c-Link Systems, Inc.

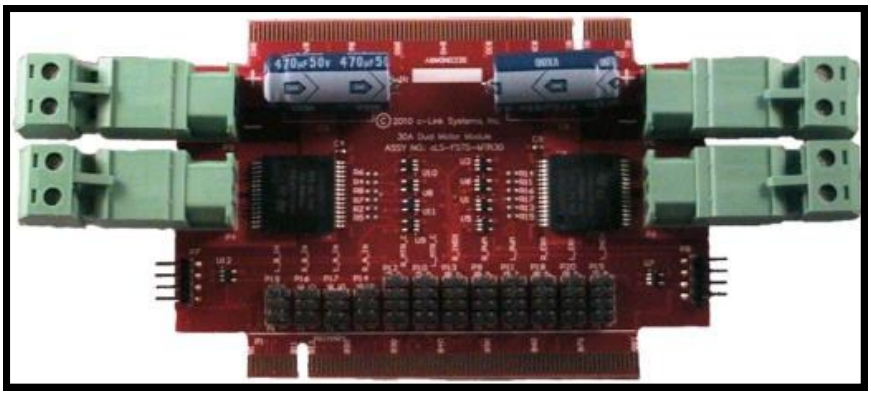
cLS-FSTS-MTR30

Product Brief—Revision A 01 February 2010

System Highlights

- Conforms Freescale Semiconductor 's Tower system
- 9.0V to 16V continuous operation (transient operation from 5.5V to 40V)
- 5.0V TTL/CMOS logic compatible inputs, solid state level shifting used to match Tower signals to
- Two independent H-bridge drivers
- Proportional current sensing line to main processor card
- Over-voltage/Under-voltage protection
- Thermal shutdown
- Protection against ground/ power loss
- Cross conduction protection
- Independent per motor power connections
- Common ground to Tower system, removes isolation requirement
- Plug-in connectors w/screw terminals motor and motor power connection
- RPM/Index pulse connector routed to Tower system Primary connector

Description



The cLS-FSTS-MTR30 utilizes dual VNH2SP30. This is a monolithic H-bridge in a tough thermally package. The board also includes inputs from pulse sensors used for motor RPM. All of the I/O is routed to preset pins on the Tower System interface. Motor speed is controlled via PWM line, one per motor; the PWMs have a maximum frequency of 20KHz. The pulse sensors inputs are not required for the module to function. Each motor channel has an analog low-side current sense available for the Tower system CPU card.

Board ships with full schematics and code sample. Also included is an excel sheet to be included with the Freescale Tower Configuration Tool.

Performance per Bridge:

H-bridge outputs:	2
Outputs RDS_{ON} :	19 mΩ
PWM:	20 KHz
ESD:	5kV on motor pins
Control/communication:	Parallel
Operating voltage:	9V to 16V (absolute 5.5V—40V)
Operating current:	30A continuous

Tower Primary Connector Pins:

A9 (GPIO9/OPEN) - Left Drive IN-A (F/R)
A10 (GPIO8/OPEN) - Left Drive IN-B (F/R)
A11 (GPIO7/OPEN) - Left Drive EN-A
B21 (GPIO1/OPEN) - Left Drive EN-B
A37 (PWM3) - Left Drive PWM
B27 (AN7) - Left Drive Motor Current
A33 (TMR1) - Left Drive RPM/INDEX

A15 (GPIO6/OPEN) - Right Drive IN-A (F/R)
B35 (GPIO4/OPEN) - Right Drive IN-B (F/R)
B22 (GPIO2/OPEN) - Right Drive EN-A
B23 (GPIO3/OPEN) - Right Drive EN-B
A38 (PWM2) - Right Drive PWM
B28 (AN6) - Right Drive Motor Current
A34 (TMR0) - Right Drive RPM/INDEX

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For updates check

www.c-linksystems.com

Corporate Brief

For the past seven years c-Link Systems, Inc. has focused on industrial control/automation of process lines in metal rolling and paper mills. Out of this emerged our expertise in Industrial Robotics and high speed fiber optic communications. A previous background in mechanics, dynamics and satellite guidance systems has positioned the company to support our customers in the growing field of robotics as it relates to autonomous robotic vehicles (ARV) with numerous commercial/industrial applications.—SEA

Omni-Chassis Information

SPECIFICATIONS

Interface:

Plug-in Screw terminals for motor and motor power connection.

Physical Characteristics:

Freescale Tower System format .

Power Requirements:

Supply Voltage (Typical)	5.0V (5.5V maximum)
Motor Supply Voltage	9VDC—16VDC
Current (typical)	TBA
Motor Current	30A per motor maximum

Environmental Characteristics:

Operating Temperature:	-20°C to 90°C
Storage Temperature:	-40°C to 105°C
Relative Humidity:	0 to 90% non-Condensing

Model Numbers

cLS-FSTS-MTR30: Dual channel motor card, 30A