MR175

ERGONOMIC HAND-HELD SERIAL PENDANT

MICRONOR
automation components

Products

The MR175 Hand-Held Serial Pendant/ HMI offers a superb ergonomic form factor, a full complement of controls and choice of serial or hardwired interface. Magnetic pads on rear allow convenient stowage directly on the equipment panel – no clumsy hooks! This elegant and ergonomically designed housing was developed with input from actual users. Pendant controls and labeling and can be customized for your OEM application.

All switches and controls are monitored by a microprocessor that communicates via serial RS422/RS-485 or RS-232 to the main station, allowing for a lightweight, yet rugged cable design and standardized interfacing. Switch de-bouncing, MPG decoding, and A/D conversions are performed locally, so the host computer receives commands via an 11 byte transmission packet.

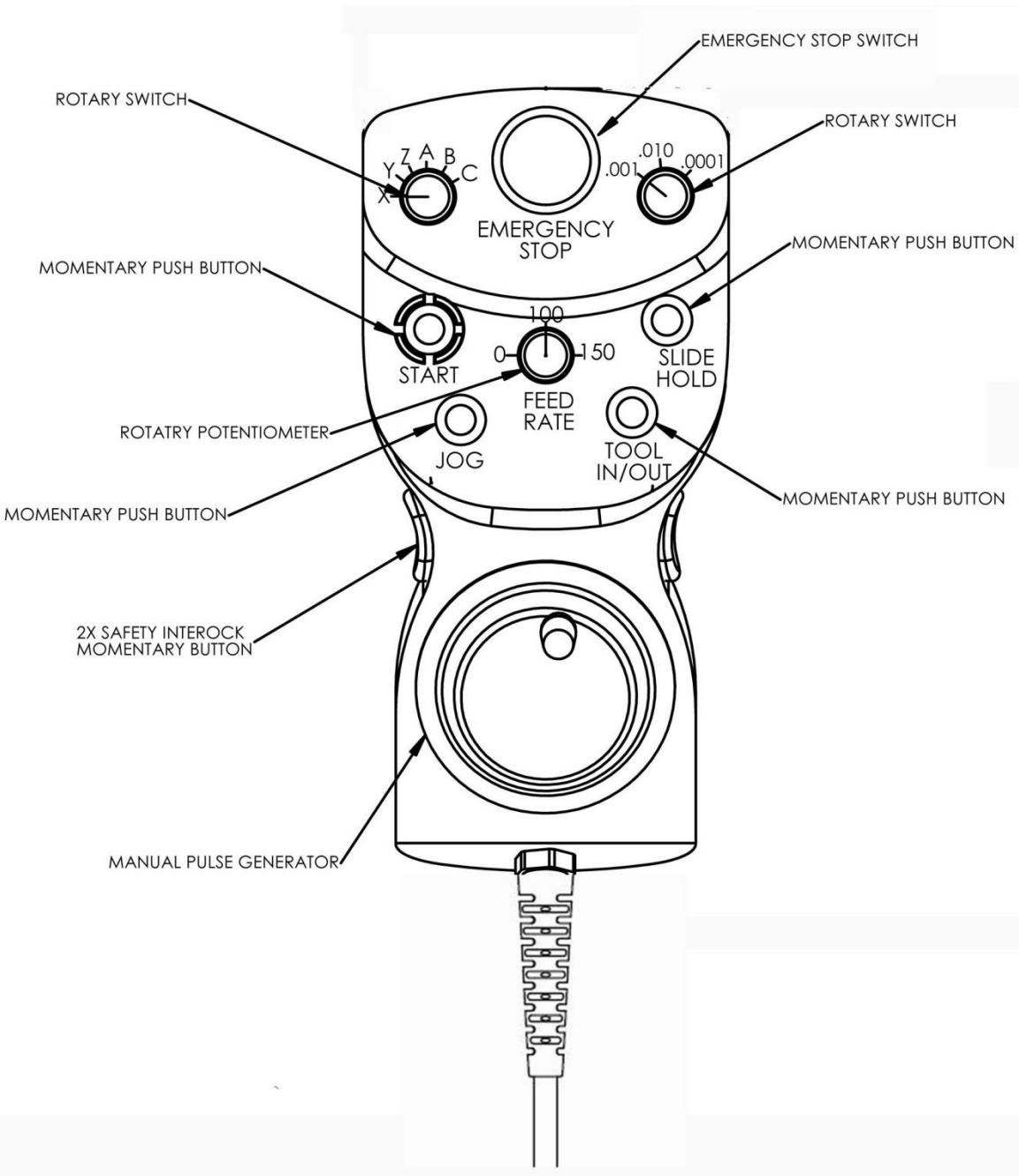
Features

- CE-Compliant EMERGENCY and ENABLE safety switches – both hardwired and serial status
- Two ENABLE switch mode options – 2-Position Dead Man (Off/On) or 3-Position Live Man (Off/On/Off, for UL 1740 safety compliance)
- Lightweight Communication Cable
- Protocol Error Checking
- PC Compatible Serial Interface or Hardwired
- Rugged Ergonomically Designed Housing Can Be Supplied In Special Colors, With Your Application's Control Configuration and Custom Labeled For Your OEM Application
- Easily Customized Unit For Any Control Application:
  - Manual Pulse Generator or Joy Stick
  - Up to 2 Rotary Knobs with up to 7 positions
  - Up to 2 Analog Potentiometers
  - Redundantly Supervised Emergency Stop Switch
  - Redundantly Supervised Enable (Side) Switches
  - Up to 5 Momentary Buttons
  - Hardwired and/or Software Control

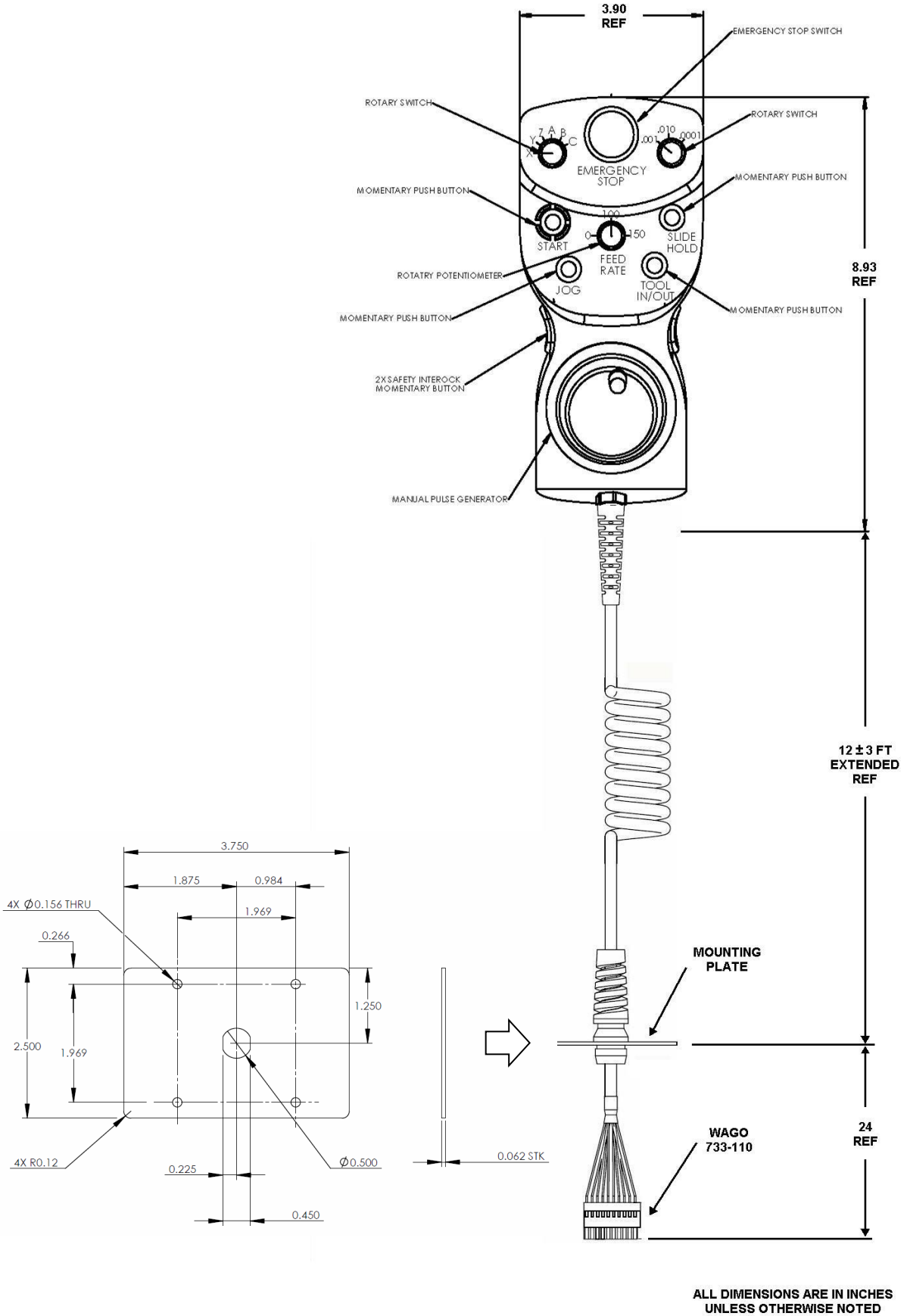
Applications

- Operating Machine Tools
- Assembly Lines
- Automated Production Installation
- Robotics
- Teaching Pendant
- Troubleshooting
- Maintenance at Point of Operation
- Cranes
- Medical Equipment

Reference Drawing

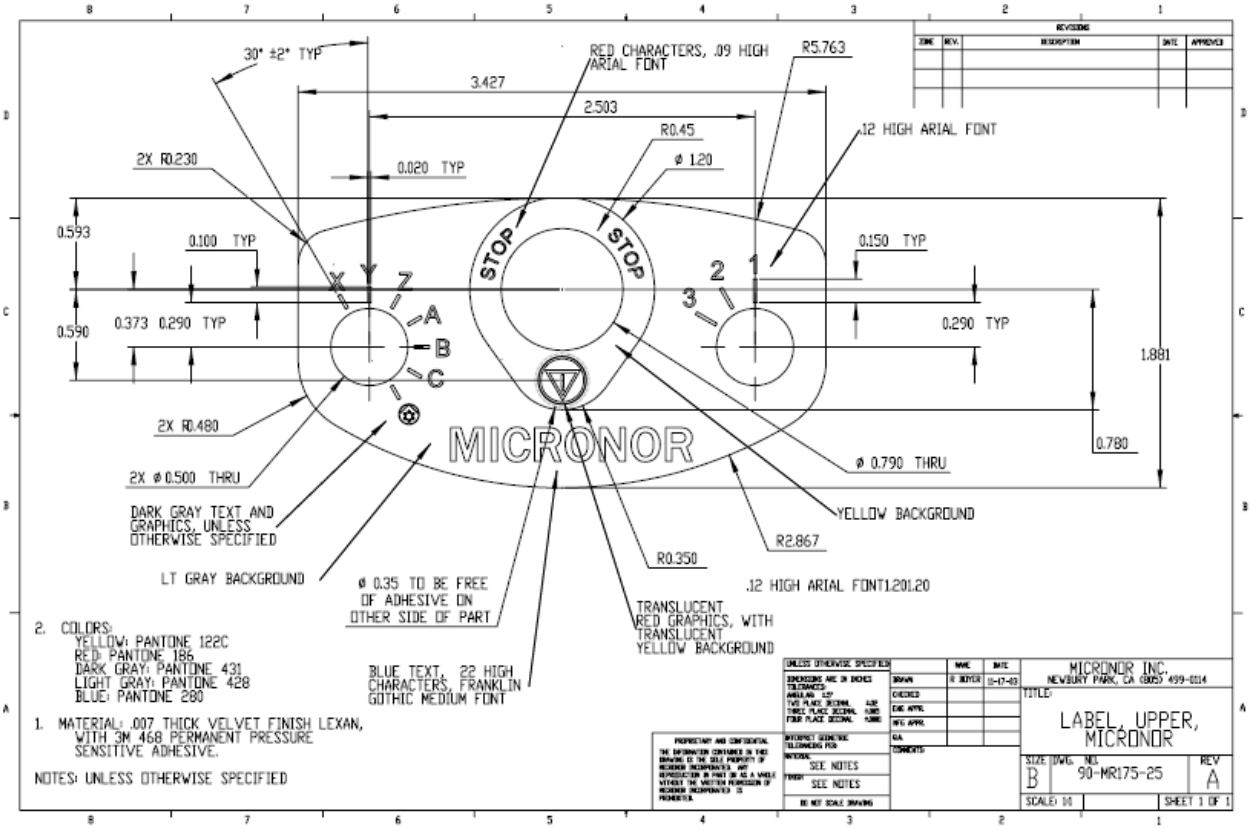


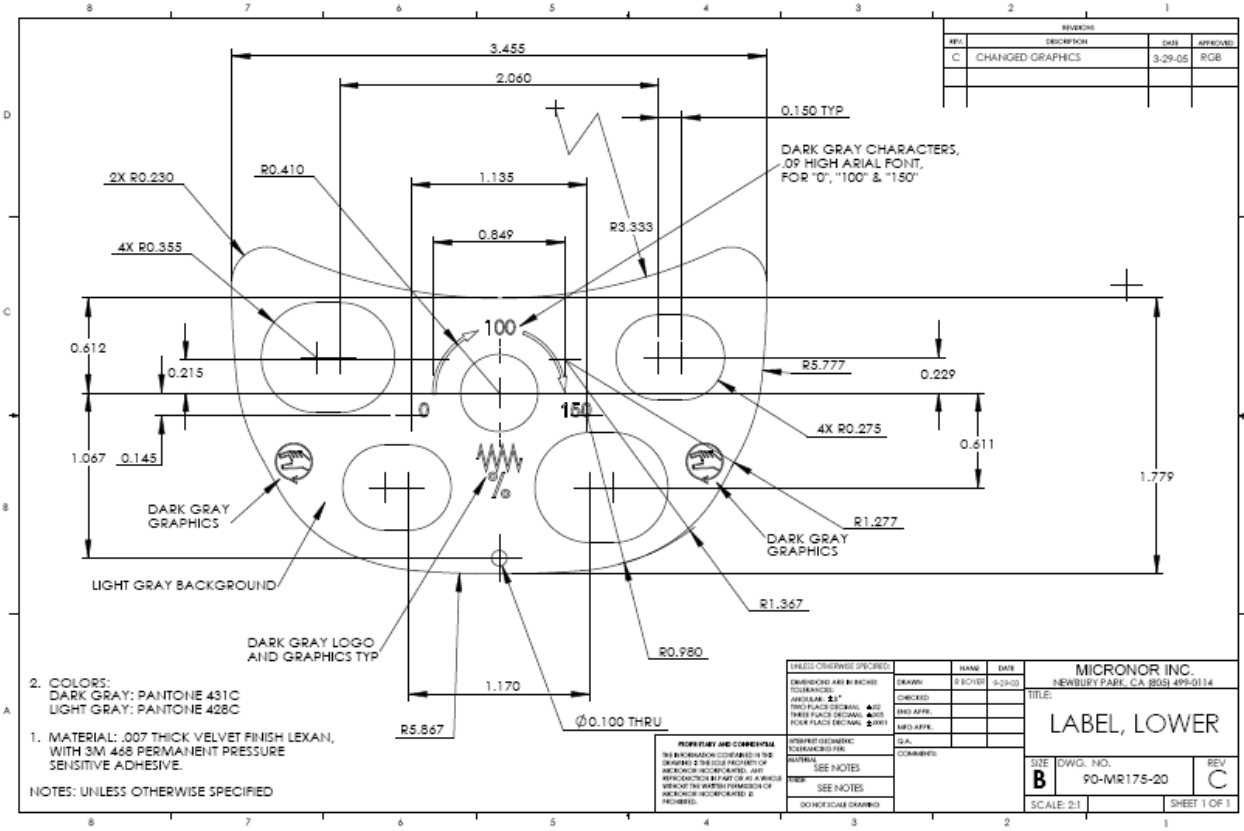
Reference Drawing



ALL DIMENSIONS ARE IN INCHES
UNLESS OTHERWISE NOTED

These label drawings are provided for designing custom Upper/Lower labels for OEM applications.





11-Byte Pendant Data Packet

Consult MR175 User Manual for detailed information about serial interface, commands and error codes.

Byte 1: Start of Transmission (ASCII P)

B7	B6	B5	B4	B3	B2	B1	B0
0	1	0	1	0	0	0	0

This byte is a fixed starting marker. The P character may change for certain debug mode transmissions. See command characters.

Byte 2: Packet Count (0 – 255)

B7	B6	B5	B4	B3	B2	B1	B0
X	X	X	X	X	X	X	X

The packet counter is incremented each transmission except when the resend command 'e' requests a repeat send. Then the packet counter will not increment which indicates a packet is being resent.

Byte 3: Momentary Switch Data

B7	B6	B5	B4	B3	B2	B1	B0
Enable (Both)	Right Enable	Left Enable	E-Switch	Tool	Slide	Jog	Start

Byte 4: Rotary Switch Data

B7	B6	B5	B4	B3	B2	B1	B0
-	Mult-b2	Mult-b1	Mult-b0	-	Axis-b3	Axis-b1	Axis b0

Bytes 5-6: MPG Encoder Data (+ 32767, - 32,768 counts, big endian)

B7	B6	B5	B4	B3	B2	B1	B0
Sign	EN-b14	EN-b13	EN-b12	EN-b11	EN-b10	EN-b9	EN-b8
EN-b7	EN-b6	EN-b5	EN-b4	EN-b3	EN-b2	EN-b1	EN-b0

Note that the MPG encoder count data is the relative number of clicks of the MPG since the last acknowledged transmission.

Byte 7: Potentiometer #1 Data –Feed Rate as unsigned byte

B7	B6	B5	B4	B3	B2	B1	B0
Feed-b7	Feed-b6	Feed-b5	Feed-b4	Feed-b3	Feed-b2	Feed-b1	Feed-b0

An unsigned number of 0 to 230 counts relates to the potentiometer state 0% to 100%.

Byte 8: Potentiometer #2 Data - Same as byte 7

B7	B6	B5	B4	B3	B2	B1	B0
tbd-b7	tbd-b6	tbd-b5	tbd-b4	tbd-b3	tbd-b2	tbd-b1	tbd-b0

This potentiometer is not implemented in the MR175 byte transmits the same number as byte 7.

Byte 9: Error Data (See Error code table in User Manual)

B7	B6	B5	B4	B3	B2	B1	B0
01	Ecnt-b1	Ecnt-b0	Err-b4	Err-b3	Err-b2	Err-b1	Err-b0

Bytes 10-11: Checksum (2's complement of sum of preceding bytes, big endian)

B7	B6	B5	B4	B3	B2	B1	B0
CS-b15	CS-b14	CS-b13	CS-b12	CS-b11	CS-b10	CS-b9	CS-b8
CS-b7	CS-b6	CS-b5	CS-b4	CS-b3	CS-b2	CS-b1	CS-b0

Specifications

Electrical Voltage	15V to 26V DC
Electrical Current	100mA (max)
Serial Interface	RS-422/RS485 or RS232 interface options
Bit Rate	57,400 baud
Manual Pulse Generator	100 pulses / 360° (mechanical step detent)
Data Format	11 byte packet transmission at 10ms max interval
Data Integrity	16 bit Checksum
Working Temperature	-10°C to +60°C
Storage Temperature	-30°C to +80°C
Humidity	0 to 85% Relative Humidity (Working Temp)
Ingress Protection	IP64 (Dustproof and Splash Resistant)
Drop	3 feet on all six surfaces
Cable Jacket Diameter	0.21in
Cable Jacket Material	PUR
Number of Conductors	9 + Shield
Cable Length Extended	15 ft ± 2ft (custom lengths available upon request)

Specifications subject to change without notice

About Micronor

Since 1968, MICRONOR has served the automation industry with components - custom, precision-engineered geared feedback units, optical rotary encoders, brushless resolvers, motorized potentiometers, cam timers, programmable limit switches, pulse generators and handheld pendants – along with a fast turn-around service to accommodate our customers' time-sensitive requirements.

Ordering Info

Ordering Information:

MR175-1 for Grey Pendant with RS422/RS485 interface
MR175-2 for Grey Pendant with RS232 interface

For detailed operating and interface information, contact Micronor and ask for the MR175 User Manual. The manual can also be downloaded from www.micronor.com

Like the ergonomic case design but need a different set of controls? Need hardwired interface? The MR175 housing can be configured with a different set of controls and custom labeled for your OEM application. Contact a Micronor sales engineer with your requirements.

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