do not ground any speaker wires or connect any speaker wires together.

Input Signal
- The amplifier's input signal connects to the head unit's low level (RCA) outputs.
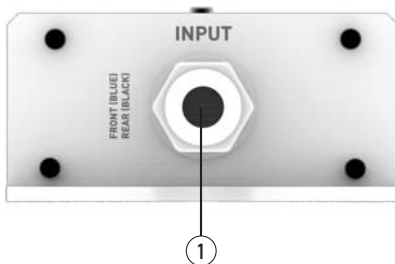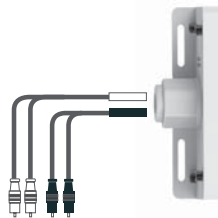- When Bluetooth pairing is disconnected, DMA4100BT is automatically connected to low level inputs.

CAUTION
- Keep low level inputs away from any power wires to avoid engine noise.
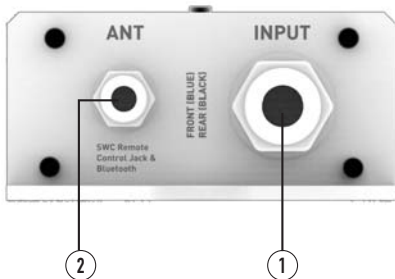- Never run any wires underneath or outside the boat

Audio Inputs
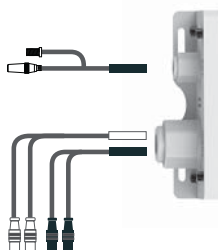
DMA3100

DMA4100BT

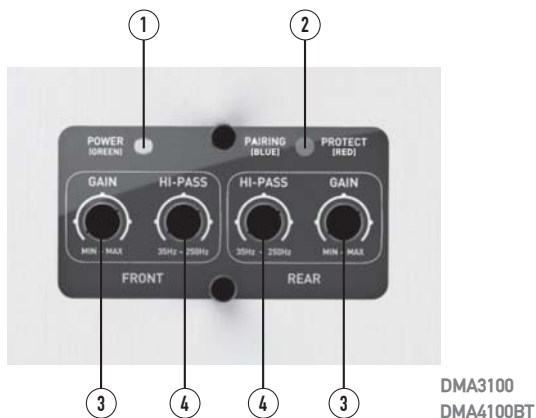① Audio Input

② Remote Control Cable

Amplifier Controls

DMA3100
DMA4100BT

(1) Power

(2) Bluetooth Pairing LED (ONLY DMA4100BT)

Protection Mode LED

(3) Gain

(4) High Pass Filter
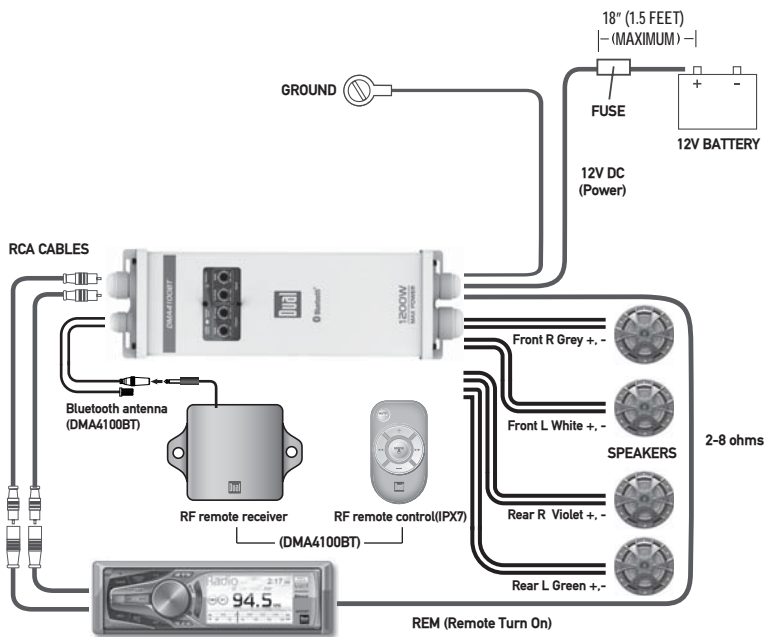
Power and Speaker Connections

DMA3100
DMA4100BT
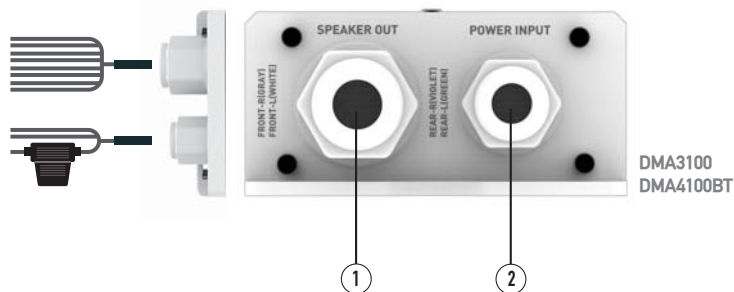
1 Speaker Outputs

2 Power Input

Typical Wire Routing

Main Power Connections
Connect +12V, GND and REM wires accordingly. A suitable fuse MUST be installed on the +12V lead within 18" of the battery for protection of the boat's electrical system.

Fuse Rating
When replacing fuses, make sure new fuse is the correct type and amperage. Using an incorrect fuse could damage the amplifier.

DMA3100 30Ax1
DMA4100BT 30Ax1

Power/Ground Wire Size
For optimum performance, use only the wire size listed below or larger. Make sure to use the same size power and ground wire.
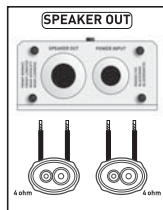
DMA3100 AWG12
DMA4100BT AWG12

Amplifier Connections

Speaker Connections
Connect speaker wires observing polarity. The minimum impedance is 2 ohms. (4ohms only for bridge mode.)

4 Speakers (stereo)

SPEAKER OUT

SPEAKER OUT | POWER INPUT

4 ohm   4 ohm

Typical Stereo Wiring
(2 ohms minimum)

Speakers (bridged)

SPEAKER OUT

SPEAKER OUT | POWER INPUT

Grey +   White - Violet + Green -

4 ohm   4 ohm
Front   Rear
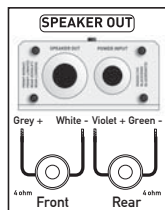
Typical Bridged Wiring
(4 ohms only)

Input Signal Connections

Low Level Input (RCA)
Low level (RCA) input signal is preferred for best performance. Using twisted pair RCA cables will minimize noise.

Low-Level Input
(RCA)

Configuration/Setup

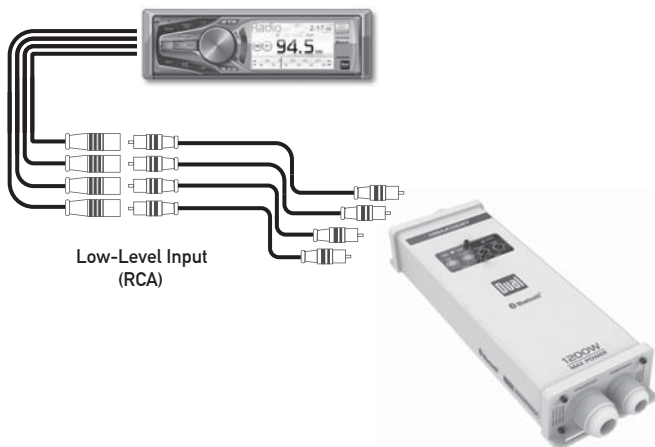|	
Input level Control	The input level control (gain) is used to obtain the best possible match between the head unit audio output and the amplifier input. Begin by turning the input level control fully counterclockwise. Next, turn up the head unit volume control around 3/4 of the way up. Adjust the input level control clockwise until audible distortion is heard, then slightly counterclockwise to provide the best match. Repeat for all input level controls.
Hi-Pass Frequency Control	This control allows precise adjustment of the crossover frequency (35Hz - 250Hz).
LED Indicators (at the top panel of amplifier)	The GREEN LED illuminates during normal operation (**POWER**) and the RED LED is visible when the amplifier detects a fault (**PROTECTION**). The BLUE LED is visible when DMA4100BT is paired with Bluetooth device (PAIRING).

*Note : Loosen/tighten the screws to open/close the control panel at top of the amplifier.

Bluetooth Operation (DMA4100BT)

Pairing a Device

Preparation	Before you can use a Bluetooth device, it must be paired and connected. Make sure that Bluetooth is activated on your device before you begin the pairing process.
Pairing a New Device	The DMA4100BT broadcasts the pairing signal constantly when no devices are currently connected. Complete the pairing sequence from your Bluetooth device.
	The device name is "NA300BT"

Streaming Audio Operation

The DMA4100BT supports A2DP (advanced audio distribution profile) wireless streaming audio from your Bluetooth mobile device directly.
When paired, you can also control your music from your Bluetooth mobile device.

Note before you use Bluetooth:

1. Once your device has been paired to the DMA4100BT, it will remain paired until the power is turned off, to stream audio the phone or device must be manually connected to the Bluetooth on the amplifier.

2. When your device and the DMA4100BT are connected, the amplifier will automatically switch from Line-in (RCA) to BT streaming once a music app is started (Music player, Internet radio, ECT...)

3. On an incoming phone call is received, the music will pause and resume once the call has ended, incoming calls will not be transmitted to the amplifier (Hands-free mode is not supported, only A2DP streaming)

4. To switch back to Line-in (RCA) on the amplifier, all music apps on your device must be stopped and terminated or Bluetooth must be disconnected.
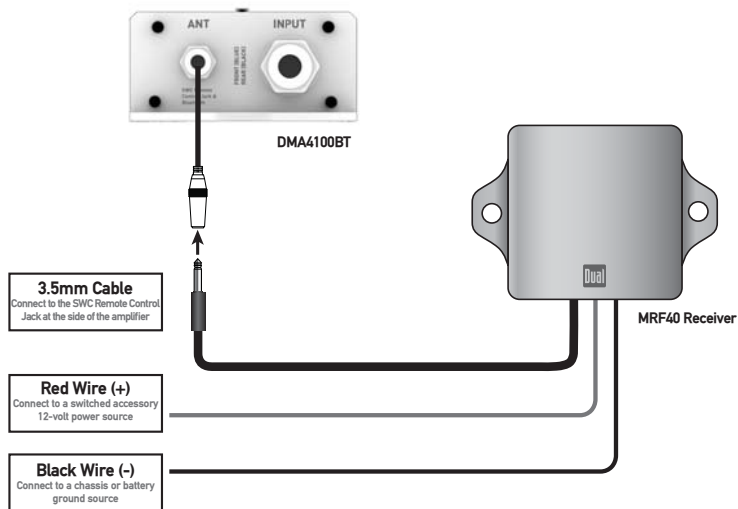
Remote Control Installation (DMA4100BT)

To install the MRF40 remote control:

1. Connect the 3.5mm cable to the SWC Remote Control Jack input on the side panel of DMA4100BT.

2. Connect the black wire from the MRF40 receiver to a good ground (-) source. Typically, the ground wire connection from the radio wiring harness can be used.

3. Connect the red wire from the MRF40 receiver to a 12 volt accessory switched power source. This may be connected to the red accessory power wire at the radio wiring harness.

Note: The wiring can be extended up to 20 feet if needed. A standard 3.5mm extension cable can be used to extend the SWC Remote Control Jack 3.5mm connector, but depending on the quality of the wiring, performance may be affected. Always test any wiring extensions to ensure proper performance from the RF remote control before performing the installation.

See illustration below for connection details.

DMA4100BT

MRF40 Receiver

3.5mm Cable
Connect to the SWC Remote Control Jack at the side of the amplifier

Red Wire (+)
Connect to a switched accessory 12-volt power source

Black Wire (-)
Connect to a chassis or battery ground source

11

Remote Control Installation (DMA4100BT)

Initial Setup

1. Turn on the power to the amplifier, DMA4100BT and MRF40 receiver. A blue LED should be visible through the top of the receiver.

2. Link the MRF40 remote to the receiver by pressing and holding the MUTE button on the MRF40 remote for 5 seconds, while the remote is within 3 feet of the receiver. The LED on the receiver will flash to confirm the connection.

Note: this step must be repeated if the battery is removed from the remote.

Mounting the MRF40 receiver

1. Locate a mounting location that is away from hot or moving parts, and a location that is protected from splashing water.

2. Mounting the receiver in a higher location will ensure maximum RF signal range.

3. Mount the receiver using screws or cable ties.

Note: The RF remote signal has the ability to penetrate bulkheads and obstacles, while the IR remote requires a direct line of sight to the receiver to function. The RF remote is effective when in other cabins or around the vessel.

Control Locations & Function
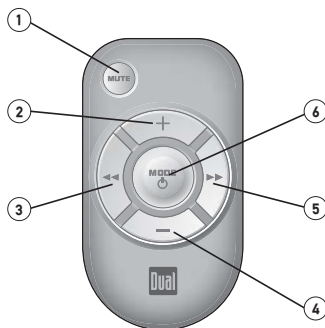
1. Mute

2. Volume Up

3. Track/Tune Down

4. Volume Down

5. Track/Tune Up

6. Mode

Note: MRF40 remote works with the control of the head unit that is connected.

Replacing the Remote Battery (DMA4100BT)

Opening the MRF40 Remote

1. Using a small screwdriver or pick tool, carefully remove the 3 rubber plugs on the backside of the MRF40 remote control, exposing the screws.

2. Using a small Phillips screwdriver, remove the 3 screws, saving the screws and rubber plugs for reassembly.

3. Carefully remove the back cover and set aside.
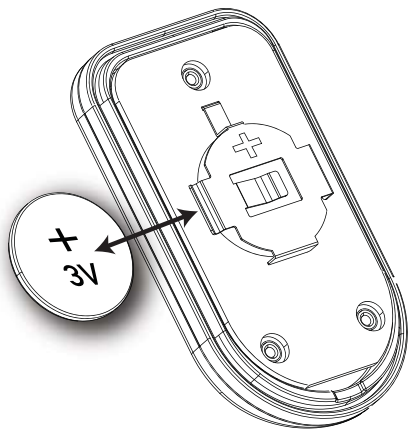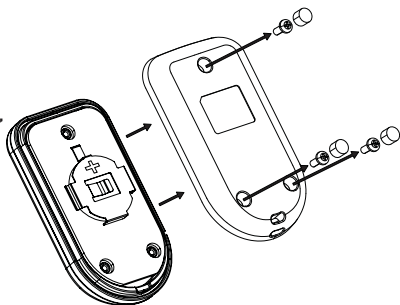
**Changing the battery**

1. Remove the installed battery by sliding the battery out of the its slot to the left.

2. Install a new CR2032 battery by sliding it into the battery slot, making sure the positive (+) side of the battery is facing outward.

Replacing the Remote Battery (DMA4100BT)

Replacing the Back Cover

Carefully place the back cover on the MRF40 remote. Ensure the edges of the back cover fit inside the groove in the rubber seal.
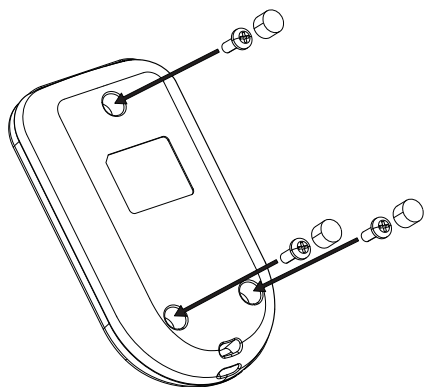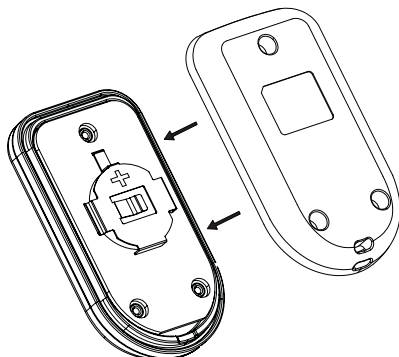
Reinstalling the Screw & Rubber Plugs

1. While holding the back cover in place, insert the 3 screws back in the holes using a small Phillips screwdriver. Do not overtighten the screws, or the waterproof seal may be damaged.

2. Replace the rubber plugs securely.

Specifications

DMA3100

Power Output:
- **75 Watts x 4 channels @ 4 Ohms**
- **98 Watts x 4 channels @ 2 Ohms**
- **140 Watts x 2 Channels @ 4 Ohms**
- **300 Watts total RMS Power**

Peak Music Power Output: 1200 Watts
Signal to noise ratio: > 80dB (THD < 0.5% @ 4Ω, 14.4V)
Frequency response: 10Hz - 35kHz (4 Ohms)
Amplifier dimensions: 8.89" x 3.09" x 1.58" (226 x 78.5 x 40mm)

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Bluetooth
- **A2DP, AVRCP**
- **Bluetooth 4.0+EDR**
- **iOS and Android support**

CEA-2006 Power Standard Specifications
(reference: 14.4VDC +/- 0.2V, 20Hz~20kHz)

Power Output:
75 Watts RMS x 4 channels at 4 ohms and ≤ 1% THD+N
Signal to Noise Ratio: 85dBA (reference: 1 watt into 4 ohms)

Troubleshooting

Problem	Cause	Action
Unit will not turn on (no power LED indicator)	+12V wire not connected or incorrect voltage. REM wire not connected or incorrect voltage	Check connections for proper voltage (11~16VDC)
	GND wire not connected	Check connection to ground
	Fuse(s) blown	Replace fuse(s)
Unit has power - LED is green (but no sound)	Speaker wires not connected	Check connections at speakers
	Volume turned all the way down	Increase volume level at head unit
	One or more speaker wires touching each other or touching chassis ground	Insulate all bare speaker wires from each other and chassis ground
	Speaker(s) defective or damaged	Check/replace speaker(s)
	Input signal not connected	Check high or low level inputs for proper connection
Unit blows fuse(s)	Incorrect fuse rating	Use fuse(s) with correct rating
	+12V wire touching chassis ground	Check for pinched wire
	Speaker(s) defective or damaged	Check/replace speaker(s)
Engine noise	Bad ground connection	Make sure amplifier is grounded to clean bare metal
	Signal ground loop or RFI (radio frequency interference)	Re-route RCA cables from existing high current wiring
LED illuminates red (protect mode)	One or more speaker wires touching each other or touching chassis ground	Insulate all bare speaker wires from each other and chassis ground
	Speaker(s) defective or damaged internally (shorted)	Check/replace speaker(s)
	Speaker load less than 2 ohms (stereo). Speaker load less than 4 ohms (bridged)	Adjust speaker load - amplifier will not operate at less than 4 ohms when bridged
Distorted audio output	Incorrect input signal type or input level too high	Check connections and reduce/adjust input level
Low audio output	Incorrect input signal type or input level too low	Check connections and increase/adjust input level
Unstable Bluetooth signal	BT signal needs improvement	Extend Bluetooth antenna wire

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- Only shielded interface cable should be used.

Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the users authority to operate such equipment.

Two-Year Limited Warranty

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

Dual Electronics Corp. warrants this product to the original purchaser to be free from defects in material and workmanship for a period of one year from the date of the original purchase.

Dual Electronics Corp. agrees, at our option, during the warranty period, to repair any defect in material or workmanship or to furnish an equal new, renewed or comparable product (whichever is deemed necessary) in exchange without charges, subject to verification of the defect or malfunction and proof of the date of purchase. Subsequent replacement products are warranted for the balance of the original warranty period.

Who is covered? This warranty is extended to the original retail purchaser for products purchased from an authorized Dual dealer and used in the U.S.A.

What is covered? This warranty covers all defects in material and workmanship in this product. The following are not covered: software, installation/removal costs, damage resulting from accident, misuse, abuse, neglect, product modification, improper installation, incorrect line voltage, unauthorized repair or failure to follow instructions supplied with the product, or damage occurring during return shipment of the product. Specific license conditions and copyright notices for the software can be found via www.dualav.com.

What to do?
1. Before you call for service, check the troubleshooting guide in your owner's manual. A slight adjustment of any custom controls may save you a service call.

2. If you require service during the warranty period, you must carefully pack the product (preferably in the original package) and ship it by prepaid transportation with a copy of the original receipt from the retailer to an authorized service center.

3. Please describe your problem in writing and include your name, a return UPS shipping address (P.O. Box not acceptable), and a daytime phone number with your shipment.

4. For more information and for the location of the nearest authorized service center please contact us by one of the following methods:

   • Call us toll-free at 1-866-382-5476
   • E-mail us at cs@dualav.com

Exclusion of Certain Damages: This warranty is exclusive and in lieu of any and all other warranties, expressed or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose and any obligation, liability, right, claim or remedy in contract or tort, whether or not arising from the company's negligence, actual or imputed. No person or representative is authorized to assume for the company any other liability in connection with the sale of this product. In no event shall the company be liable for indirect, incidental or consequential damages.

Dual®

Details and specifications mentioned in this document may be updated and subject to change without notice.
To access the latest document, please check the product website.

Dual Electronics Corp.
Toll Free: 1-866-382-5476
Monday-Friday, 9AM-5PM, EST