

1305 Adjustable Frequency AC Drive

0.37...4 kW (0.5...5 Hp), Firmware 4.01 and Up



Please read the **Attention Statement** on page 2-18 and 2-21 before installing the drive.

5. CATALOG NUMBER CODE EXPLANATION

1305 – 6. First Position	A Second Position	A02 Third Position	A Fourth Position	–DE Fifth Position	–HA1 Sixth Position
Bulletin Number	Rating	Nominal Current Rating	Enclosure Type		Options
	A 200-240V 1Ø 200-230V 3Ø B 380-460V 3Ø	A01 A02 A03 A04 A06 A08 A09 A12	<u>Letter</u> A <u>Enclosure Type</u> NEMA Type 1 (IP 30)		

Language Code (English language is included in base catalog number. To order a second language, add the appropriate suffix to the drive catalog number.)
 DE German
 ES Spanish
 IT Italian
 FR French

Human Interface Modules, NEMA Type 1 (IP 30) To order installed in the drive, add the appropriate suffix to the drive catalog number.
 HAP Programmer Only
 HA1 HIM with Analog Speed Pot
 HA2 HIM with Digital Up-Down Keys

Table 1.A 7. Drive Rating and Derating Guidelines

Voltage Rating	Catalog Number IP30	Motor Rating					
		3 ∅ Input			1 ∅ Input		
		HP	kW	Output ①② Current (A)	HP	kW	Output ①② Current (A)
200-230V 50/60 Hz	1305-AA02A	1/2	0.37	2.3	1/4	0.19	1.2
	1305-AA03A	3/4	0.55	3	1/2	0.37	2.3
	1305-AA04A	1	0.75	4.5	3/4	0.55	3
	1305-AA08A	2	1.5	8	1	0.75	4.5
	1305-AA12A	3	2.2	12 ③	2	1.5	8 ③
380-460V 50/60 Hz	1305-BA01A	1/2	0.37	1.3	Not Available		
	1305-BA02A	3/4	0.55	1.6			
	1305-BA03A	1	0.75	2.3			
	1305-BA04A	2	1.5	4			
	1305-BA06A	3	2.2	6 ④			
	1305-BA09A	5	4.0	9 ⑤			

In general:

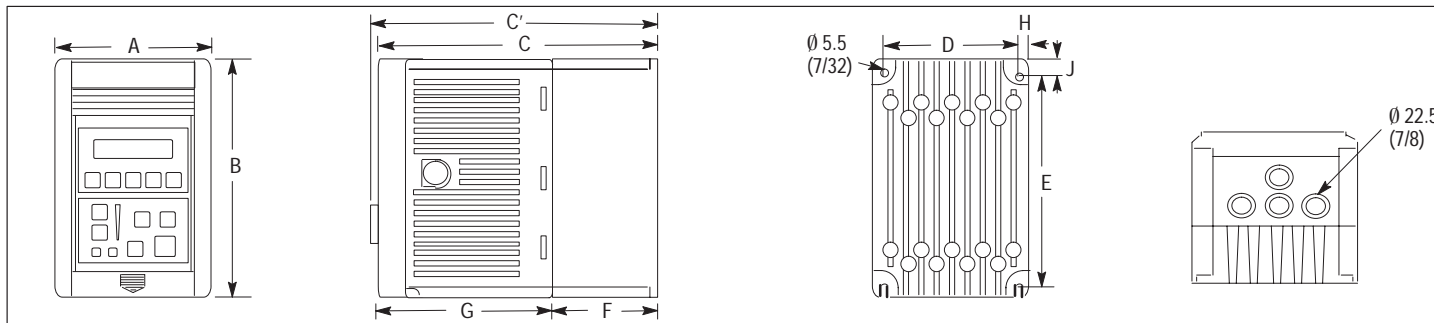
- ① Motor Full Load Amps (FLA) should not exceed the drive output current rating.
- ② If the **[PWM Frequency]** is set above 4kHz, the output current must be derated per the chart on page 5-19.

When operating the drive in an ambient temperature at or near the maximum operating temperature (50°C), the following derating guidelines are recommended to guard against overheating depending on application and operating conditions. For derating guidelines at ambient temperatures between 40°C and 50°C, consult Allen-Bradley.

- ③ Output current value listed for 200V input voltage. At 230V input voltage, output current is 9.6A for 3 phase and 6.8A for single phase.
- ④ Output current value listed for 380V input voltage. At 415V input voltage, output current is 5.3A. At 460V input voltage, output current is 4.8A.
- ⑤ Output current value listed for 380V input voltage. At 415V input voltage, output current is 8.4A. At 460V input voltage, output current is 7.6A.

Figure 2.2 Bulletin 1305 Approximate Dimensions

Dimensions shown in millimeters (inches). Shipping weights shown in kilograms (pounds).

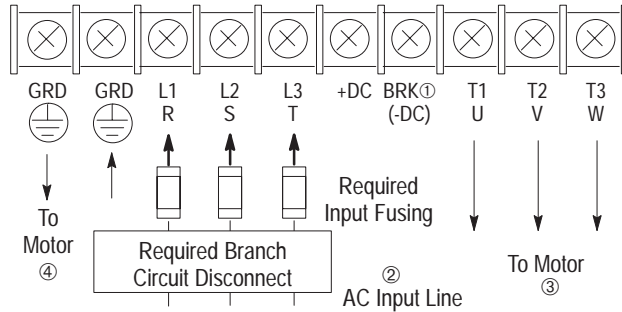


200/230 V Cat. No. 1305-	380/460 V Cat. No. 1305-	A Width	B Height	C Depth w/o Pot	C' Depth w/ Pot	D	E	F	G	H	J	Approx. Ship Wt.
AA02A AA03A		120 (4-23/32)	195 (7-11/16)	122 (4-13/16)	127.1 (5)	110 (4-11/32)	180 (7-1/16)	9 (11/32)	113 (4-7/16)	5 (7/32)	7.5 (5/16)	1.6 (3.5)
AA04A		120 (4-23/32)	195 (7-11/16)	140 (5-1/2)	145.1 (5-23/32)	110 (4-11/32)	180 (7-1/16)	27 (1-1/16)	113 (4-7/16)	5 (7/32)	7.5 (5/16)	1.9 (4.2)
AA08A	BA01A BA02A BA03A BA04A BA06A	170 (6-11/16)	195 (7-11/16)	179 (7-1/16)	184.1 (7-1/4)	160 (6-5/16)	180 (7-1/16)	66 (2-19/32)	113 (4-7/16)	5 (7/32)	7.5 (5/16)	3.6 (8.0)
AA12A	BA09A	210 (8-1/4)	195 (7-11/16)	179 (7-1/16)	184.1 (7-1/4)	200 (7-7/8)	180 (7-1/16)	66 (2-19/32)	113 (4-7/16)	5 (7/32)	7.5 (5/16)	4.2 (9.2)

POWER WIRING

Input and output power connections are performed through a ten position terminal block, TB1 (see page 2-3 for location).

Figure 2.6 Power Terminal Block Designations (TB1)



- ① Connection for Dynamic Brake Resistors for all models except the 200-230 Volt, 0.37 to 0.75 kW (1/2 to 1 HP) drive. **IMPORTANT:** The [DB Enable] parameter must be enabled for proper operation.
- ② For single phase applications, the AC input line can be connected to any two of the three input terminals R, S, T (L1, L2, L3).
- ③ Bulletin 1305 drives are UL and cUL listed, and CSA certified as a motor overload protective device. An external overload relay is *not* required for single motor applications. **IMPORTANT:** This drive is not intended for use with single phase motors.
- ④ Ground from drive to motor frame must be an independent continuous insulated wire run.

Table 2.B Power Block Terminal (TB1)

Terminals	Description
GRD	Earth Ground
R, S, T (L1, L2, L3)	AC Input Line Terminals
+DC, BRK (or -DC)	Dynamic Brake Option - Refer to instructions included with option
U, V, W (T1, T2, T3)	Motor Connection

Table 2.C Screw Size, Wire Size and Torque Specifications

Terminal	Screw Size	Max./Min. Wire Size mm ² (AWG)	Maximum Torque N-m (lb-ins.)
TB1 (0.37 to 0.75kW/1/2 to 1 HP)	M4	3.5/0.75 (12/18)	0.90 (8)
TB1 (All except above)	M4	4/0.75 (10/18)	1.81 (16)
TB2 (All)	M3.5	1.5/0.20 (14/24)	0.90 (8)

Figure 2.7 Terminal Block (TB2) Designations
 [Input Mode] = “Three Wire” or [Input Mode]=“3 w/2nd Acc.”

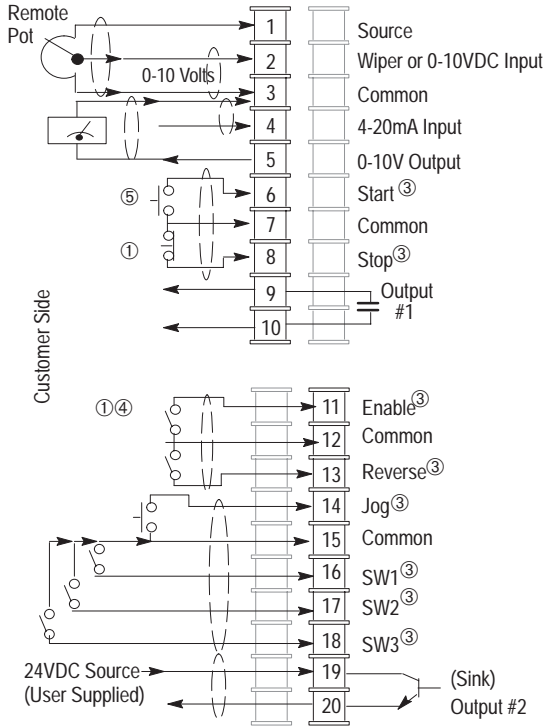
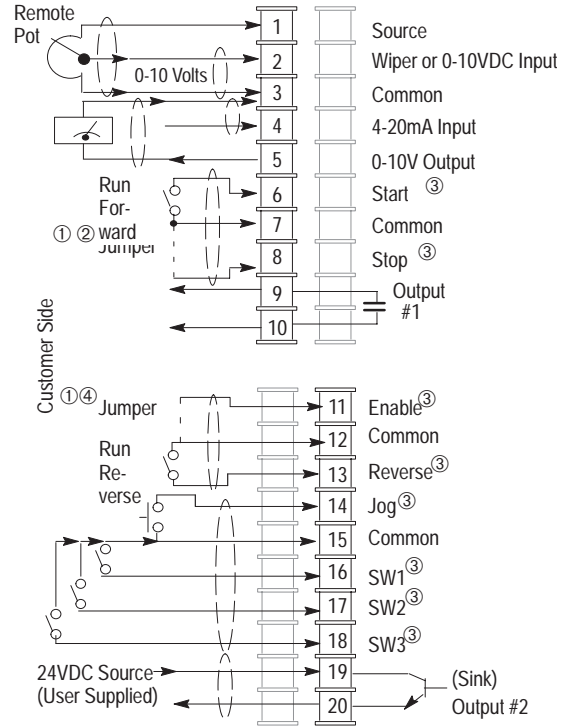


Figure 2.8 Terminal Block (TB2) Designations – Two Wire Control Operation
 [Input Mode]=“Run Fwd/Rev” or [Input Mode]=“Run F/R 2nd A”



See Table 2.F and notes on page 2-21.

Human Interface Module

Chapter Objectives

Chapter 3 describes the various controls and indicators found on the optional Human Interface Module (HIM) of the Bulletin 1305 AC Drive. The material presented in this chapter must be understood to perform the start-up procedure in Chapter 4.

HIM DESCRIPTION

When the drive mounted HIM is supplied, it will be connected as Adapter 1 (see *Adapter* in Chapter 2) and visible from the front of the drive. The HIM can be divided into two sections; Display Panel and Control Panel. The Display Panel provides a means of programming the drive and viewing the various operating parameters. The Control Panel allows different drive functions to be controlled. Refer to Figure 3.1 and the sections that follow for a description of the panels.

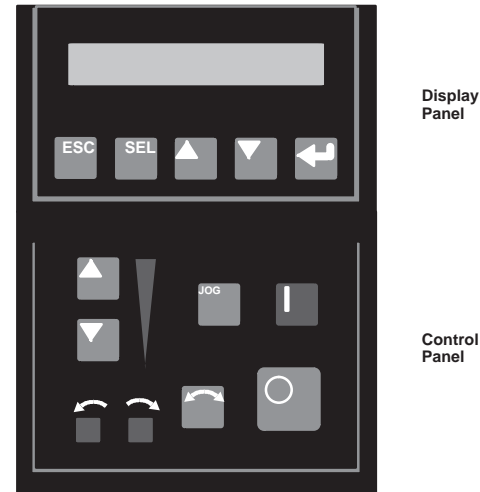
IMPORTANT: The operation of some HIM functions will depend upon drive parameter settings. The default parameter values allow full HIM functionality.

HIM OPERATION

When power is first applied to the drive, the HIM will cycle through a series of displays. These displays will show drive name, HIM ID number and communication status. Upon completion, the Status Display will be shown. This display shows the current status of the drive (i.e. “Stopped,” “Running,” etc.) or any faults that may be present (“Serial Fault,” etc.). If the HIM software is Series A version 3.00 and

above or Series B version 1.01 and above (see back of HIM), the Status Display, Process Display or Password Login menu can be selected as the power-up display or menu. See appropriate sections on the following pages for more information.

Figure 3.1 Human Interface Module



From this display, pressing any one of the five Display Panel keys will cause “Choose Mode” to be displayed. Pressing the Increment or Decrement keys will allow different modes shown in Figure 3.3.

Table A.1 Specifications

Drive	Bulletin 1305 Drive Rated 200-230 V AC					Bulletin 1305 Drives Rated 380-460 V AC					
	-AA02A	-AA03A	-AA04A	-AA08A	-AA12A	-BA01A	-BA02A	-BA03A	-BA04A	-BA06A	-BA09A
OUTPUT RATINGS											
3 Phase Motor Rating kW (HP)	0.37 (1/2)	0.55 (3/4)	0.75 (1)	1.5 (2)	2.2 (3)	0.37 (1/2)	0.55 (3/4)	0.75 (1)	1.5 (2)	2.2 (3)	4.0 (5)
Output Current (A) ①	2.3	3.0	4.5	8.0	12.0 ②	1.3	1.6	2.3	4.0	6.0 ③	9.0 ④
Output Voltage	Adjustable from 0 V to Input Voltage										
Output Frequency (Hz)	0 to 400Hz Programmable										
ScanPort Load	250 mA maximum (all adapters combined)										
INPUT RATINGS											
Input Voltage & Frequency	200/230V Three Phase, 50/60 Hz					380/460V Three Phase, 50/60 Hz					
Operational Range (V)	180-265V, 47-63 Hz					340V-500V, 47-63 Hz					
Input kVA	0.9	1.3	1.7	3.1	4.6	0.9	1.3	1.7	3.1	4.6	7.0
Power Factor (Displacement)	0.8 (Lagging)										
Efficiency (%)	97.5 % (Typical)										
Power Dissipation (W)	27	34	46	76	108	21	27	34	52	73	107

- ① If the **[PWM Frequency]** is set above 4kHz, the output current rating must be derated per the chart on page 5-20.
- ② Output current value listed for 200V input voltage. At 230V input voltage, output current is 9.6A for 3 phase.
- ③ Output current value listed for 380V input voltage. At 415V input voltage, output current is 5.3A. At 460V input voltage, output current is 4.8A.
- ④ Output current value listed for 380V input voltage. At 415V input voltage, output current is 8.4A. At 460V input voltage, output current is 7.6A.