Honeywell

# 3G SmartVFD Frame B Wiring Diagrams and Dimensional Drawings

SPECIFICATION DATA

3G SmartVFD Frame Size B

460 Vac: 15-40 HP

208/230 Vac: 7.5-20HP

## CONTENTS


**SmartVFD Frame B Wiring Diagrams ..... 2**

**Frame B, Fused Disconnect Wiring Diagrams, NEMA 3R Drive Only ..... 2**

**Frame B, 2 Contactor Wiring Diagrams ..... 3**

**Frame B, 3 Contactor Wiring Diagrams ..... 4**

**Frame B, 3 Contactor Auto-bypass Wiring Diagrams ..... 5**

**SmartVFD Frame B Dimensional Diagrams ..... 6**

**Frame B: NEMA1, Disconnect Only and 2 Contactor ..... 6**

**Frame B NEMA 1, 3 Contactor and 3 Contactor with Auto-Bypass ..... 7**

**Frame B NEMA12, Disconnect Only, 2 Contactor, 3 Contactor and 3 Contactor with Auto-Bypass ..... 8**

**Frame B NEMA3R, Drive Only,Disconnect Only,2 Contactor,3 Contactor and 3 Contactor w/Auto-Bypass ..... 9**

**Nomenclature and Applicable Literature ..... 10**

**Accessories ..... 11**

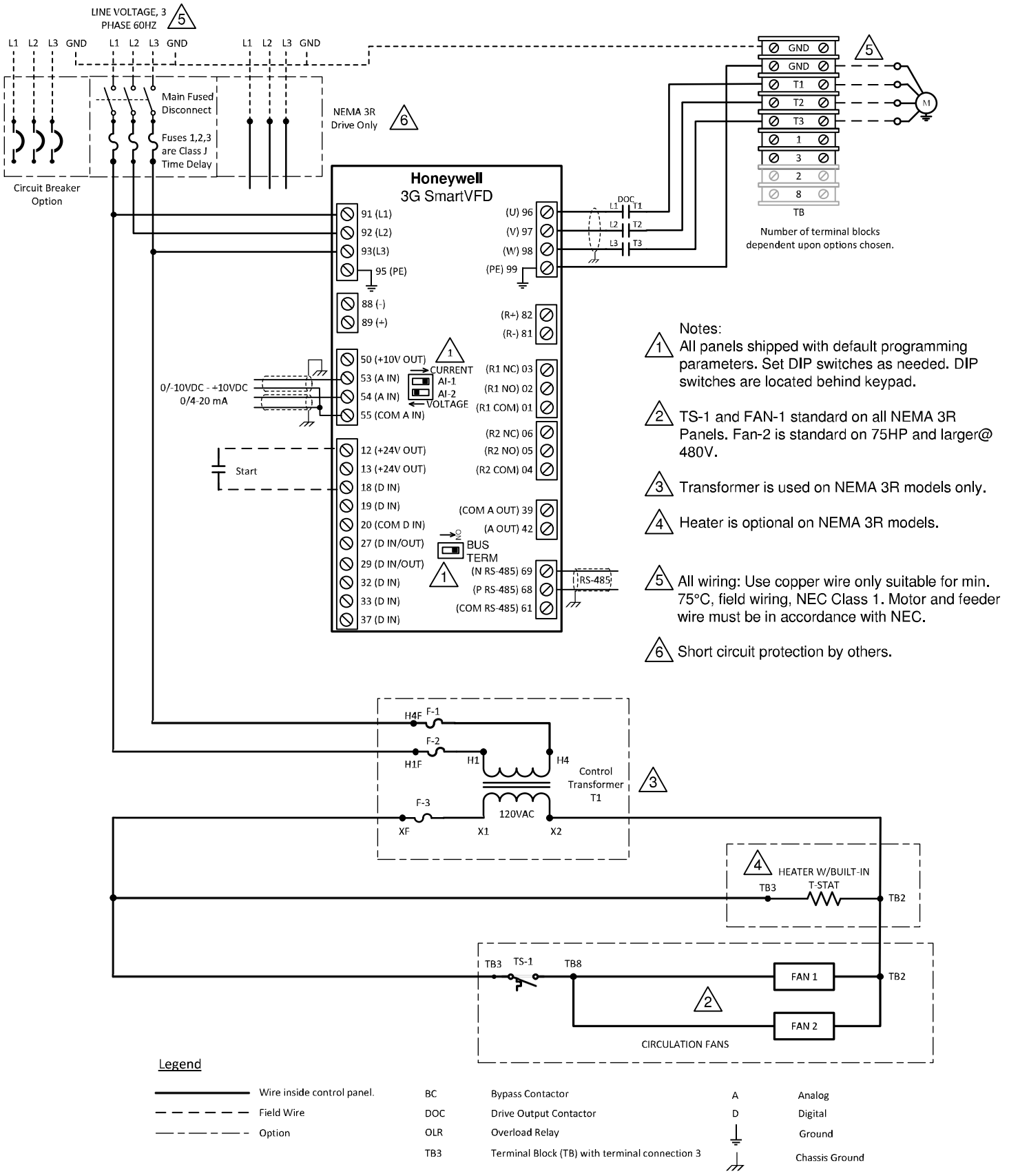
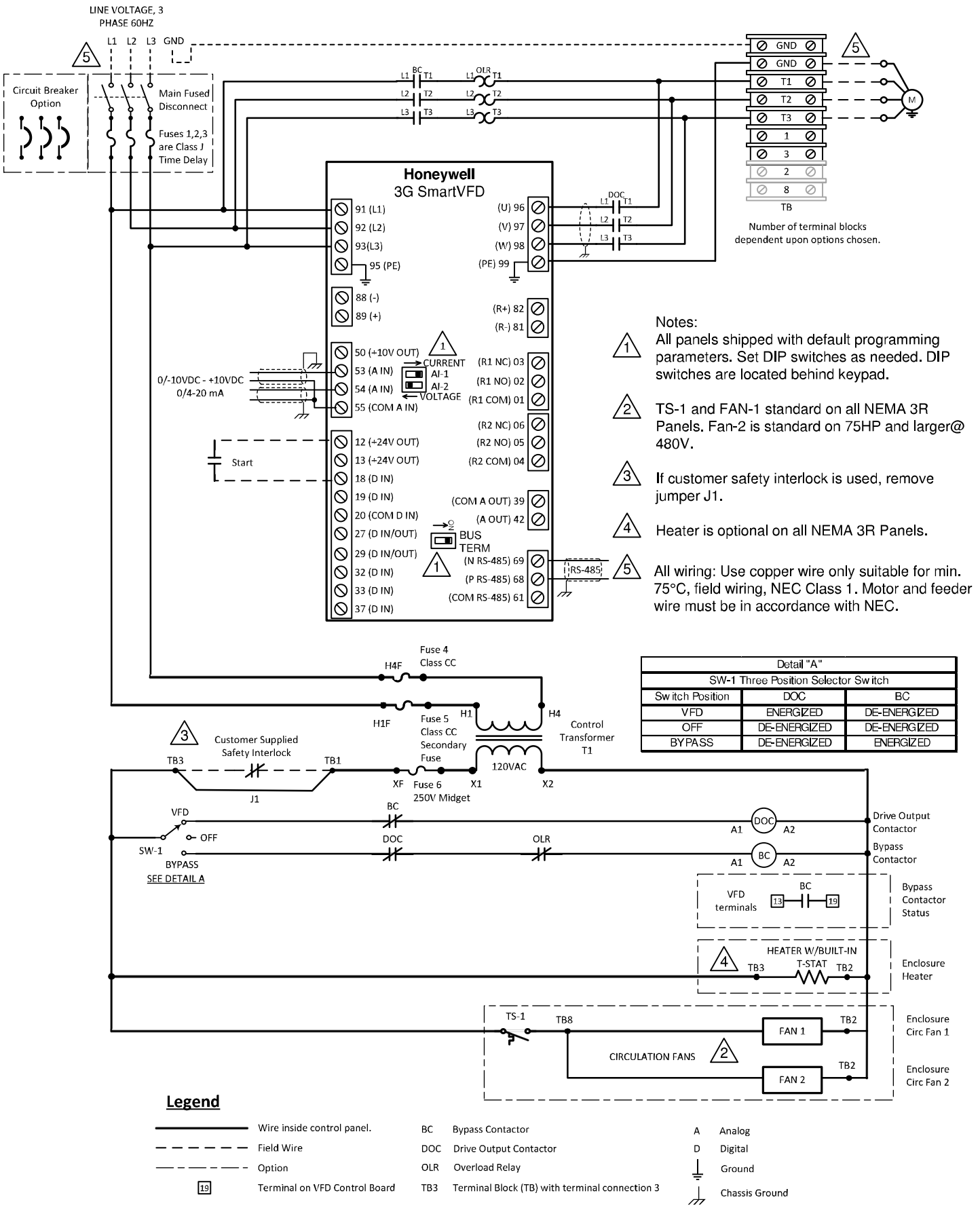
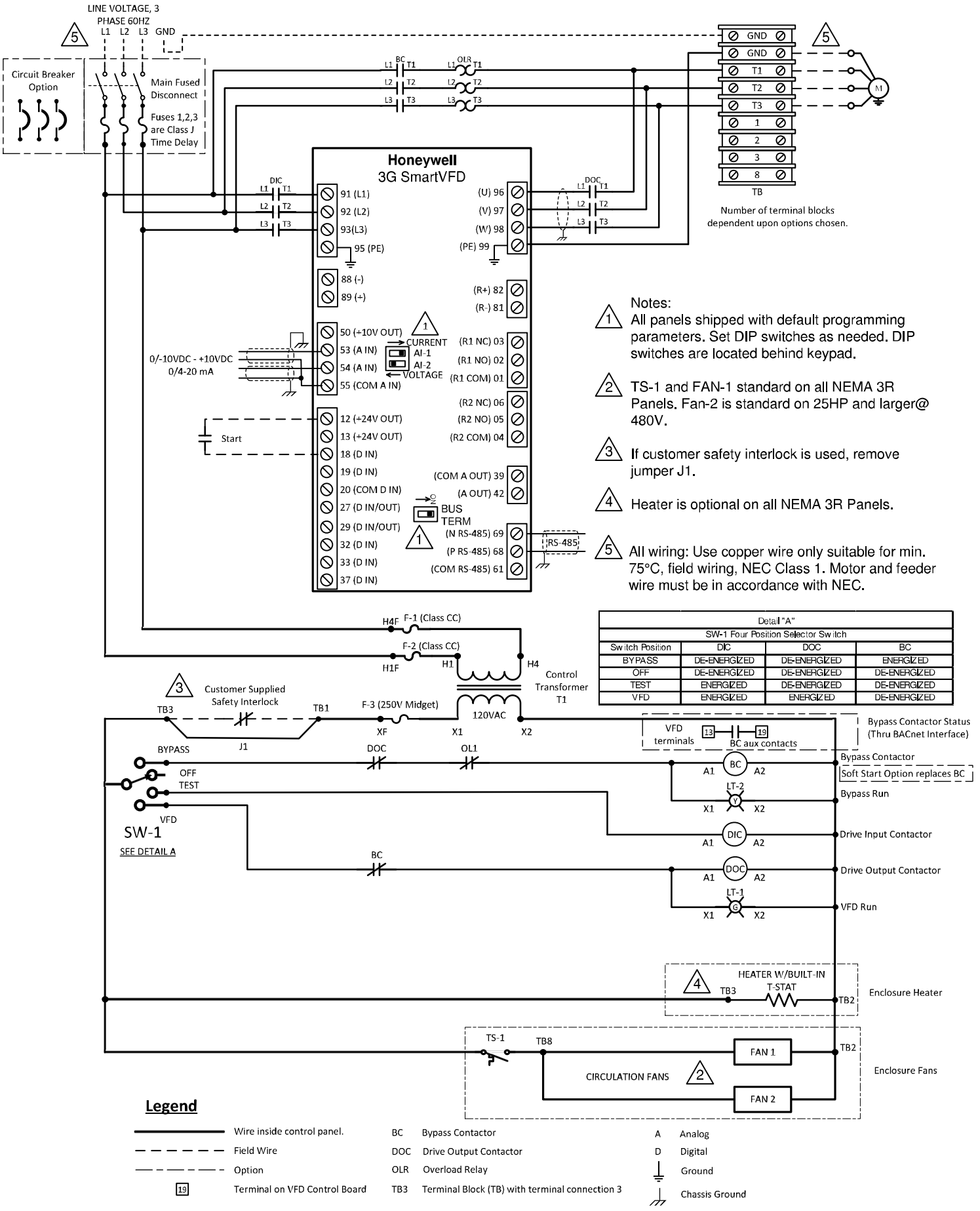



**Fig. 1. Frame B, Fused Disconnect Wiring Diagrams.**




| Detail "A" | | |
|---|---|---|
| SW-1 Three Position Selector Switch | | |
| Switch Position | DOC | BC |
| VFD | ENERGIZED | DE-ENERGIZED |
| OFF | DE-ENERGIZED | DE-ENERGIZED |
| BYPASS | DE-ENERGIZED | ENERGIZED |

**Fig. 2. Frame B, 2 Contactor Wiring Diagram.**




Notes:

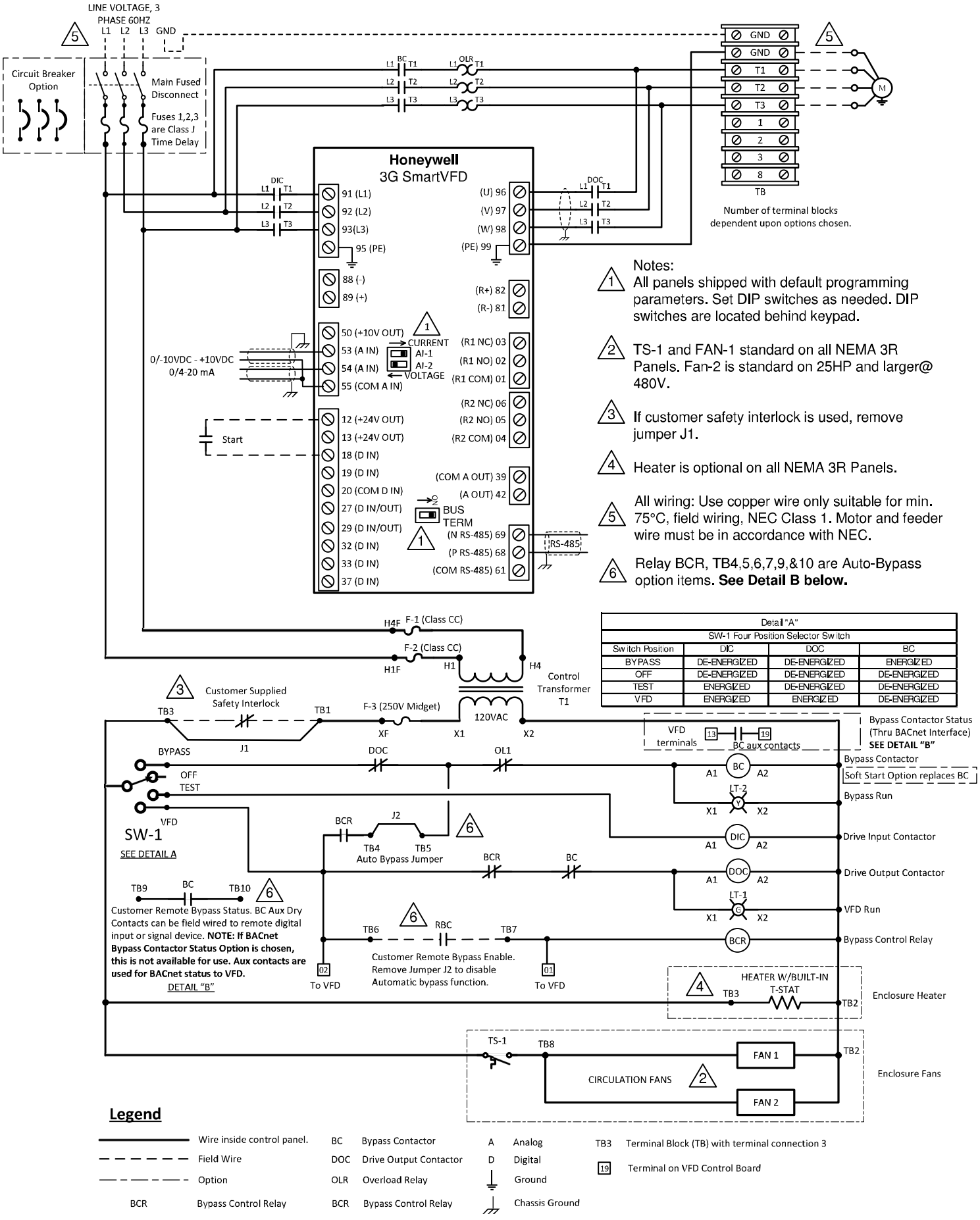
1. All panels shipped with default programming parameters. Set DIP switches as needed. DIP switches are located behind keypad.
2. TS-1 and FAN-1 standard on all NEMA 3R Panels. Fan-2 is standard on 25HP and larger@ 480V.
3. If customer safety interlock is used, remove jumper J1.
4. Heater is optional on all NEMA 3R Panels.
5. All wiring: Use copper wire only suitable for min. 75°C, field wiring, NEC Class 1. Motor and feeder wire must be in accordance with NEC.

| Detail "A" | | | |
|---|---|---|---|
| SW-1 Four Position Selector Switch | | | |
| Switch Position | DIC | DOC | BC |
| BYPASS | DE-ENERGIZED | DE-ENERGIZED | ENERGIZED |
| OFF | DE-ENERGIZED | DE-ENERGIZED | DE-ENERGIZED |
| TEST | ENERGIZED | DE-ENERGIZED | DE-ENERGIZED |
| VFD | ENERGIZED | ENERGIZED | DE-ENERGIZED |

**Legend**

| | | | | | |
|---|---|---|---|---|---|
| Wire inside control panel. | BC | Bypass Contactor | A | Analog |
| Field Wire | DOC | Drive Output Contactor | D | Digital |
| Option | OLR | Overload Relay | | Ground |
| 19 Terminal on VFD Control Board | TB3 | Terminal Block (TB) with terminal connection 3 | | Chassis Ground |

**Fig. 3. Frame B, 3 Contactor Wiring Diagram.**

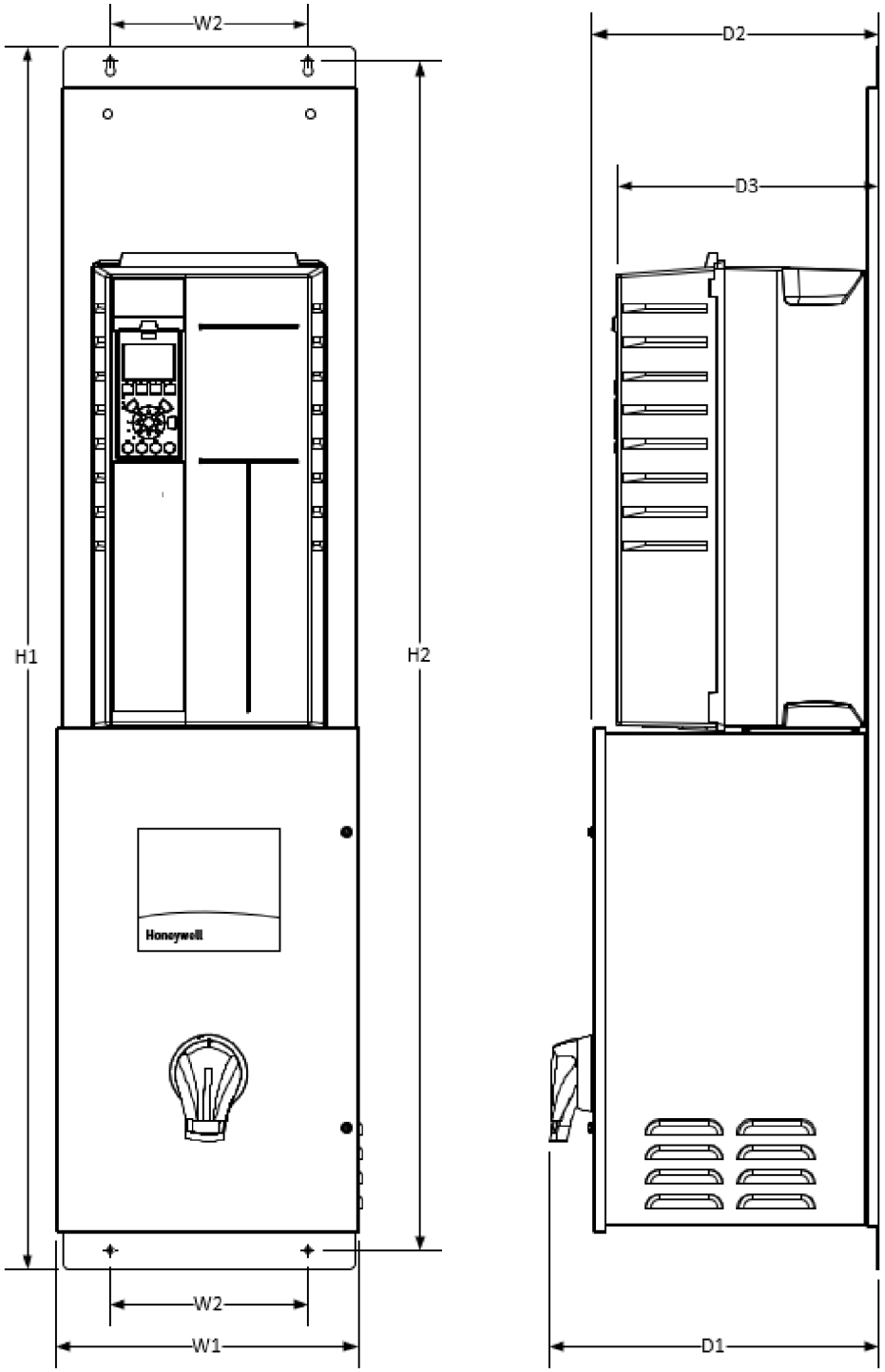



| Detail "A" SW-1 Four Position Selector Switch | | | |
|---|---|---|---|
| Switch Position | DIC | DOC | BC |
| BYPASS | DE-ENERGIZED | DE-ENERGIZED | ENERGIZED |
| OFF | DE-ENERGIZED | DE-ENERGIZED | DE-ENERGIZED |
| TEST | ENERGIZED | DE-ENERGIZED | DE-ENERGIZED |
| VFD | ENERGIZED | ENERGIZED | DE-ENERGIZED |

**Legend**

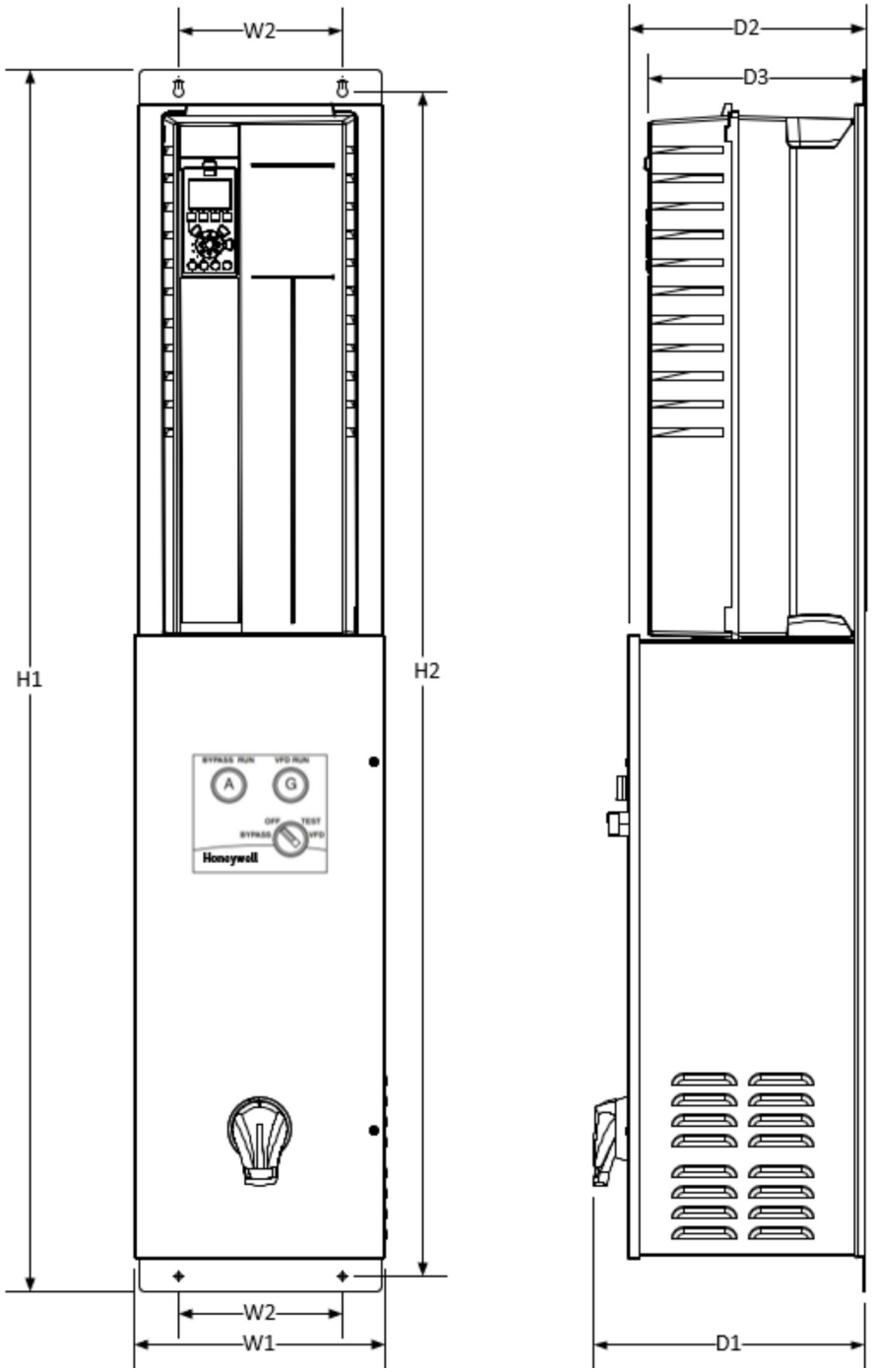
| | | | | | |
|---|---|---|---|---|---|
| Wire inside control panel. | BC | Bypass Contactor | A | Analog | TB3 Terminal Block (TB) with terminal connection 3 |
| Field Wire | DOC | Drive Output Contactor | D | Digital | 19 Terminal on VFD Control Board |
| Option | OLR | Overload Relay | | Ground | |
| BCR Bypass Control Relay | BCR | Bypass Control Relay | | Chassis Ground | |

**Fig. 4. Frame B, 3 Contactor Auto-bypass Wiring Diagrams.**



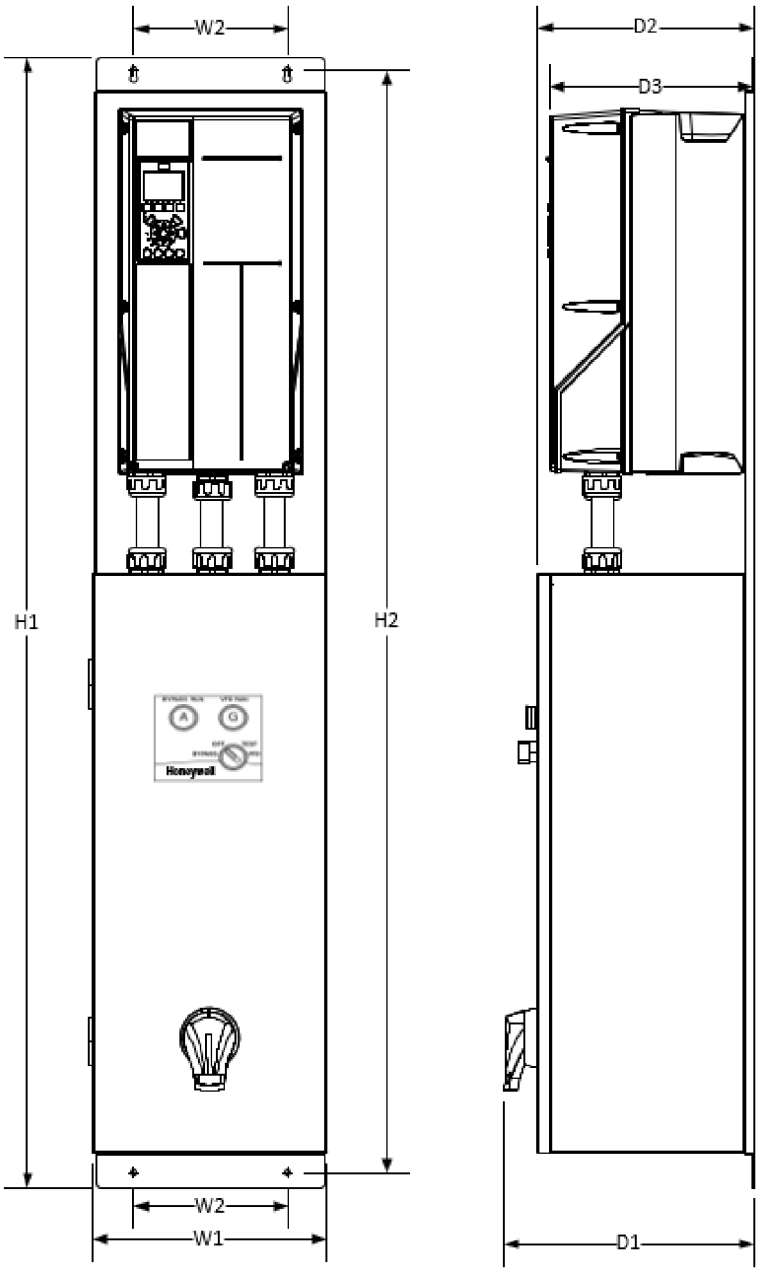

| FRAME SIZE | HP AND VOLTAGE | | CONFIGURATION | DIMENSIONS (inches) | | | | | | | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 208/230 VAC | 460 VAC | | W1 | W2 | H1 | H2 | D1 | D2 | D3 | LBS. |
| B1 | 7.5HP,10HP | 15HP,20HP | DISCONNECT | 12.30 | 8.00 | 49.64 | 48.27 | 13.32 | 11.59 | 10.78 | 74 |
| | 7.5HP,10HP | 15HP,20HP | 2 CONTACTOR | 12.30 | 8.00 | 59.64 | 58.27 | 13.32 | 11.59 | 10.78 | 96 |
| | 15HP | 25HP | DISCONNECT | 12.30 | 8.00 | 49.64 | 48.27 | 13.32 | 11.59 | 10.78 | 75 |
| | 15HP | 25HP | 2 CONTACTOR | 12.30 | 8.00 | 59.64 | 58.27 | 13.32 | 11.59 | 10.78 | 97 |
| B2 | 20HP | 30HP,40HP | DISCONNECT | 12.30 | 8.00 | 49.64 | 48.27 | 13.32 | 11.59 | 10.78 | 99 |
| | 20HP | 30HP,40HP | 2 CONTACTOR | 12.30 | 8.00 | 59.64 | 58.27 | 13.32 | 11.59 | 10.78 | 123 |

**Fig. 5. Frame B: NEMA1, Disconnect Only and 2 Contactor Dimensional Drawings.**



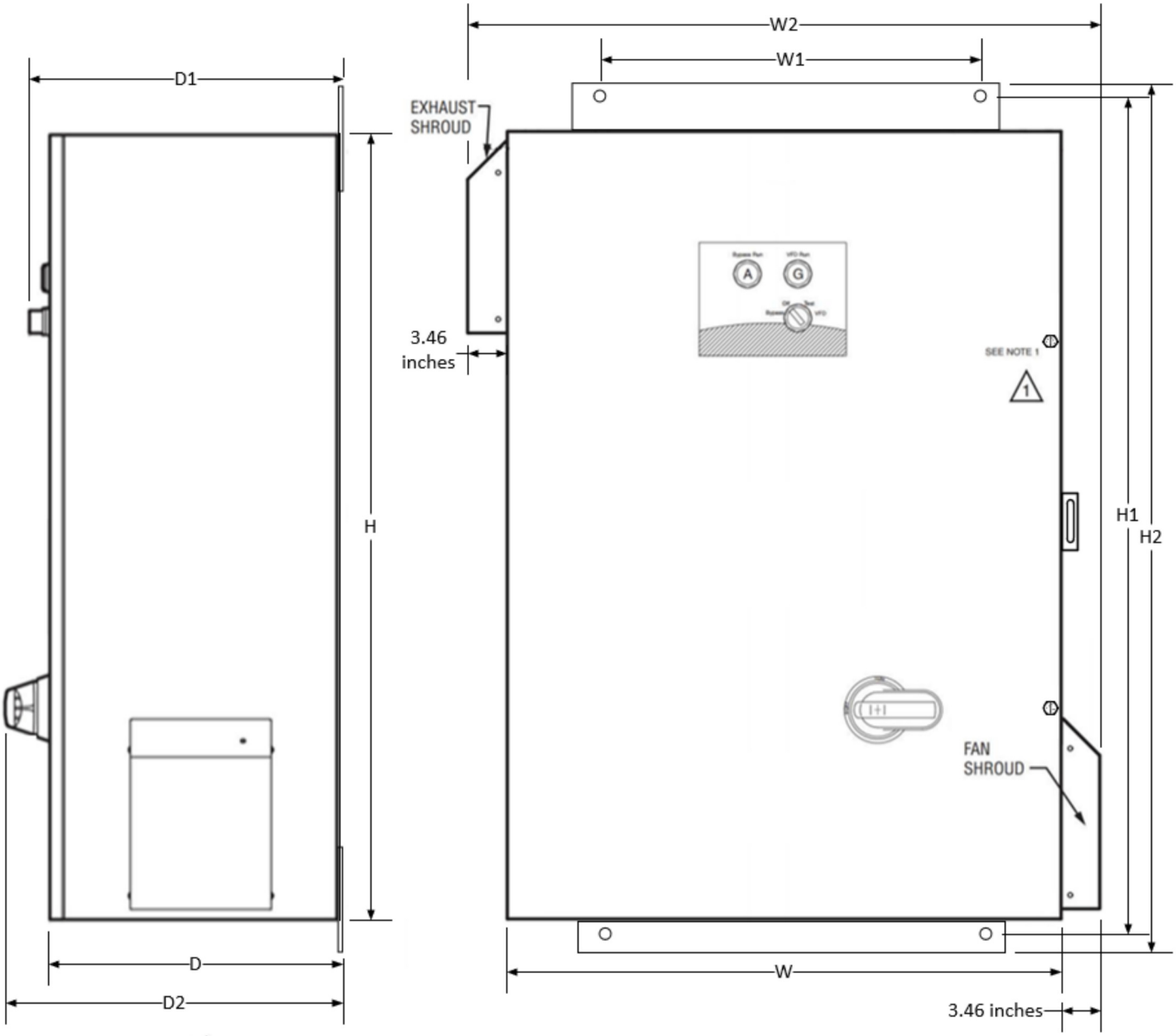

| FRAME SIZE | HP AND VOLTAGE | | CONFIGURATION | DIMENSIONS (inches) | | | | | | | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 208/230 VAC | 460 VAC | | W1 | W2 | H1 | H2 | D1 | D2 | D3 | LBS. |
| B1 | 7.5HP,10HP | 15HP.20HP | 3 CONTACTOR | 12.30 | 8.00 | 59.64 | 58.27 | 13.32 | 11.59 | 10.78 | 98 |
| | 7.5HP,10HP | 15HP,20HP | 3 CONTACTOR with AUTO BYPASS | 12.30 | 8.00 | 59.64 | 58.27 | 13.32 | 11.59 | 10.78 | 99 |
| | 15HP | 25HP | 3 CONTACTOR | 12.30 | 8.00 | 59.64 | 58.27 | 13.32 | 11.59 | 10.78 | 99 |
| | 15HP | 25HP | 3 CONTACTOR with AUTO BYPASS | 12.30 | 8.00 | 59.64 | 58.27 | 13.32 | 11.59 | 10.78 | 101 |
| B2 | 20HP | 30HP,40HP | 3 CONTACTOR | 12.30 | 8.00 | 59.64 | 58.27 | 13.32 | 11.59 | 10.78 | 122 |
| | 20HP | 30HP,40HP | 3 CONTACTOR with AUTO BYPASS | 12.30 | 8.00 | 59.64 | 58.27 | 13.32 | 11.59 | 10.78 | 124 |

**Fig. 6. Frame B NEMA 1, 3 Contactor and 3 Contactor with Auto-Bypass Dimensional Drawings.**




| FRAME SIZE | HP AND VOLTAGE | | CONFIGURATION | DIMENSIONS (inches) | | | | | | | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 208/230 VAC | 460 VAC | | W1 | W2 | H1 | H2 | D1 | D2 | D3 | LBS. |
| B1 | 7.5HP,10HP | 15HP,20HP | DISCONNECT | 12.30 | 8.00 | 58.50 | 57.13 | 13.32 | 11.59 | 10.78 | 79 |
| | 7.5HP,10HP | 15HP,20HP | 2 or 3 CONTACTOR | 12.30 | 8.00 | 58.50 | 57.13 | 13.32 | 11.59 | 10.78 | 103 |
| | 7.5HP,10HP | 15HP,20HP | 3 CONTACTOR with AUTO BYPASS | 12.30 | 8.00 | 58.50 | 57.13 | 13.32 | 11.59 | 10.78 | 104 |
| | 15HP | 25HP | DISCONNECT | 12.30 | 8.00 | 58.50 | 57.13 | 13.32 | 11.59 | 10.78 | 80 |
| | 15HP | 25HP | 2 or 3 CONTACTOR | 12.30 | 8.00 | 58.50 | 57.13 | 13.32 | 11.59 | 10.78 | 106 |
| | 15HP | 25HP | 3 CONTACTOR with AUTO BYPASS | 12.30 | 8.00 | 58.50 | 57.13 | 13.32 | 11.59 | 10.78 | 107 |
| B2 | 20HP | 30HP,40HP | DISCONNECT | 12.30 | 8.00 | 65.19 | 63.82 | 13.32 | 11.59 | 10.78 | 104 |
| | 20HP | 30HP,40HP | 2 or 3 CONTACTOR | 12.30 | 8.00 | 65.19 | 63.82 | 13.32 | 11.59 | 10.78 | 127 |
| | 20HP | 30HP,40HP | 3 CONTACTOR with AUTO BYPASS | 12.30 | 8.00 | 65.19 | 63.82 | 13.32 | 11.59 | 10.78 | 129 |

**Fig. 7. Frame B NEMA12, Disconnect Only, 2 Contactor, 3 Contactor and 3 Contactor with Auto-Bypass.**




1 Qty (2) Latching Screw Bolts for Frame B. Optional locking hasp

| FRAME SIZE | HP AND VOLTAGE | | CONFIGURATION | DIMENSIONS (inches) | | | | | | | | | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 208/230 VAC | 460 VAC | | W | W1 | W2 | H | H1 | H2 | D | D1 | D2 | LBS. |
| BI | 7.5HP,10HP | 15HP,20HP | DRIVE or DISCONNECT | 30.14 | 16.00 | 36.92 | 36.06 | 38.80 | 39.80 | 11.59 | 12.59 | 13.44 | 95 |
| | 7.5HP,10HP | 15HP,20HP | 2 or 3 CONTACTOR | 30.14 | 16.00 | 36.92 | 36.06 | 38.80 | 39.80 | 11.59 | 12.59 | 13.44 | 166 |
| | 7.5HP,10HP | 15HP,20HP | 3 CONTACTOR with AUTO BYPASS | 30.14 | 16.00 | 36.92 | 36.06 | 38.80 | 39.80 | 11.59 | 12.59 | 13.44 | 168 |
| | 15HP | 25HP | DRIVE or DISCONNECT | 30.14 | 16.00 | 36.92 | 36.06 | 38.80 | 39.80 | 11.59 | 12.59 | 13.44 | 95 |
| | 15HP | 25HP | 2 or 3 CONTACTOR | 30.14 | 16.00 | 36.92 | 36.06 | 38.80 | 39.80 | 11.59 | 12.59 | 13.44 | 166 |
| | 15HP | 25HP | 3 CONTACTOR with AUTO BYPASS | 30.14 | 16.00 | 36.92 | 36.06 | 38.80 | 39.80 | 11.59 | 12.59 | 13.44 | 168 |
| B2 | 20HP | 30HP,40HP | DRIVE or DISCONNECT | 30.14 | 16.00 | 36.92 | 36.06 | 38.80 | 39.80 | 11.59 | 12.59 | 13.44 | 104 |
| | 20HP | 30HP,40HP | 2 or 3 CONTACTOR | 30.14 | 16.00 | 36.92 | 36.06 | 38.80 | 39.80 | 11.59 | 12.59 | 13.44 | 175 |
| | 20HP | 30HP,40HP | 3 CONTACTOR with AUTO BYPASS | 30.14 | 16.00 | 36.92 | 36.06 | 38.80 | 39.80 | 11.59 | 12.59 | 13.44 | 177 |

**Fig. 8. Frame B: NEMA3R, Disconnect Only, 2 Contactor, 3 Contactor and 3 Contactor with Auto-Bypass.**

## PRODUCT NOMENCLATURE

**HVFD3D 3 C 0100 G 1 0 0 B**

| Product Family | Note 1 |
|---|---|
| **HVFD3D** | **Honeywell 3G SmartVFD** |
| **HVFD3B** | **Honeywell 3G SmartVFD BYPASS** |
| HVFDSD | Honeywell SmartVFD HVAC |
| HVFDSB | Honeywell SmartVFD BYPASS |

| Input Phase | |
|---|---|
| 3 | Three Phase |

| Nominal Voltage | Note 2 |
|---|---|
| A | 208/230 |
| C | 460 |
| D | 600 Vac |

| Nominal Horsepower | Note 3 |
|---|---|
| 0015 | 1.5 HP |
| 0020 | 2 HP |
| 0030 | 3 HP |
| 0050 | 5 HP |
| 0075 | 7.5 HP |
| 0100 | 10 HP |
| 0150 | 15 HP |
| 0200 | 20 HP |
| 0250 | 25 HP |
| 0300 | 30 HP |
| 0400 | 40 HP |
| 0500 | 50 HP |
| 0600 | 60 HP |
| 0750 | 75 HP |
| 1000 | 100 HP |
| 1250 | 125 HP |
| 1500 | 150 HP |
| 2000 | 200 HP |
| 2500 | 250 HP |

| Application | Note 4 |
|---|---|
| B | Denotes Model number for Bypass Assembly with VFD |
| C | Denotes Drive only, new 3G version |

| Options | |
|---|---|
| 0 | No Special Options |
| 1 | Manual Bypass |
| 2 | Manual Bypass with Soft Start Option |
| 3 | Auto Bypass Option |
| 4 | Auto Bypass and Soft Start Option |

| Contactors | Note 5 |
|---|---|
| 0 | Drive Only |
| 1 | Fused Disconnect Only |
| 2 | Two Contactor Bypass with Fused Disconnect |
| 3 | Three Contactor Bypass with Fused Disconnect |
| 4 | Circuit Breaker Disconnect Only |
| 5 | Two Contactor Bypass w/ Circuit Breaker Disconnect |
| 6 | Three Contactor Bypass w/ Circuit Breaker Disconnect |

| Enclosure Type | |
|---|---|
| 1 | NEMA 1 |
| 2 | NEMA 12 |
| 3 | NEMA 3R |
| 4 | NEMA 3R with Heater |

| Interface | |
|---|---|
| G | Graphical Keypad |

**NOTES**

**1. HVFDSD/HVFDSB denote 2G drives no longer manufactured. Shown for reference only.**

**2. 600 Vac Drives with bypasses are Special Order. Call for assistance and Pricing.**

**3. 1.5HP – 150HP are included in price list. Call for special quote on 200HP and above.**

**4. Model numbers for Bypass application end in "B". VFD only will end in "C". If "Contactors" choice is "0" and "Options" choice is "0" then "Application" must be "C".**

**5. If "Contactors" choice is 0 (Drive only), 1 (Fused Disconnect), or 4 (Circuit Breaker Disconnect) then "Options" choice must be "0". If "Contactors" choice is 2 or 5 (2 Contactor bypass) then "Options" choice must be "1". 2-Contactor bypass is available as manual bypass only.**

## APPLICABLE TECHNICAL LITERATURE

| TABLE | REFERENCE |
|---|---|
| Honeywell 3G SmartVFD Installation and User Guide | 31-00559-01 |
| Honeywell 3G SmartVFD Disconnect Panel and NEMA 3R Drive Only Assemblies | 62-0439-05 |
| Honeywell 3G SmartVFD Two Contactor Bypass Assemblies | 62-0438-05 |
| Honeywell 3G SmartVFD Three Contactor and Three Contactor Auto-Bypass Assemblies | 62-2032-05 |
| Honeywell 3G SmartVFD with Bypass or Disconnect Brochure | 01-10330-1 |

# ACCESSORIES

| TABLE | PART NUMBER |
|---|---|
| Honeywell 3G SmartVFD Lon Card | HVFD3DOPTLON |
| Honeywell 3G SmartVFD Graphic Keypad | HVFD3DKEYPAD |
| Honeywell 3G SmartVFD Real Time Clock Card | HVFD3DOPTRTC |
| Honeywell 3G SmartVFD Ethernet IP Card | HVFD3DOPTETHIP |
| Honeywell 3G SmartVFD BACnet IP Card | HVFD3DOPTBACIP |
| Honeywell 3G SmartVFD Modbus TC/IP Card | HVFD3DOPTMODIP |
| Honeywell 3G SmartVFD Mounting Kit for Keypad on Door | HVFD3DDOORMOUNT |
| Honeywell 3G SmartVFD 3 meter Cable for Door Kit | HVFD3DREMOTE3M |

This product is manufactured by J&L Manufacturing Inc. By using this J&L Manufacturing, Inc. literature, you agree that J&L Manufacturing, Inc. will have no liability for any damages arising out of your use or modification to, the literature. You will defend and indemnify J&L Manufacturing, Inc., its affiliates and subsidiaries, from and against any liability, cost, or damages, including attorneys' fees, arising out of, or resulting from, any modification to the literature by you.

**J&L Manufacturing, Inc.**
PO Box 678 Fuquay Varina, NC
27526
www.HoneywellSmartVFD.com

The Honeywell Trademark is used under license from Honeywell International Inc. Honeywell International Inc. makes no representations or warranties with respect to this product.

63-4381-03
03-2023 printed in the United States

Honeywell