

Universal Motion Interface

NI UMI-7764

- Universal motion wiring interface with single cable connection from motion controller
- Per-axis motion signal breakout
- Screw terminal connectors for encoder, limit, motion I/O, and motor driver signals
- Host bus +5 VDC monitor with built-in driver inhibit control
- Connectivity for third-party drive and motion components
- Encoder rates of 20 MHz



Overview and Applications

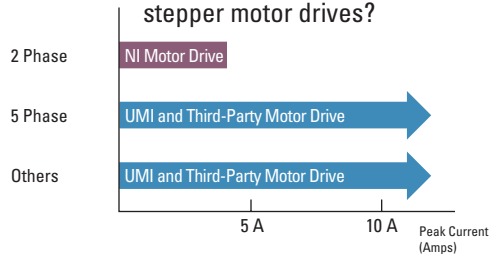
For connectivity to third-party power drives, use the National Instruments UMI-7764 interface. This product provides a comprehensive wiring and connection point for motion control and feedback signals. A single cable from the motion controller to the UMI carries input and output signals for all axes. By dividing these signals into per-axis and function-specific connections, the UMI interface simplifies integration of third-party drivers, amplifiers, encoders, limits, and I/O with NI controllers. The UMI-7764 works with up to 20 MHz quadrature encoder rates.

The UMI incorporates a host PC power monitor that inhibits the motion driver if the host PC loses power during motion control. The UMI monitors the +5 VDC from the PC and activates the inhibit signals if the voltage falls out of tolerance.

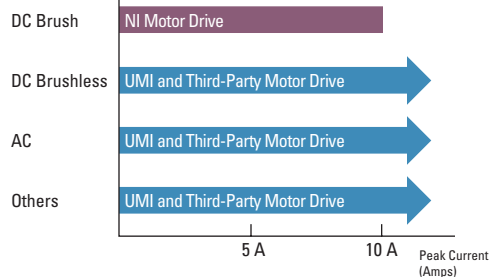
Features

Enhanced motion-specific features set the UMI apart from simple connector-only screw terminal blocks. Compatibility with both TTL and differential encoders, input filtering, host PC power monitoring, onboard inhibit functionality, and compact size make the UMI the ideal

Do you need a UMI for stepper motor drives?



servo motor drives?



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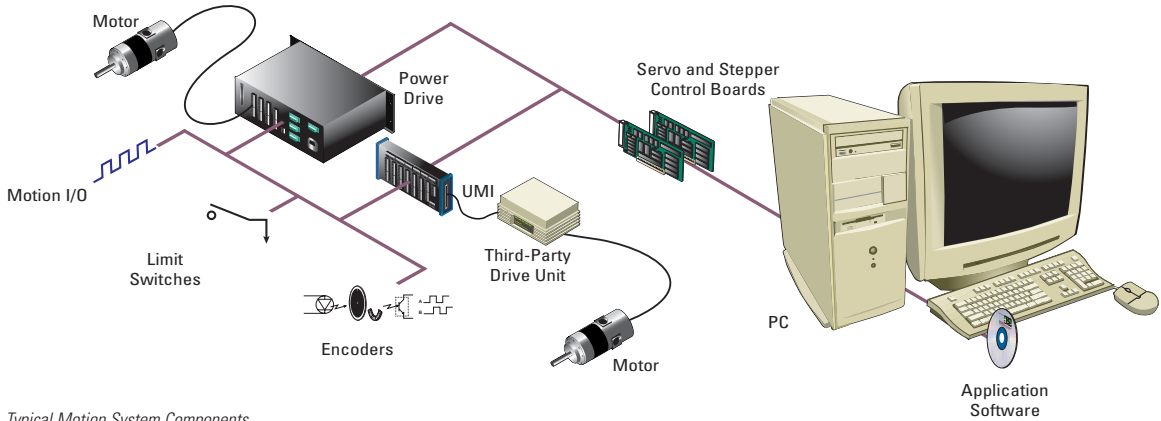
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umi7764

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motion interface solution. The result is simplified wiring to third-party amplifier/driver and motor components. Refer to the motor drive section on page 630 for integrated amplifier, power supply, and connectivity solutions.

Universal Motion Interface



Typical Motion System Components

Encoder Interface (Each Axis)

Inputs	Quadrature, incremental
Differential input threshold	± 0.3 V (typical)
Single-ended input threshold	TTL/CMOS
Voltage range	0 to 5 VDC
Noise filter (RC time constant)	100 ns
Max quadrature frequency	20 MHz
Compatibility	Signal pass-through

Trigger Inputs

Noise filter (RC time constant)	100 ns
Compatibility	Signal pass-through

Inhibit and Inhibit All Inputs

Voltage range	0 to 12 VDC
Input voltage threshold	TTL/CMOS
Input pull-up resistor	3.3 k Ω
Analog Inputs	
Noise filter (RC time constant)	10 μ s
Compatibility	Signal pass-through

Axis Inhibit Out

Voltage range	0 to 5 VDC
Output low voltage	0.5 V at 16 mA
Output high voltage	2.4 V at 3.2 mA

Operating Environment

Temperature	0 to 55 °C
Storage temperature	-20 to 70 °C
Relative humidity	10 to 90% (noncondensing)

Power Requirements

+5 VDC	200 mA + user-defined encoder and limit power
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Host Bus Voltage Interlock

Voltage	4.5 VDC
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Physical

Dimensions	19.5 by 15.2 by 4.5 cm (7.7 by 6.0 by 1.8 in.)
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Some signals have compatibility defined as signal pass-through. This means the UMI-7764 may have passive filtering on these signals but will not affect the voltage range or current handling capability. Consult your motion controller specifications to determine the allowable voltage range and logic level compatibility of the signal.

Universal Motion Interfaces

When interfacing to a third-party power drive and motor, it is important to consider the amount of current to drive the motor and the connectivity to a motor drive. National Instruments provides a wide selection of options for interfacing to motors. You can interface to 2-phase stepper motors with 4 A peak current using National Instruments power drives. In addition, you can control 5-phase stepper motors and other stepper motors outside the range of NI MID Series drives using National Instruments UMI interface and controllers. For DC-brush servo motors that need up to 10 A peak current, you can use National Instruments power drives and controllers. For DC brushless, AC, and other types of servo motors outside the range of NI MID Series drives, an NI UMI interface simplifies connections to the motor and controller.

Ordering Information

NI UMI-7764	777978-02
Cable	
SH 68-C68-S cable	186381-02