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Limited Warranty
For a period of two (2) years from the date of original purchase, Baldor will repair or replace without charge controls and accessories that our examination proves to be defective in material or workmanship. This warranty is valid if the unit has not been tampered with by unauthorized persons, misused, abused, or improperly installed and has been used in accordance with the instructions and/or ratings supplied. This warranty is in lieu of any other warranty or guarantee expressed or implied. Baldor shall not be held responsible for any expense (including installation and removal), inconvenience, or consequential damage, including injury to any person or property caused by items of our manufacture or sale. (Some countries and U.S. states do not allow exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply.) In any event, Baldor's total liability, under all circumstances, shall not exceed the full purchase price of the control. Claims for purchase price refunds, repairs, or replacements must be referred to Baldor with all pertinent data as to the defect, the date purchased, the task performed by the control, and the problem encountered. No liability is assumed for expendable items such as fuses. Goods may be returned only with written notification including a Baldor Return Authorization Number and any return shipments must be prepaid.

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Product Notice

Only qualified personnel should attempt the start-up procedure or troubleshoot this equipment.
This equipment may be connected to other machines that have rotating parts or parts that are
controlled by this equipment. Improper use can cause serious or fatal injury.

Safety Notice

Intended use: Drives incorporating the Resolver Feedback option are intended for use in stationary
ground based applications in industrial power installations according to the standards EN60204 and
VDE0160. They are designed for machine applications that require variable speed controlled three-
phase brushless AC motors. These drives are not intended for use in applications such as:

- Home appliances
- Medical instrumentation
- Mobile vehicles
- Ships
- Airplanes.

Unless otherwise specified, the drive is intended for installation in a suitable enclosure. The
enclosure must protect the drive from exposure to excessive or corrosive moisture, dust and dirt or
abnormal ambient temperatures. The installation, connection and control of drives is a skilled
operation, disassembly or repair must not be attempted. In the event that a drive fails to operate
correctly, contact the place of purchase for return instructions.

Precautions

Do not touch any circuit board, power device or electrical connection before you first
ensure that no high voltage is present at this equipment or other equipment to which it is
connected. Electrical shock can cause serious or fatal injury. Only qualified personnel
should attempt to start-up, program or troubleshoot this equipment.

MEDICAL DEVICE / PACEMAKER DANGER: Magnetic and electromagnetic fields in the
vicinity of current carrying conductors and industrial motors can result in a serious health
hazard to persons with cardiac pacemakers, internal cardiac defibrillators, neurostimulators, metal implants, cochlear implants, hearing aids, and other medical
devices. To avoid risk, stay away from the area surrounding a motor and its current
carrying conductors.

Electrical components can be damaged by static electricity. Use ESD (electrostatic
discharge) procedures when handling this device.

To prevent equipment damage, be certain that input and output signals are powered and
referenced correctly.

To ensure reliable performance of this equipment, be certain that all signals are shielded
correctly.
2.1 Resolver Feedback option features

The Resolver Feedback option is available as a customer-fitted option for the MotiFlex e100 range of drives. The option adds to the drive:

- A resolver feedback input.
- A simulated encoder output.

The option card must only be inserted in the bottom slot (slot 2).

2.1.1 Installation

Before touching the option card, be sure to discharge static electricity from your body and clothing by touching a grounded metal surface. Alternatively, wear an earth strap while handling the card.

1. Pull off the drive’s bottom front panel cover. Remove the option slot cover's retaining screw.

![Figure 2-1: Loosen retaining screw](image)

2. Insert a screwdriver under the edge of the option slot cover and gently lever out the cover.

![Figure 2-2: Lift out cover](image)
3. Confirm that the correct option card is being installed. The description is printed on the mounting bracket.

Insert the option card with the main component side facing towards the center of the drive. The edges of the option card should locate behind retaining brackets inside the drive.

4. Push in the option card until it clicks into place. The option card’s external connector plate should finish approximately level with the 6 posts along the edge of the option slot.

5. Insert the retaining screw and tighten. If the screw will not locate in the threaded socket on the option card, then check the position of the option card.

The screw must be fitted since it provides mechanical support and an electrical chassis connection for the option card.

The recommended tightening torque is 0.7 N·m (6.2 lb-in).

6. Push on the drive’s front panel cover until it clicks into place.
3.1 Introduction

All external connections to the Resolver Feedback option card are made using the two 9-pin D-type connectors. The required mating connectors are supplied.

The resolver input and encoder output are described in the following sections.

3.1.1 Feedback input / output numbering

When the option card is installed in slot 2 (at the bottom of the MotiFlex e100), the resolver input becomes feedback input 2. This is because other feedback input numbers are already assigned. Input 0 is the MotiFlex e100’s standard universal encoder feedback input (connector X8), input 1 would be the resolver input number if the option card were installed in slot 1, and input 3 is the standard step & direction input formed by digital inputs DIN1 and DIN2. See MN1943 MotiFlex e100 Installation Manual for details.

Similarly, the encoder output becomes output 2 when the option card is installed in slot 2.

Figure 3-1: D-type connector pin assignments
3.1.2 Resolver input

The resolver connections are made using the 9-pin D-type male connector. Twisted pair cables must be used for the complementary signal pairs e.g. SIN+ and SIN-. The overall cable shield (screen) must be connected to the metallic shell of the D-type connector. The resolver input is used to create an equivalent resolution inside the drive of 4096 counts per revolution, although this can be reconfigured in the Mint WorkBench Commissioning Wizard to provide 16384 counts. The 16384 counts resolution is suitable only for applications that will not exceed 6480 rpm, although a 6100 rpm maximum is recommended to ensure reliable operation. The resolver input provides an input accuracy of ±3 counts. When used with a typical Baldor BSM series resolver motor the combined accuracy is ±11 counts (calculated with the input equivalent resolution set to the factory preset value of 4096 counts). The current position or value represented by the resolver can be read using the POS or ENCODER keywords - see the Mint help file for details.

![Figure 3-2: Resolver circuit - SIN channel](image1)

![Figure 3-3: Resolver cable connections](image2)
3.1.3 Encoder output

The encoder output can be used for position feedback to a host positioner, or in master/slave situations where the axis movement can be transmitted to another controller or MotiFlex e100. It is recommended that this output only drives one output circuit load. The encoder outputs are differential and conform to the RS422 electrical specification. Shielded twisted pair cable is recommended.

The resolver input can be set to produce either 4096 or 16384 counts per revolution inside the drive. If the encoder output resolution is set to match the chosen input resolution, the output signal is a copy of the input signal. For example, if the resolver input has been configured to produce 4096 counts per revolution inside the drive, the encoder output will produce a 1024 line (4096 quadrature count) output signal. Similarly, for a 16384 count input resolution, the output will produce a 4096 line (16384 quadrature count) output signal.

Alternatively, a custom output resolution can be selected, provided it is the same or less than the input resolution. In this case the encoder output signal is synthesized by the drive. See the ENCODEROUTRESOLUTION keyword in the Mint help file.

The encoder output may be configured, using the ENCODEROUTCHANNEL keyword, to produce an output based on a different feedback input, for example the main encoder input on connector X8.

The encoder output signals are driven by an AM26LS31 differential line driver. The encoder output provides an index or marker pulse. See the Mint help file for details of each ENCODER... keyword.

![Diagram](res://image.png)

Figure 3-4: Encoder output - typical connections to a Baldor NextMove e100

3.1.4 Power consumption

The maximum overall power consumption of the Resolver Feedback option card is 3.8 W. See the main MotiFlex e100 installation manual (MN1943) for further details about the option slots' power supply and derating information.
If you have any suggestions for improvements to this manual, please let us know. Write your comments in the space provided below, remove this page from the manual and mail it to:

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Comment:

continued...
Thank you for taking the time to help us.