IODA

Input/Output Multi-Function Board

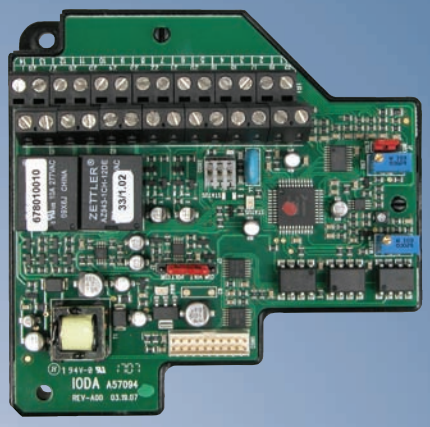
for use with KBDA and KBMK Series Drives

Provides a Variety of Functions, which Include
Preset Frequency, Up/Down Frequency Control, Signal Isolation, Isolated Output voltage for Controlling Auxiliary Devices, Output Relay Contacts, and Open Collector Outputs

Signal Isolator
Provides Isolation Between Non-Isolated Signal Sources and the Drive

RoHS COMPLIANT

TYPICAL APPLICATIONS
• Conveyors • Feeders • HVAC • Pumps



IODA Input/Output Multi-Function Board (Part No. 9668)

STANDARD FEATURES

- **Signal Input Isolation:** Provides isolation between non-isolated signal sources and the drive.
- **Multi-Function Input Terminals:** Seven digital input contacts can be programmed for a variety of functions.
- **Isolated ±5V Power Supply:** Used to power a transducer or to supply voltage for remote potentiometer operation.
- **Multi-Function Output Relays:** Two Multi-Function Output Relays are provided, which can be programmed to indicate various drive operating conditions.
- **Isolated Signal Output:** Two isolated analog signal outputs are provided, which can be used to monitor various drive operating conditions.
- **Multi-Turn Trimpots:** For fine adjustment and attenuation of signal inputs.
- **Potentiometer Operation:** A 5 kΩ external potentiometer can be used in lieu of the Keypad or the Built-In Potentiometer. The Main Speed Potentiometer can be connected for forward, reverse, or bidirectional motor speed control.
- **Multi-Function Open Collector Outputs:** Two Multi-Function Open Collector Outputs are provided, which can be programmed to indicate various drive operating conditions.
- **LEDs:** The green power on LED (PWR) indicates that power is applied to the IODA from the drive. The red status LED (STATUS) provides indication of the IODA operation.
- **Selectable Jumpers:** For voltage or current signal input selection.
- **Barrier Terminal:** All connections to the IODA are made via the barrier terminal block. All terminal block connections of the IODA are isolated from the AC line.
- **Easy Installation:** Uses a snap-in base and two screws (provided) for mounting and a ribbon cable for wiring to the drive.

DESCRIPTION

The IODA Input/Output Multi-Function Board provides a variety of functions which include preset frequency, up/down frequency control, signal isolation, isolated output voltage for controlling auxiliary devices, output relay contacts, and open collector outputs. All of the IODA inputs and outputs are isolated from the AC line. The IODA has a green power on LED (PWR) and a red status LED (STATUS), which provide operational information.

The 2 Isolated Signal Inputs can be used to operate the drive with a non-isolated signal source. The +5 Volts and -5 Volts provide connections for a Remote Main Speed Potentiometer, PLCs, or transducers. These signal inputs allow for forward, reverse, or bidirectional motor speed operation.

The 7 Multi-Function Input Terminals are factory programmed for the most common functions but can also be reprogrammed for a variety of other functions for a specific application. These functions include Preset Frequency, Up/Down Frequency Command, Forward/Stop and Reverse/Stop Command, External Fault, Reset, 2-Wire and 3-Wire Start/Stop.

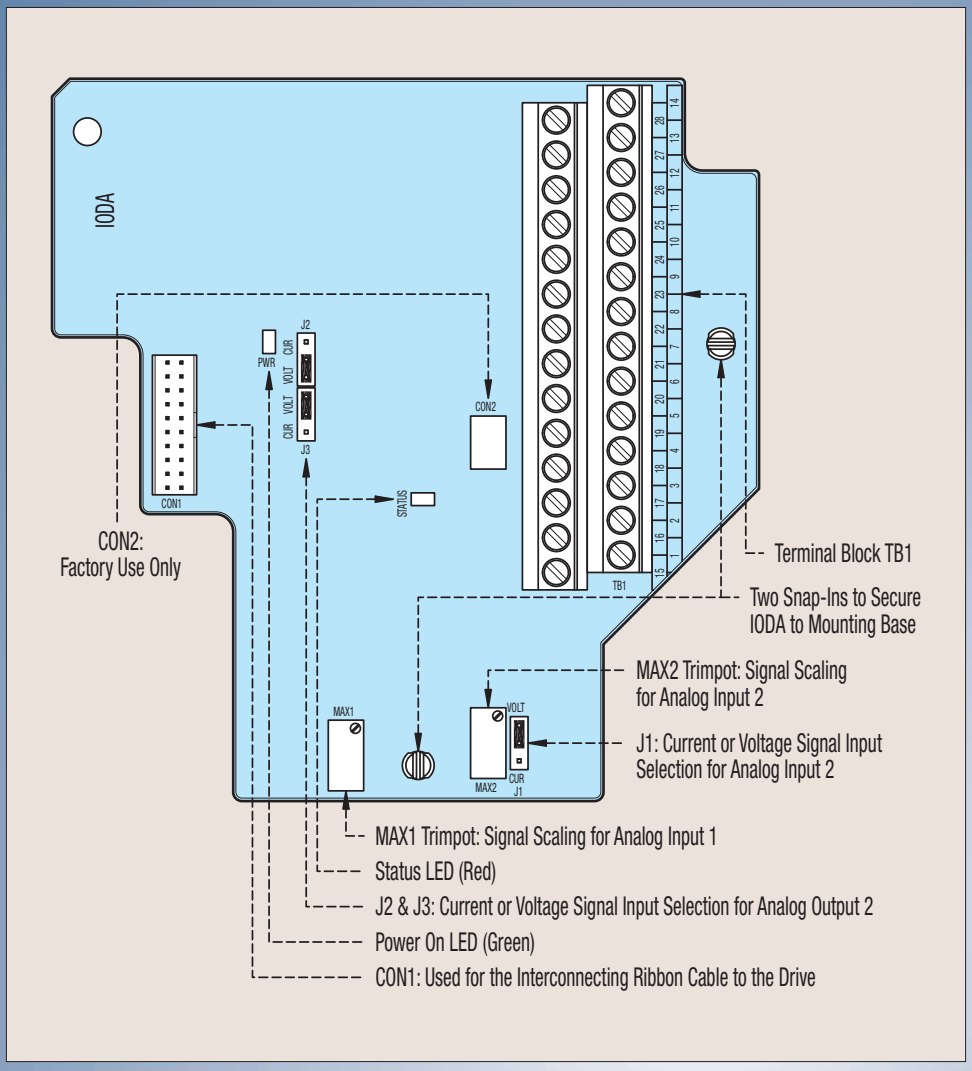
The 2 Multi-Function Output Relays and 2 Multi-Function Open Collector Outputs can be programmed to indicate various drive operating conditions, including Run, Fault, Target Frequency, Frequency Threshold Level, I^2t or I•t Fault, Load Loss, External Fault, and Motor Overload.

The 2 Isolated Signal Outputs (0 – 5 Volt DC, 4 – 20 mA DC, 0 – 20 mA DC) can be used to monitor various drive operating conditions, including Motor Frequency, Set Frequency, Motor Voltage, Bus Voltage, and Motor Current.

The 3 selectable jumpers are used to set the IODA for voltage or current signal input (Analog Input 2) and for voltage or current signal output (Analog Output 2). The 2 Multi-Turn Trimpots provide fine adjustment of signal scaling for both analog inputs. The 2 LEDs provide indication of applied power and status of the IODA operation. The terminal block has 7 "common" terminals, which are all internally connected to facilitate connections.

The IODA is easy to install. On the KBDA Series Drives, the IODA mounts on the drive's PC board with 2 snap-ins (located on the bottom of the mounting base) and 2 screws (provided). On the KBMK Series Drives, the IODA mounts on the drive's PC board with 2 screws (provided). Mounting bases are provided for installation into the drives.

IODA LAYOUT



TERMINAL BLOCK TB1 PIN ASSIGNMENT

Terminal		Function
Multi-Function Input Terminals[1]	1	Preset Frequency Operation[1]
	2	Preset Frequency Operation[1]
	3	Preset Frequency Operation[1]
	4	Reset
	5	Start/Stop
	6	Up Frequency Command
	7	Down Frequency Command
Power Supply[2]	8	Common
	9	+5 Volts
	10	-5 Volts
Multi-Function Outputs[2]	11	Open Collector 1 Output
	12	Common
	13	Open Collector 2 Output
	14	Common
Multi-Function Analog Outputs[2]	15	Analog Output 1 Signal
	16	Common
	17	Analog Output 2 Signal
	18	Common
Analog Inputs[2]	19	Analog Input 1
	20	Common
	21	Analog Input 2
	22	Common
Multi-Function Relays[3]	23	Relay 1: Normally Open Contact
	24	Relay 1: Common
	25	Relay 1: Normally Closed Contact
	26	Relay 2: Normally Open Contact
	27	Relay 2: Common
	28	Relay 2: Normally Closed Contact

Notes: 1. *Multi-Function Input Terminals "1" – "7" can be programmed for: 7 Preset Frequencies*, Up/Down Frequency Command, Accel/Decel 2, Forward/Stop, Reverse/Stop, External Fault, Reset, and 2-Wire/3-Wire Start/Stop.* ***2.*** *Common Terminals "8", "12", "14", "16", "18", "20", "22" are all internally wired together and can be used with any of the Multi-Function Input Terminals "1" – "7".* ***3.*** *Relay 1 Common (Terminal "24") is the contact common only for Relay 1. Relay 2 Common (Terminal "27") is the contact common only for Relay 2.*

**The 7 Preset Frequencies are obtained using a combination of Terminals 1, 2, 1+2, 3, 1+3, 2+3, 1+2+3.*

ELECTRICAL RATINGS

Analog Input "1"

Parameter	Specifications	Factory Setting
Voltage Range (V DC)	0 – ±25	0 – 5
MAX1 Scaling Trimpot Range (V DC)	0 – 24	5

Analog Input "2"

Parameter	Specifications	Factory Setting
Voltage Range (V DC)	0 – ±25	0 – 5
MAX2 Scaling Trimpot Range (V DC)	0 – 24	5
Current Range (mA DC)	0 – 20	—
Input Impedance for Current Mode (Ω)	270	—
PWM (kHz, Duty Cycle)	0.15 – 1, 0 – 100	—

Analog Outputs "1" and "2"

Parameter	Specifications	Factory Setting
Analog Outputs 1 & 2 Voltage Range (V DC)	0 – 5	0 – 5
Analog Output 2 Current Range (mA DC)	0 – 20, 4 – 20	—
Analog Output 2 Impedance for Current Mode (Ω)	150	—

Multi-Function Output Relays

Parameter	Specifications	Factory Setting
Maximum Allowable Load Current (A DC)	2	—

Multi-Function Open Collector Outputs

Parameter	Specifications	Factory Setting
Maximum Voltage (V DC)	24	—
Maximum Load Current (mA DC)	60	0 – 20
Minimum External Resistance (Ω)	400	—

Status Indicator LED

Condition	Red Status LED
Normal Operation	Not Illuminated
Communication Error	Flashes 1 Second On and 1 Second Off
Current Source Trip	Illuminated

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