

**TECO**   **Westinghouse**

L510

# L510

## Advanced Micro Drive



1/4-1 HP (115V) • 1/4-3 HP (230V) • 1-3 HP (460V)

## Features & Highlights

- Cost effective drive solution with wide range of programming capabilities
- Control Methods Available:
  - V/F mode or Sensorless Vector Operation
- Parameters grouped by function
- Power Range:
  - 115V, 1Ø (0.25 to 1 HP)
  - 230V, 1Ø (0.25 to 3 HP)
  - 230V, 3Ø (0.5 to 3 HP)
  - 460V, 3Ø (1 to 3 HP)
- PID Process Control Loop
  - Sleep Mode
  - 0-10VDC or 4-20mA Feedback
  - Loss of feedback or tracking detection
- Built-in Modbus or BACnet Protocols (RJ45 Interface)
- 5 Digit operator's keypad
  - Scalable Display
  - Programming parameters
  - Diagnostics monitoring
- Built-in Speed Pot
- Digital and Analog Inputs - Outputs have extremely fast (~4 msec) update time

CONTROL FEATURES	
<ul style="list-style-type: none"> <li>• 1-16kHz carrier frequency (adjustable)</li> <li>• Acceleration/ deceleration ramps with S curves</li> <li>• Sensorless Vector mode</li> <li>• DC injection braking</li> </ul>	
<b>Input Voltage Range</b>	100-120VAC +10%, -15% 200-240VAC +10%, -15% 380-480VAC +10%, -15%

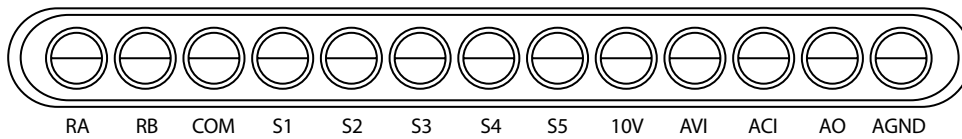
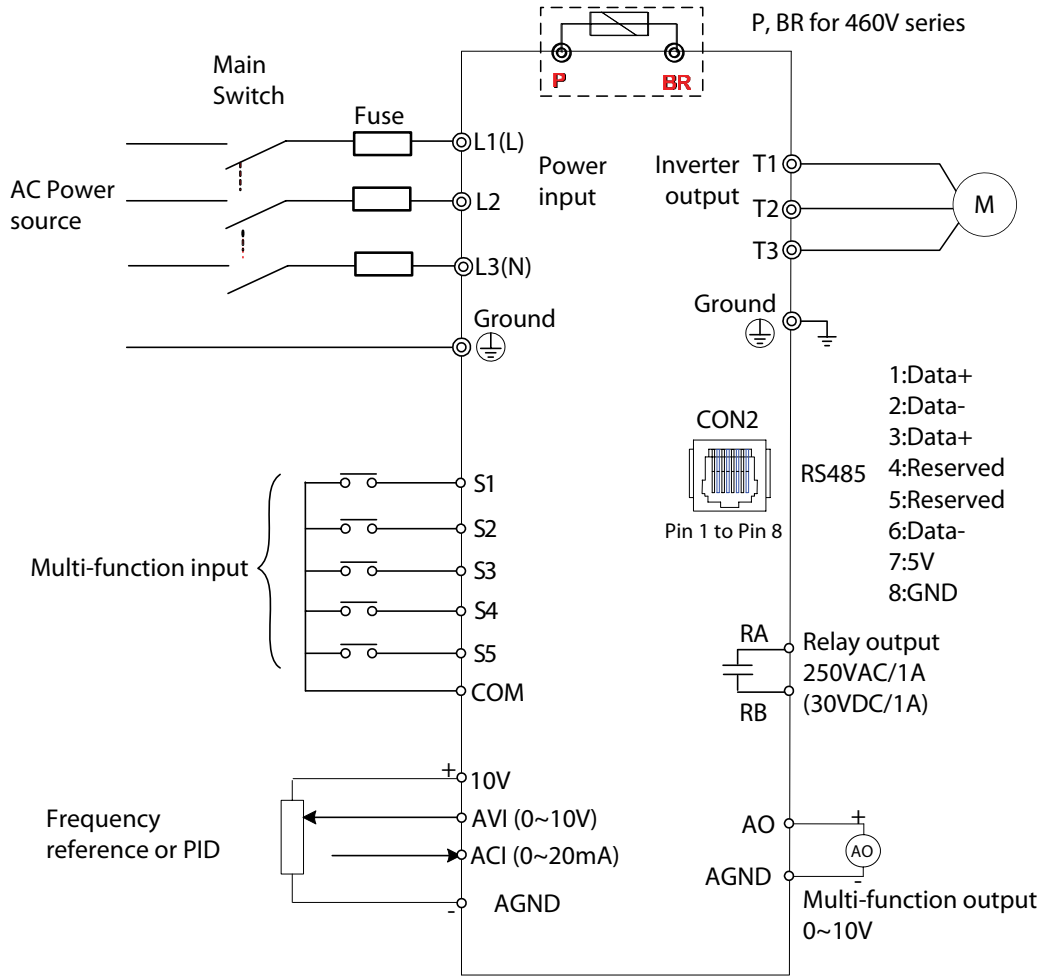
PROTECTION FEATURES	
<b>Overload</b>	Up to 150%, 1 minute
<b>Stall Prevention</b>	On acceleration, deceleration and constant speed
<b>Overcurrent</b>	Instantaneous above 200%
<b>DC BUS Overvoltage</b>	115/ 230V input: >410VDC 460V input: >810VDC
<b>DC BUS Undervoltage</b>	115/ 230V input: <190 VDC 460V input: <380 VDC
<b>Other protection</b>	Ground Fault, Phase Loss, Overtemperature, Loss of PID Feedback External fault setting

ENVIRONMENTAL FEATURES	
<b>Operating Temperature</b>	14-122°F (-10-50°C)
<b>Storage Temperature</b>	-4-122°F (-20-50°C)
<b>Humidity</b>	95% RH or less (non-condensing)
<b>Shock</b>	20 HP or less; 1g (32.2 ft/sec <sup>2</sup> ) 20-25 HP; 0.6g (19.3 ft/sec <sup>2</sup> )
<b>Certification</b>	Complies with IEC 60018-2-78, UL, cUL, CE, & RoHS

## Keypad



# Wiring Diagram



TERMINAL SYMBOLS	TM1 FUNCTION DESCRIPTION
L1(L)	Main power input, L1(L)/L2/L3(N)
L2	
L3(N)	
P*	Externally connected braking resistor
BR*	
T1	Inverter output, connect to U, V, W terminals of motor
T2	
T3	
⊕	Ground Terminal
RA/ RB	Relay output terminal, Specification: 250VAC/1A(30VDC/1A)
COM	S1-S5 (Common-NPN Type)
S1, S2, S3, S4, S5	Multi-function input terminals
10V	Built-in power for external speed potentiometer
AVI	Analog voltage input, Specification: 0-10VDC/ 2-10V
ACI	Analog current input, Specification: 0/4-20mA
AO	Multi-function analog output terminal. Maximum output 10VDC/1mA
AGND	Analog ground terminal

\*P, BR for 460V series

I/O FEATURES	
<b>Digital Inputs</b>	<ul style="list-style-type: none"> <li>• Qty 5 configurable</li> <li>• Over 18 available selections</li> <li>• Assign as normally open or normally closed</li> <li>• 24V Power supply power (internal)</li> </ul>
<b>Digital Output</b>	<ul style="list-style-type: none"> <li>• Qty 1 relay output with over 15 available selections</li> <li>• Assign as normally open or normally closed</li> </ul>
<b>Analog Inputs</b>	<ul style="list-style-type: none"> <li>• Qty 2 analog input channels                             <ul style="list-style-type: none"> <li>- 1 at 0-10VDC</li> <li>- 1 at 4-20mA</li> </ul> </li> <li>• Adjustable gain and bias on each channel</li> </ul>
<b>Analog Output</b>	<ul style="list-style-type: none"> <li>• 0-10VDC</li> <li>• 5 available configurations                             <ul style="list-style-type: none"> <li>- Output Frequency</li> <li>- Set Frequency</li> <li>- Output Current</li> <li>- Output Voltage</li> <li>- DC Bus Voltage</li> </ul> </li> <li>• Adjustable gain and bias</li> </ul>

SPECIFICATIONS	
<b>Control Mode</b>	V/Hz , Sensorless Vector (SLV)
<b>Frequency Range</b>	0-599Hz
<b>Frequency Accuracy</b>	Digital Input .01Hz Analog input: 0.1%
<b>Starting Torque</b>	150%/1Hz (SLV)
<b>Overload Tolerance Rated Output Current</b>	150%/1minute
<b>Frequency Settings</b>	<ul style="list-style-type: none"> <li>• Frequency setting with ^, v keys</li> <li>• Potentiometer on keypad</li> <li>• External input terminals                             <ul style="list-style-type: none"> <li>- AV1 (0-10V) - AC1 (0/4-20ma)</li> </ul> </li> <li>• Multifunction Input (Up/Down)</li> </ul>
<b>Acceleration Settings</b>	<ul style="list-style-type: none"> <li>• Two sets of acceleration and deceleration times                             <ul style="list-style-type: none"> <li>- Jog acceleration</li> <li>- deceleration settings</li> </ul> </li> <li>• (0-3600 sec)</li> </ul>
<b>Voltage/Frequency Characteristics</b>	<ul style="list-style-type: none"> <li>• Qty 6 preset V/Hz patterns plus user settable V/F pattern</li> <li>• Adjustable voltage (torque) boost</li> </ul>

**A compact and dynamic drive that is well-suited for these applications:**

MACHINES/EQUIPMENT	INDUSTRIES
<ul style="list-style-type: none"> <li>• Fans</li> <li>• Pumps</li> <li>• Mixers</li> <li>• Treadmills</li> <li>• AC contactor replacement</li> </ul>	<ul style="list-style-type: none"> <li>• Food and Beverages</li> <li>• HVAC</li> <li>• Machine Tools</li> <li>• Packaging</li> </ul>

TECO-Westinghouse Motor Company offers an extensive line of Variable Speed Drives and Soft Starters for your motor control applications.

We also offer a wide variety of motors that are matched with the Drives and Soft Starters including Vertical Hollow Shaft, Rolled Steel, and NEMA Premium Efficient motors.



From "in stock" controls to engineered systems, we can provide you the right control solution including an extensive line of TECO-Westinghouse AC Motors.

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## Drive Ratings

All Digital Inputs are Sunked to Control Power Common

### 115V 1-Phase Input/ 3-Phase 230V Output

MODEL NO.	HP CONSTANT TORQUE	DRIVE AMPS CONSTANT TORQUE	AC INPUT CURRENT	RATED CAPACITY (KVA)	APPLIED MOTOR (kW)
L510-1P2-H1-U	.25	1.8	9.5	0.68	0.2
L510-1P5-H1-U	.50	2.6	13	1.00	0.4
L510-101-H1-U	1	4.3	19	1.65	0.75

### 230V 1-Phase Input/ 3-Phase Output

MODEL NO.	HP CONSTANT TORQUE	DRIVE AMPS CONSTANT TORQUE	AC INPUT CURRENT	RATED CAPACITY (KVA)	APPLIED MOTOR (kW)
L510-2P2-H1-U	.25	1.8	4.9	0.68	.2
L510-2P5-H1-U	.50	2.6	7.2	1.00	.4
L510-201-H1-U	1	4.3	11.0	1.65	.75
L510-202-H1-U	2	7.5	15.5	2.90	1.5
L510-203-H1-U	3	10.5	21	4.00	2.2

### 230V 3-Phase Input/ 3-Phase Output

MODEL NO.	HP CONSTANT TORQUE	DRIVE AMPS CONSTANT TORQUE	AC INPUT CURRENT	RATED CAPACITY (KVA)	APPLIED MOTOR (kW)
L510-2P5-H3-U	.50	2.6	4.0	1.00	.4
L510-201-H3-U	1	4.3	6.4	1.65	.75
L510-202-H3-U	2	7.5	9.4	2.90	1.5
L510-203-H3-U	3	10.5	12.2	4.00	2.2

### 460V 3-Phase Input/ 3-Phase Output

MODEL NO.	HP CONSTANT TORQUE	DRIVE AMPS CONSTANT TORQUE	AC INPUT CURRENT	RATED CAPACITY (KVA)	APPLIED MOTOR (kW)
L510-401-H3-U	1	2.3	4.2	1.7	.75
L510-402-H3-U	2	3.8	5.6	2.9	1.5
L510-403-H3-U	3	5.2	7.3	4.0V	2.2

## Braking Resistors

### 460V 3-Phase \*

AC DRIVE HP RATING	MODEL NO.	QTY	RESISTANCE OHMS - WATTS		RESISTOR DIMENSIONS (in.)	BRAKING TORQUE (%)	DUTY CYCLE (%)
1	JNBR-150W750	1	750	150	12"L x 5"W x 5"D	126	10
2	JNBR-150W400	1	400	150	12"L x 5"W x 5"D	119	10
3	JNBR-260W250	1	250	260	12"L x 5"W x 5"D	126	10

#### Notes:

Transistor built-in for all L510 460V ratings only (braking resistors externally mounted)

## Options

PART NUMBER	DESCRIPTION
JN5-CB-01M	Extension wire (1M)
JN5-CB-02M	Extension wire (2M)
JN5-CB-03M	Extension wire (3M)
JN5-CB-05M	Extension wire (5M)
JN5-CM-USB	USB cable to connect to PC
JN5-CU	Copy Module/ Remote Digital Display
JN5-DIN-L01	DIN RAIL, L510 Frame 1
DINE2-201	DIN RAIL, L510 Frame 2