

TSX 3.0

FULLY-PROGRAMMABLE CONTROLLERS

NAVITAS
VEHICLE SYSTEMS



DESCRIPTION

The TSX 3.0 line of fully-programmable controllers for separately excited motors have half-H armature control and independent full-H field control enabling contactor-less reversing and motor performance optimization

With current and thermal limiting of armature and field sections, current limited contactor I/O, automotive quality Molex connectors, and rugged highly ingress resistant ABS case the TSX is fully protected. (Some TSX models have a full CANopen interface and can be slaved with to another TSX for dual-motor control)

TSX controllers are fully programmable with the intuitive PC Probit II RS232 user interface or Bluetooth Apps allowing control of virtually all settings including current limits, maximum speeds in both forward and reverse, and battery over-discharge protection



Navitas "OTF" On The Fly Programmer

KEY FEATURES

- 600A state of the art MOSFET technology
- Compact size and low weight
- Regenerative braking
- Contactor-less motor reversing
- Separate armature and field current limits
- Molex waterproof connector
- Thermal protection
- Sensor less motor thermal protection
- Under voltage protection
- Fully sealed IP5X
- Speed sensor input
- OEM multi-platform mounting options
- Plug & Play installation for major OEM golf cars
- Rollback protection
- Speed-limiting (w/ optional speed sensor)
- Compatible with Navitas On-The-Fly (OTF) programmer (optional) (see OTF Data Sheet)
 - Variable maximum speed control
 - Variable regen control
 - Variable Acceleration rate
 - Simplified wiring diagnostics

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BATTERY VOLTAGE

- 36 to 48 Volt
- 64 to 72 Volt

OUTPUT CAPACITY

- Up to 600A motor current
- Up to 50A peak field current

APPLICATIONS

- Golf cars, LSV's
- UTV, Hunting buggies

FLEXIBILITY

- Fully programmable with the Navitas PC Probit II programming package (Optional Purchase)
- Programmable to match the unique characteristics of each separately excited motor model
- Programmable low-voltage battery discharge interrupt (BDI) cutbacks will limit motor current to extend the battery charge
- Up to three speed limit inputs with programmable cut-back speeds and priority level

CONTROL

- Full bridge field control design allows reversing without the use of direction contactors
- Armature current controlled at all times to help reduce brush wear and arcing
- Regenerative braking harnesses excess energy to extend the battery charge
- Motor over-speed protection is ensured using the motor field

COMMUNICATIONS

- Integrated LEDs flash information and error codes for basic controller diagnostics
- Protected I/O connections
- iOS and Android apps for smart phones and tablets are available at the App Store and Google Play.

SAFETY

- Regenerative braking provides vehicle speed control at any throttle position when going down ramps and channels the extra energy back into the batteries for longer battery life
- Adjustable regen settings allow for braking strength to be tailored to the specific vehicle for safety during stopping and forward/reverse transitions
- Safe-Sequencing including high pedal disable (HPD) and static-return-to-off (SRO) interlock ensure safe startup and vehicle operation
- Controlled temperature cutback on armature and field drive current limits ensures there is no sudden loss of power under any thermal condition