MERRITT EVOLVE

Designed to adapt to and excel in virtually any equipment application, the Merritt Evolve model joystick offers a new benchmark in customization. Available with a J1939, CANOpen or hall-effect output, the Evolve can be configured to a broad range of machinery and operations.

CONFIGURABLE TO ANY APPLICATION

Boasting a new performance-driven handle design with individually configurable front and rear deviceplates, the joystick can be tailored to fit the unique needs of any application.

BUILT TO PERFORM

Building on the same design principles as our ultra rugged, mill duty joysticks, the Merritt Evolve maintains the robust quality that J.R. Merritt is known for and is made to widthstand a variety of working environments.

FEATURES & OPTIONS

- Single or dual axis operation
- Smooth spring return action with light, medium light, medium heavy or heavy tension
- Contactless 3D hall effect technology
- J1939, CANOpen or hall effect output
- Sleek design with canister on bottom
- Drop-in mounting for easy installation

J.R. MERRITT® CONTROLS

OPTIONS

MERRITT EVOLVE

HANDLES

XG1 MULTI-FUNCTION HANDLE

Designed around comfort and performance, the XG1 handle is ideal for left-hand or right-hand operating applications.

Contoured or flat faceplate customizeable with a range of devices and functions.

Optional thumbwheel and up to two push buttons on rear of handle.

Integrated handrest for increased operator comfort

ADDITIONAL HANDLE OPTIONS

OPERATION

SPRING RETURN

Smooth spring return action with different tension options for application optimization. Available with:

- Light
- Medium Light
- Medium Heavy
- Heavy

HANDLE TRAVEL

Unrestricted or guided handle travel.

Open Gate Cross Gate

ELECTRONICS

CANBUS

Standard and custom CAN protocols available with the ability to program in the field.

CONNECTOR

Harness length and output connector customizeable and easily replaced.

DIMENSIONS

MERRITT EVOLVE

Specifications

Mechanical Life
20 million life cycles

Handle Travel
±20 degrees

Standard Shaft
0.40 in [10mm] diameter
Fits up to 12 wires

Resistance to Force
175+ lbs

IP Rating
IP54*

*IP rating dependent on handle

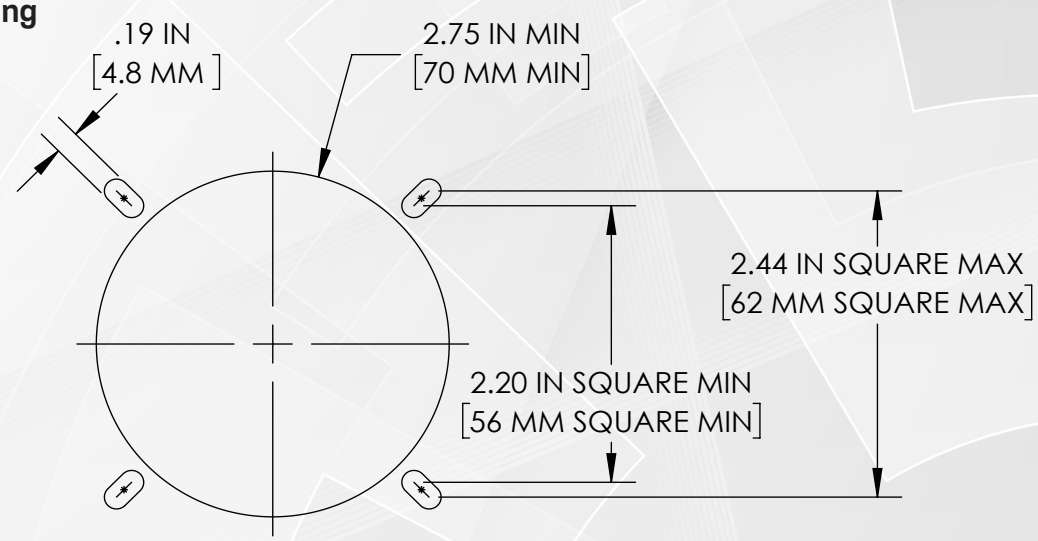
INSTALLATION DETAILS

MERRITT EVOLVE

Installation

Merrit Evolve controller requires a five hole mounting pattern (see panel hole detail below). It is not necessary to remove the operating handle or boot to install the controller.

Drop-In Mounting



PANEL MOUNTING
DIMENSIONS
SLOTS IN CONTROLLER FLANGE
ARE SIZED FOR 4MM SHCS

Standard Connector Details

6-Pin Connector (DTM04-6P OR ATM04-6P)

Pin	Connector	Color
Pin 1	Ground	Black
Pin 2	Power 9..32VDC	Red
Pin 3	CAN H	White
Pin 4	CAN L	Green
Pin 5	Shield	

4-Pin Connector (DTM04-4P OR ATM04-4P)

Pin	Connector	Color
Pin 1	Ground	Black
Pin 2	Power 9..32VDC	Red
Pin 3	CAN H	White
Pin 4	CAN L	Green

(Additional connectors available upon request)

CAN **SPECIFICATIONS**

MERRITT EVOLVE

Electrical Details

Supply Voltage(Vcc)
9 to 36 Volts DC

Absolute Maximum
36 Volts

Supply Current
50 - 100 mA (typ.) 200 mA (max.)

Supply Input
Reverse Polarity Protected

Analog / Digital Inputs
-0.5 mA (10K resistor, 5V source)

Maximum Baud Rate
1Mbps (250kbps default)

Environmental

Operating Temperature
-40° to +140° F [-40° to +60° C]

Storage Temperature
-40° to +176° F [-40° to +80° C]

Sealing
Silicone conformal coating

Diagnostics

Diagnostic LEDs
One (1) Power LED and One (1) Status LED

Normal Operation
Power LED lit indicates 5V power
Status LED blink once per second

Error
Status LED will blink ten times per second

Connection

Connector
Standard 22 AWG harness 18" with
Deutsch DTM04-6P connector
Other connectors available upon request

J1939

Generic Interface
SAE J1939 71 Standard for joystick
Source Addresses: 0x01 - 0xFE (1 to 254 decimal)Priority: 3

Basic Joystick Message 1 (BJM1)
Base PGN: 0xFDD6
X - 3D Hall Analog
Y - 3D Hall Analog

Extended Joystick Message 1 (EJM1)
Base PGN: 0xFDD7
3 Analog Inputs (Thumbwheels)

Lamp Command
4 low-power outputs

Inputs / Outputs
Standard 2 analog joystick inputs (X/Y)
Up to 14 digital inputs
Up to 4 digital outputs*
Up to 8 additional analog inputs*
* Replacing digital inputs

CANopen

CANopen Device Profile
DS301, DS401, V3.0 6/08

Terminal Resistance
120R Removable

Basic messaging
X - 3D Hall Analog
Y - 3D Hall Analog
8 Digital Inputs

Extended messaging
8 Analog Inputs

Lamp command
4 low-power outputs

Inputs / Outputs
Standard 2 analog joystick inputs (X/Y)
Up to 14 digital inputs
Up to 4 digital outputs*
Up to 8 additional analog inputs*
* Replacing digital inputs

Node ID
0x01- 0x7F

Axis & Digital Inputs
181h (180h + Node ID)

Analog Inputs
281h (280h + Node ID)

Digital Outputs
201h (200h + Node ID)

Heartbeat (500ms):
720h (700h + Node ID)

Analog Resolution
8-bit

Network Management
Auto start enabled

HALL-EFFECT **SPECIFICATIONS**

MERRITT EVOLVE

Single 5V (Standard)

Standard
Supply Voltage: 4.5-5.5 VDC

Output Voltage
Ratiometric 0.5 - 2.5 - 4.5 V ±0.15 V
@ 5.0 V Supply

Output Current:
10mA

Power Consumption
7 mA typical
(5 - 10 mA max)

7-30 VDC

Supply Voltage
7-30 VDC

Output Voltage
0.5 - 2.5 - 4.5 V ±0.15 V

Redundent*

Supply Voltage
4.5 - 5.5 VDC

Output Voltage
Redundant - Ratiometric
0.5 – 2.5 – 4.5V ±0.15V
complimentary or identical
@ 5.0V supply

Redundent Reversed*

Supply Voltage
4.5 - 5.5 VDC

Output Voltage
Redundant - Ratiometric
0.5 – 2.5 – 4.5V ±0.15V
complimentary or identical
@ 5.0V supply

Connection

Connector
Standard 22 AWG harness 18" with
Deutsch DTM04-6P connector
Other connectors available upon request

Environmental

Mechanical Operating Tempature
-40° to +176° F [-40° to +80° C]

Electronic Operating Tempature
-40° to +158° F [-40° to +70° C]

Storage Tempature
-58° to +194° F [-50° to +90° C]

EMC Emissions
Complies with EN61000-6-4:2007; Class
A Group 1,80- 1000MHz

EMC Immunity
Complies with EN61000-6-2:2005
expanded to include: RFI Immunity of
100V/M @80 - 1000 MHz ESDImmunity
of 15 Kv air, 8 Kv contact

*Available in late 2023