

MBC158 Microstep Driver

FEATURES

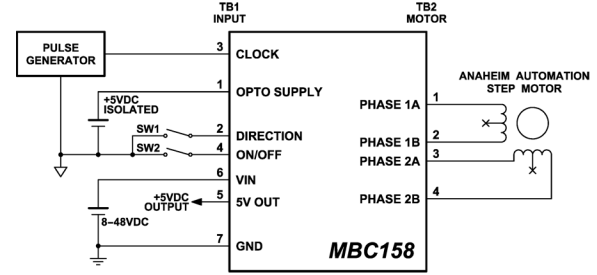
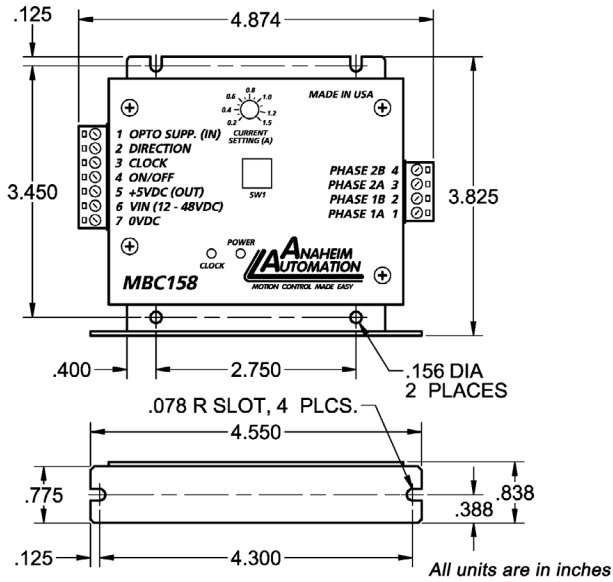
- 1.5 Amps/Phase Output Current
- Microstepping Drive Operation
- 1, 2, 4 and 8 Selectable Step Operations
- Opto Isolated Inputs
- Internal Thermal Shutdown
- Motor On/Off Input
- Current Reduction
- Dimensions: 4.65" x 3.75" x 0.875"



DESCRIPTION

The MBC158 Microstep Motor Driver has an output current capability from 0.2 Amps Minimum to 1.5 Amps Maximum (Peak Rating). The MBC158 driver will operate off 12VDC Minimum to 48VDC Maximum (up to 1.75 Amps). The inputs are Opto-Isolated with a minimum sourcing of 5 mA per input (5VDC Minimum to 12VDC Maximum). The clock input is set to receive negative edge clocks with a maximum frequency of 100k Hz. The direction input is current sourcing for CW and no current for CCW. The ON/OFF feature is current sourcing to de-energize the step motor and no current to energize the motor. Reduce Current Enabled automatically reduces Motor current 50% after last step (20msec delay). The +5VDC output supply is dependent on the input DC Supply Voltage (200mA @ 48VDC, 450mA @ 24VDC and 1000mA @ 12VDC). The driver has built-on features to indicate power on (Green LED) and built-on features to indicate power on (Green LED) and Clocks being received, greater than 100Hz (Yellow LED).

DIMENSIONS/WIRING DIAGRAMS



| Potentiometer | AMPS |
|---------------|------|
| 0% | 0.2 |
| 10% | 0.33 |
| 20% | 0.46 |
| 30% | 0.59 |
| 40% | 0.72 |
| 50% | 0.85 |
| 60% | 0.98 |
| 70% | 1.11 |
| 80% | 1.23 |
| 90% | 1.36 |
| 100% | 1.50 |

L010056

| Pin | Name | Description |
|-----|-------------|--|
| 1 | Opto Supply | 5VDC Minimum to 12VDC Maximum @ 50mA maximum is required to power the opto-isolated inputs (Clock, Direction and On/Off). |
| 2 | Direction | The DIRECTION input controls the direction in which the motor steps. If the DIRECTION input is high the motor will step in the counterclockwise (CCW) direction. |
| 3 | Clock | The Clock input is the stepping clock for the driver. When the clock input transitions from high to low, the motor takes one step. |
| 4 | On/Off | The ON/OFF input controls the motor. If the ON/OFF input is high, the motor will step with the clock and will have holding current at standstill. If the ON/OFF input is low the motor will be turned off with no holding current and clock signals will be ignored. When the ON/OFF input becomes high again, the motor will hold at the step it was in when the ON/OFF input went low. |
| 5 | 5VOUT | The 5VOUT pin provides a regulated 5VDC output from the driver. The +5VDC output supply is dependent on the input DC Supply Voltage (200mA @ 48VDC, 450mA @ 24VDC and 1000mA @ 12VDC). |
| 6 | +VIN | Input power supply requirement is 12VDC minimum to 48VDC maximum. |
| 7 | 0VDC | This pin is the return/reference point for +VIN and +5VOUT. |

The logic inputs to the MBC158 are of the sourcing type, meaning that an input left open will automatically be pulled up to a high level. To drive an input low, tie it to ground directly or use a saturated transistor.

Connector TB2 (Output)

| Pin | Name | Description |
|-----|----------|----------------------------|
| 1 | Phase 1A | Motor Phase A or Phase 1. |
| 2 | Phase 1B | Motor Phase /A or Phase 3. |
| 3 | Phase 2A | Motor Phase B or Phase 2. |
| 4 | Phase 2B | Motor Phase /B or Phase 4. |

Microstep Modes (SW Settings)

| Microstep Modes | DIP SW1 | DIP SW2 | DIP SW3 | Auto Reduce Current |
|-----------------|---------|---------|---------|---------------------|
| Full Step | OFF | OFF | OFF | DISABLED |
| Half Step | ON | OFF | OFF | DISABLED |
| Quarter Step | OFF | ON | OFF | DISABLED |
| Eighth Step | ON | ON | OFF | DISABLED |
| Full Step | OFF | OFF | ON | ENABLED |
| Half Step | ON | OFF | ON | ENABLED |
| Quarter Step | OFF | ON | ON | ENABLED |
| Eighth Step | ON | ON | ON | ENABLED |

Specifications

| | |
|---------------------------|---|
| Inputs (All) | Opto-Isolated, Minimum sourcing of 5 mA per input (5VDC Minimum to 12VDC maximum) applied to Opto Supply input. |
| Continuous Output Current | 200mA minimum to 1500mA maximum (peak rating). If Reduce Current is Enabled the drive will automatically reduce motor current to 50% of setting after the last step pulse is received (20msec delay). |
| Supply Voltage | 12 - 48VDC |
| Clock Frequency | 0 - 100kHz minimum pulse width require is 3 microseconds. |
| Chopping Frequency | 22kHz |
| +5VDC | The +5VDC output supply is dependent on the input DC Supply Voltage (200mA @ 48VDC, 450mA @ 24VDC and 1000mA @12VDC). |
| Operating Temperature | 0 - 70°C over the operating voltage and current range. It is recommended that the driver be mounted to a |