T164 Series
Panel Mount Digital
Brushless Motor Controllers

CONTROLLER FEATURES
Microprocessor Based
Sinusoidal Three Phase Drive
Programmable Position, Velocity or Current Control
Simple Set-up via ‘WinDrive’ Graphical User Interface
Panel Mount Construction
Integral Heat Sink and Cooling Fan(s)
Pluggable Solderless Connections
Diagnostic LEDs
Resolver Based System
Digitally Tuned Current Loop (No Personality Modules)
Programmable Analog Test Points
Internal Logic Switchmode Supply
24 VDC Control Power Input
Extended I/O (Option Card or Inputs Bracket)
Encoder Simulation (Option Card)
“Point” -Single Axis Motion Control (Option Card)
‘Can Bus’ Interface Card for Multi-Axis Motion Control
CE marked

CONTROLLER PROTECTION
Watchdog Timer
Logic Undervoltage
I-T Current Foldback
Short Circuit
Motor Overtemperature
Controller Overtemperature
Resolver Loss
T164-90X DIGITAL MOTOR CONTROLLER SPECIFICATIONS

Serial Interface
Type – RS232 or RS485
Baud Rate – 9600
Parity – None
Data word – 10 bit (7 data, 1 start, 2 stop)

Resolver Interface
Excitation Frequency – 4.9 KHz
Excitation Output – 4.0 V RMS
100 mA Max
Sine/Cosine Return – 2.0 V RMS
30KΩ input impedance (differential)
Efficiency – >95% 5
Velocity Loop Update Rate – 2.5 KHz
24 VDC Control Power Input6 – 21 - 35 VDC, 1.5 Amp Max
Altitude – 3300 feet7
Baseplate Overtemperature Trip Point – 90°C±5°C
Operating Temperature Range – 0 - 55°C ambient
Humidity – 5% to 95% non-condensing

Weight
T164-901 thru -905 – 10.5 lb (4.8 kg)
T164-907 and -909 – 13 lb (5.9 kg)

Diagnostic LEDs
SYSTEM ENABLE (Green)
POWER SUPPLY OK (Green)
FOLDBACK (Yellow)
SYSTEM FAULT (Yellow)
BUS OVERVOLTAGE (Yellow)
SHORT CIRCUIT (Yellow)
RESOLVER LOSS (Yellow)
BRIDGE OVERTEMP (Yellow)
MOTOR OVERTEMP (Yellow)

Optional Extended Function Cards

Encoder Simulator Module

"POINT" Single Axis Motion Control Card
NOTES:

1. All dimensions are in millimeters, dimensions in brackets are in inches
2. TB2 Maximum wire size:
   - CSA 3.25mm² (12AWG) on models T164-9X1, -9X3 and -9X5
   - CSA 8.4mm² (8AWG) on models T164-9X7 and -9X9
3. Size wire for load (do not fuse or switch d.e. bus for proper regeneration protection)
4. Recommended terminal screw torque: 0.55 ± 0.05 Nm [5.0 ± 0.5 in lbs]
5. Top and bottom must remain unobstructed by minimum distance of 75 mm [3 inches] to provide adequate air flow for cooling.

6. Wire range: CSA 2.08mm² to 0.128mm² (14AWG to 26AWG).
7. Internal assembly contains electrostatic sensitive components. Proper handling procedures must be used with cover removed. (MIL-STD-1686, Class 1)
8. Recommended terminal screw torque: 0.7 ± 0.06 Nm [6.2 ± 0.5 in lbs]
9. Recommended terminal screw torque: 2.2 ± 0.06 Nm [20 ± 0.5 in lbs]
10. Fan assembly not used on model T164-9X1.
11. M5 or #10 mounting screws 3 places (4 places on T164-9X7 and -9X9)

NOTES:

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9. Recommended terminal screw torque: 2.2 ± 0.06 Nm [20 ± 0.5 in lbs]
10. Fan assembly not used on model T164-9X1.
11. M5 or #10 mounting screws 3 places (4 places on T164-9X7 and -9X9)
**T164-907 THROUGH -909 DIGITAL MOTOR CONTROLLER**

J1, J2, J3 & TB1 Pinouts are the same as for T164-9X1, -9X3 and 9X5

△ Refer to Notes on previous page

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**TB2 CONNECTOR NOT SHOWN MOUNTING HOLE CLARIFICATION**

**T164 SERIES MODEL NUMBER SYSTEM**

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