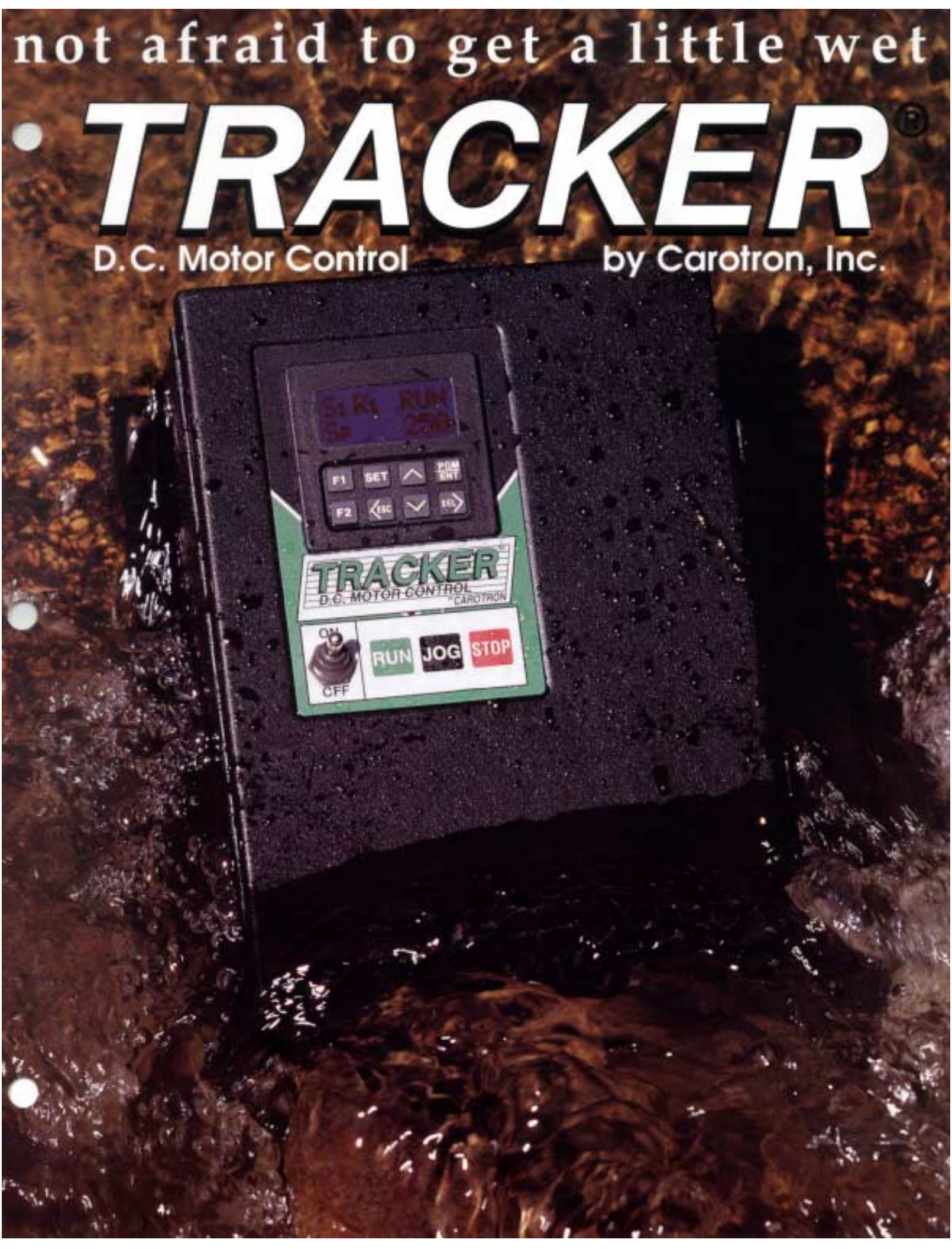
not afraid to get a little wet

TRACKER®

D.C. Motor Control by Carotron, Inc.



Excellence in Design

The New Tracker® TKR 800 Series of D. C. Motor Controls

Along with the standards of quality and durability that all Carotron products are known for, we've loaded some very attractive features to this new member of the Carotron family. Each model provides full range, single quadrant, digital speed control of shunt wound or permanent magnet D.C. Motors. All models are NEMA 4 enclosed and available to operate motors between 1/4 and 3 horsepower. Various models are offered with options that add a process follower interface (0 - 10VDC or 4 - 20 mADC), summing input or trim pot interface.

TKR802 (1/4 to 2HP)

These models are customer connectable for operation at 115 VAC or 230 VAC single phase input. When operated at 115 VAC input, each unit supplies variable armature voltage up to 90 VDC and a fixed field voltage of 100 VDC. For operation at 230 VAC input, each model supplies up to 180 VDC for armature voltage and a fixed field supply of 200 VDC.

TKR803 (1/2 to 3HP)

These models are customer connectable for 230 VAC input operation only and supply variable armature voltage up to 180 VDC and a fixed field supply of 200 VDC.

Take a closer look at these features

Master-Follower mode: In Master mode, the Tracker® becomes the lead drive. Speed setpoints can be programmed and maintained with digital precision and accuracy. In Follower mode, a ratio of the lead signal can be set and maintained with the same accuracy.

Flowchart style programming: Programming the Tracker® is easy. Just follow the included flowchart to the parameter you want to modify and change it. No ladder logic and no additional programming equipment to buy or keep up with.

Flexible User Function keys: Many of the programming options on the Tracker® are for the user controls. For instance on the display keypad, there are two function keys. At the factory, these keys are programmed to switch between the two setpoints and the two ramp rates. The customer can change either or both of these keys to control displays, stop functions, alarm resets or ramp override. There are also four user inputs (which require external pushbuttons) that can be programmed with these same functions.

User programmable displays: There are many different ways the displays can be configured to give different information about the current status of the Tracker®. There are four user display screens each of which has two lines. One display screen can be shown at a time, allowing large backlit alphanumeric lettering which can be read from a long distance with ease. Each line of each display screen can be programmed with information such as speed, drive status, trim value, alarm status or setpoint to give you the maximum amount of information about the operation of your machine. By the way, the speed does not have to be motor speed. It can be the speed of the machine, feet per minute, gallons per hour or anything else you want. Whatever relates best to your equipment.

Rugged Construction: Just like all Carotron products, the Tracker® is built to take punishment. The power bridge devices are sized at three times the full load rating, giving a long life product. The NEMA 4 enclosure is made from 16 gage steel. The watertight enclosure design has been laboratory tested with 65 gallons per minute water flow for 5 minutes and passed with flying colors!

CAROTRON

Driven by Excellence

D.C. DRIVES, A.C. INVERTERS,
SOLID STATE STARTERS, SYSTEM INTERFACE
CIRCUITS AND ENGINEERED SYSTEMS

Driven

Excellence in Performance

Notes on Variable Speed & Pumps

- Controlled Accel/Decel allows for soft start which reduces mechanical wear & shaft breakage on pumps
- Allows pumps to operate at speeds required for the application
- Closed loop control can accurately regulate pressure, flow, PH, etc.
- The digital speed indication on the Tracker® can be scaled to desired engineering units.
- The Tracker® along with a washdown duty motor and Carotron pulse Tachometer make an excellent closed loop control package for NEMA 4 environments.

TRACKER®

Standard Features

- Digital setpoint and control for precise and consistent speed regulation
- A backlit LCD display that allows hundreds of programming and display options
- NEMA 4 water tight enclosure for use in washdown environments, pumping applications or any that are subject to water exposure
- Control Accuracy of 0.01% of Speed Setpoint in Master mode; 0.02% of Ratio Setpoint in Follower Mode with a steady state load
- Fast control loop responses: 10ms for master; 20ms for follower for digital loops
- Error Gain control from 0 to 99%
- Run, Jog & Stop controls on the unit and on the terminal strip as well as four user programmable inputs on the terminal strip
- Two alarm outputs each of which can be programmed to alarm on one of five different alarm conditions
- Non-volatile EEPROM retains all programming information and values when power is removed or interrupted
- Control and feedback circuitry are isolated from armature and line voltage
- Encoder supply, +12VDC @100 mA, terminal strip accessible
- DIP switch selectable lead and feedback inputs for accepting input pulses from a variety of sources including outputs from CMOS or TTL circuits
- Power Devices are sized at three times the full load rating
- Metal film resistors and cermet pots for temperature stability
- I.C. regulated power supplies
- R-C decoupling of signal level inputs for superior noise rejection
- AC line fuses
- Line MOV and snubber for transient protection
- Models with analog option board (-EOA) allow for the use of a summing input or trim pot (dancer)
- Process Follower models (-EPF) allow the unit to track a 0-10VDC or 4-20 mADC signal in follower mode

Specifications

A.C. Input:
- Model TKR802: 115VAC ± 10%, 50/60 Hz ± 2 Hz
  230VAC ± 10%, 50/60 Hz ± 2 Hz
- Model TKR803: 230VAC ± 10%, 50/60 Hz ± 2 Hz

Armature Output:
- Model TKR802: 0 - 90 VDC for 115 VAC input
  0 - 180VDC for 230 VAC input
- Model TKR803: 0 - 180VDC for 230 VAC input

Field Output:
- Model TKR802: 100 VDC, 1Amp for 115 VAC input
  200 VDC, 1Amp for 230 VAC input
- Model TKR803: 200 VDC, 1Amp for 230 VAC input

Horsepower Range:
- Model TKR802: 1/4 - 1HP for 115 VAC input
  1/2 - 2HP for 230 VAC input
- Model TKR803: 1/2 - 3HP for 230 VAC input

Display: 2 x 8 characters 3/10" in height, negative image transmissive LCD with red LED backlighting.

Memory: Non-volatile EEPROM retains all programming information and values when power is removed or interrupted.
- Power Cycles (ON/OFF): 100,000 minimum
- Data Retention: 10 years minimum
- Encoder Power: +12VDC ± 25%@100mA

Inputs (Lead and Feedback): DIP Switch selectable to accept input pulses from a variety of sources including outputs from CMOS or TTL circuits.
- Input Frequencies: 1Hz to 20KHz (Master), 1 Hz to 12KHz (Follower)
- Logic Levels: Input trigger levels; V_{il} = 1.5Vmax; V_{ih} = 3.75Vmin
- Current Sinking: Internal 7.8Kohms pull up to +12VDC, Imax = 1.6mA
- Current sourcing: Internal 3.9Kohms pull down, 7.3mA @ 28VDCmax

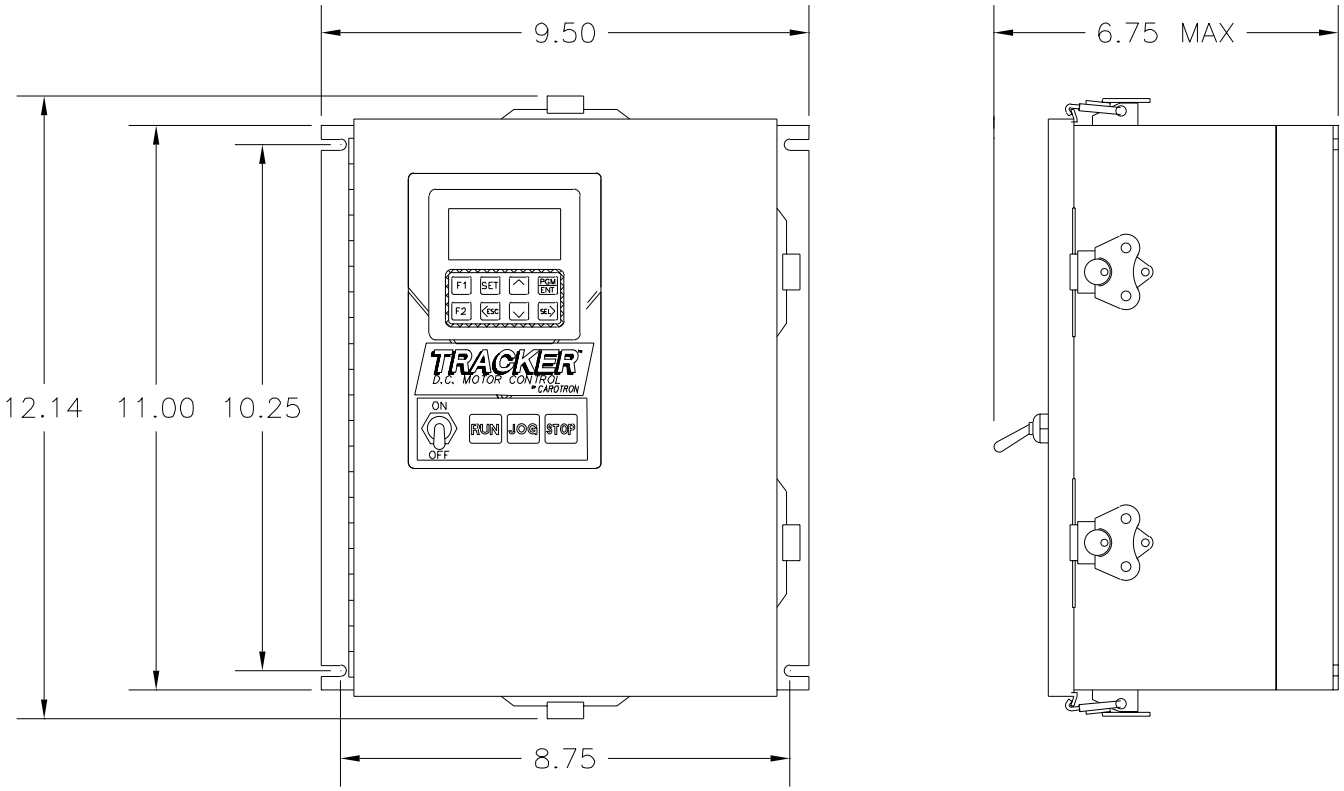
Magnetic Pickup:
- Sensitivity: 100mV peak
- Hysteresis: 100mV
- Input Impedance: 3.9Kohms@ 60 Hz
- Maximum input voltage: ± 50V peak

Control Loop Response: 10ms for master mode, 20ms for follower mode Control accuracy:
- 0.01% of Speed Setpoint in Master mode (STEADY STATE)
- 0.02% of Ratio Setpoint in Follower mode (STEADY STATE)

Speed Range: 20:1, motor dependent

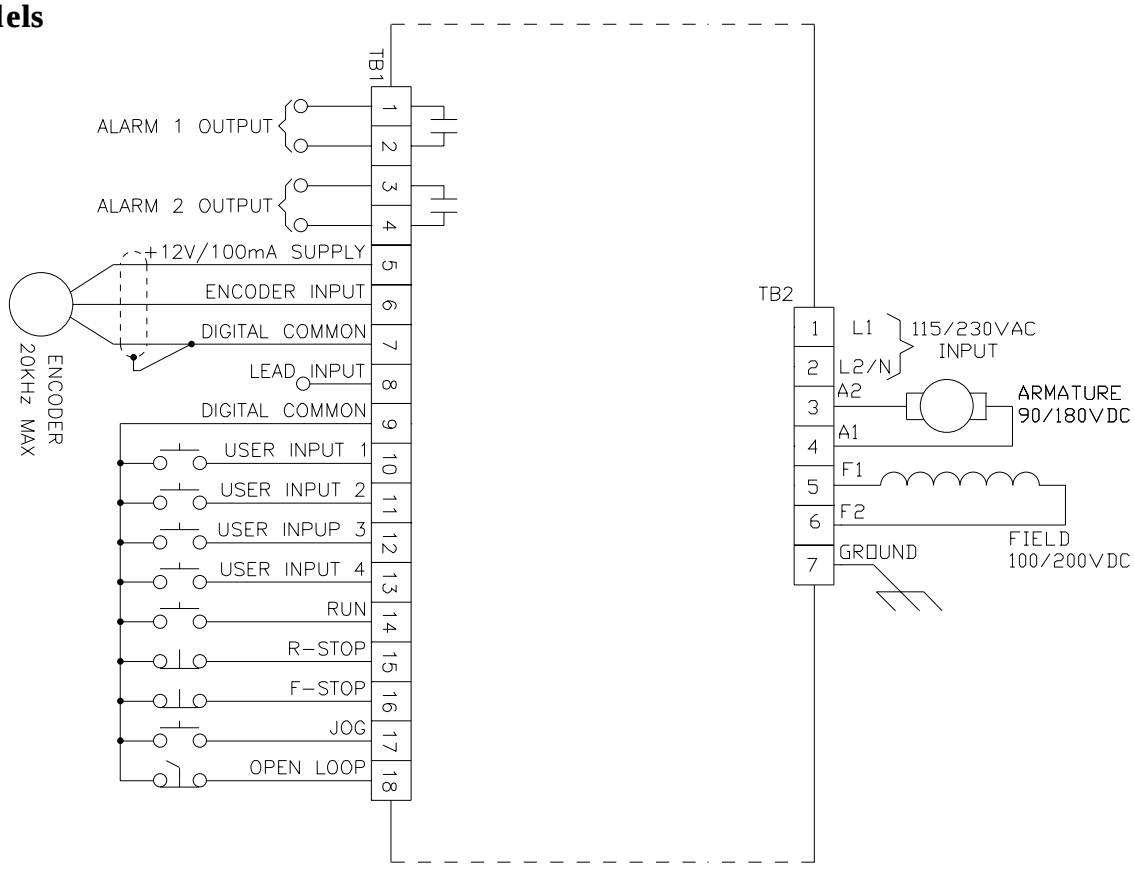
Temperature: 0 to 40°

Dimensions

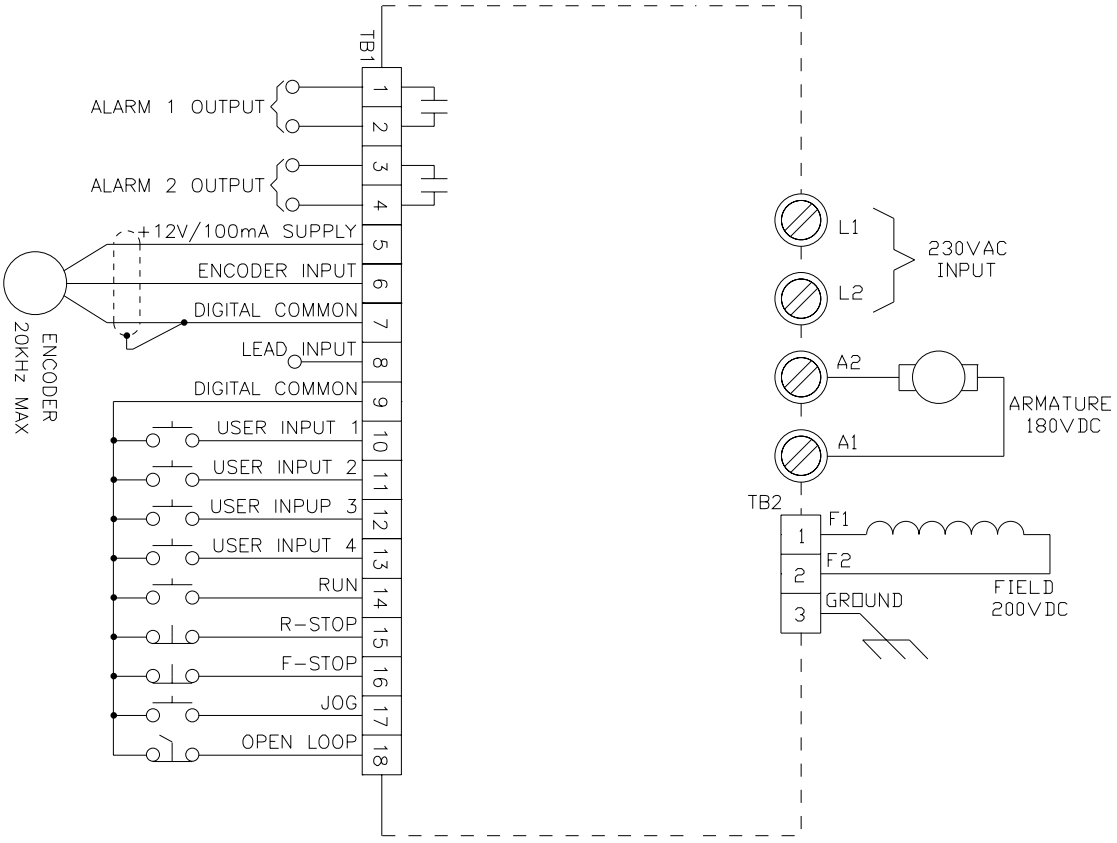


Connections

2 HP Models

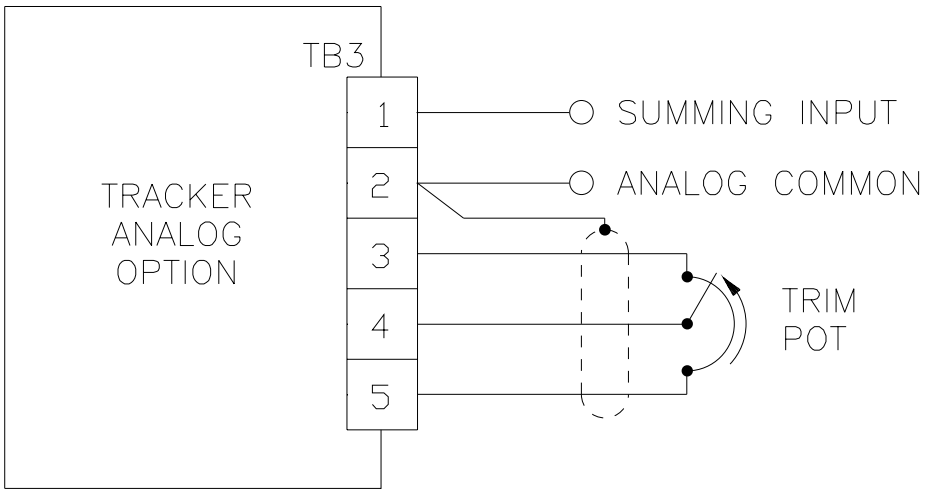


3 HP Models

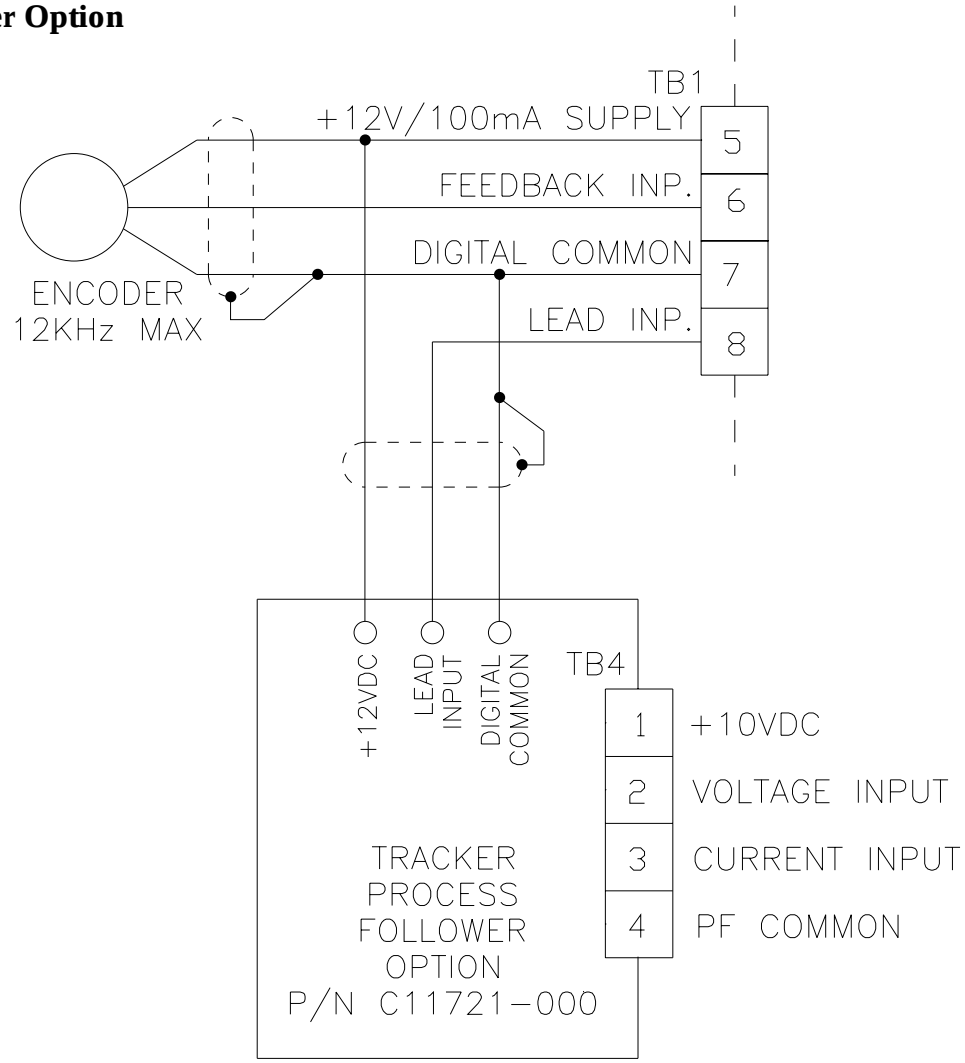


Connections

Analog Option



Process Follower Option



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