Terminal Block TB2

TB2 is located at the bottom of the Main Control Board. A Frame drives have 18 positions. Remaining frame sizes have 22 positions. The maximum and minimum wire size accepted by TB2 is 2.1 and 0.30 mm^2 (14 and 22 AWG). Maximum torque for all terminals is 1.36 N-m (12 lb.-in.). Use Copper wire only. See Figure 2.1.

Terminal Block TB3

The Control Interface Option provides a means of interfacing various signals and commands to the 1336 PLUS II by using contact closures. Several different versions of the option are available:

- L4 Contact Closure Interface[1].
- L4E Contact Closure Interface[1] with Encoder Feedback Inputs.
- L7E Contact Closure Interface[1] with Encoder Feedback Inputs for use with encoder loss detection.
- L5 +24VAC/DC Interface.
- L5E +24VAC/DC Interface with Encoder Feedback Inputs.
- L8E +24VAC/DC Interface with Encoder Feedback Inputs for use with encoder loss detection.
- L6 115VAC Interface.
- L6E 115VAC Interface with Encoder Feedback Inputs.
- L9E 115VAC Interface with Encoder Feedback Inputs for use with encoder loss detection.

[1] Uses internal +5V DC supply.

The user inputs are connected to the option board through TB3 (see Figure 2.1 for location). The L4, L5 and L6 options each have nine control inputs. The function of each input must be selected through programming as explained later in this section. The L4E through L9E options are similar to L4, L5 and L6 with the addition of encoder feedback inputs. In addition, the L7E, L8E and L9E options allow encoder loss detection. Refer to Appendix A for further information.

The maximum and minimum wire size accepted by TB3 is 2.1 and 0.30 mm^2 (14 and 22 AWG). Recommended torque for all terminals is 0.90-1.13 N-m (8-10 lb.-in.). Use Copper wire only.

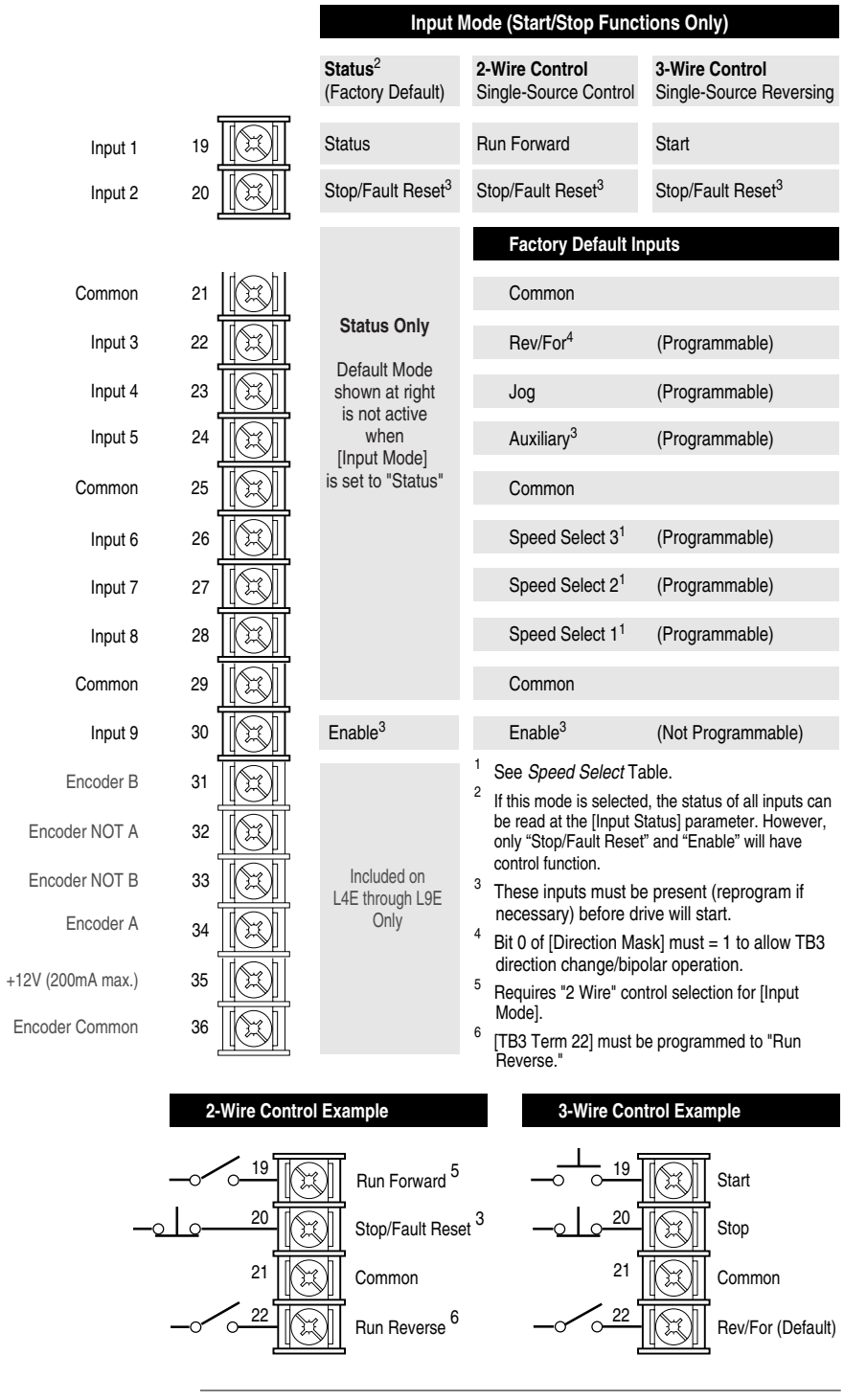
Digital Inputs

Digital inputs are connected at TB3.

Input Mode Select

A number of combinations are available by first programming [Input Mode] to the desired control scheme (i.e. 2 wire, 3 wire or Status). The remaining inputs can then be configured by programming [TB3 Term 22 Sel] through [TB3 Term 28 Sel]. Refer to the *Digital I/O* parameter group in Chapter 6 for programming information.

Figure 2.3
Digital I/O Default Settings – TB3



A hazard of personal injury from automatic restart exists with 2-wire control. 2-wire control uses maintained Run contacts that act as both Run (closed) and Stop (open) devices. Opening the Stop contact (terminal 20) will stop the drive. If this contact is reclosed, any fault will be reset. If a valid Start command is still present, the drive will restart. Only use 2-wire control for applications outlined in NFPA79, "Under Voltage Protection."

If a 3-wire device (i.e. HIM) is also used, pressing the HIM Stop key will also stop the drive. Releasing the Stop key will clear any faults that are present, but the drive will not restart without cycling the Start contact.

Electrical

Input Data	
Voltage Tolerance:	–10% of minimum, +10% of maximum.
Frequency Tolerance:	47-63 Hz.
Input Phases:	Three-phase input provides full rating for all drives. Single-phase operation is possible for A & B Frame drives at a derating of 50%.
Displacement Power Factor	
A1-A3 Frame Drives:	0.80 standard, 0.95 with optional inductor.
A4 Frame & Up Drives:	0.95 standard.
Efficiency:	97.5% at rated amps, nominal line volts.
Max. Short Circuit Current Rating:	**Installations per U.S. NEC/UL/CSA**
Using Specified Fuses	200,000A
Using Specified HMCP Breakers	Per "Max. Short Circuit Amps" column in Table 2.A, specific to each rating.
Using Specified HMCP Breakers with Current Limiter Option	200,000A
	IEC Installations per IEC947
Using Specified 140 Devices	Per "Rated Service Short Circuit Capability" column in Table 2.A, specific to each rating.

Control

Method:	Sine coded PWM with programmable carrier frequency. Ratings apply to all drives (refer to the *Derating Guidelines* on page A–5).
A & B Frame Drives	2-8 kHz. Drive rating based on 4 kHz *(see pg. 1–1 for frame info).*
C & D Frame Drives	2-6 kHz. Drive rating based on 4 kHz *(see pg. 1–1 for frame info).*
E Frame Drives & Up	2-6 kHz. Drive rating based on 2 kHz *(see pg. 1–1 for frame info).*
Output Voltage Range:	0 to rated voltage.
Output Frequency Range:	0 to 400 Hz.
Frequency Accuracy	
Digital Input:	Within ±0.01% of set output frequency.
Analog Input:	Within ±0.4% of maximum output frequency.
Selectable Motor Control:	Sensorless Vector with full tuning. Standard V/Hz with full custom capability.
Accel/Decel:	Two independently programmable accel and decel times. Each time may be programmed from 0 - 3600 seconds in 0.1 second increments[1].
Intermittent Overload:	Constant Torque - 150% of rated output for 1 minute. Variable Torque - 115% of rated output for 1 minute.
Current Limit Capability:	Proactive Current Limit programmable from 20 to 160% of rated output current. Independently programmable proportional and integral gain.
Inverse Time Overload Cap.	Class 10 protection with speed sensitive response. Investigated by U.L. to comply with N.E.C. Article 430. U.L. File E59272, volume 4/6.

[1] 0.1 second increments using a HIM or 0.01 with serial communications.

Input/Output Ratings

Each 1336 PLUS II Drive has constant and variable torque capabilities. The listings on the next page provide input & output current and kVA ratings.

Note: Drive ratings are at nominal values. See *Derating Guidelines* on page A–5.