BALDOR VS DRIVES APPLICATION NOTE

Document Reference: AN060002VS1

Understanding VS1 Digital Inputs

Required Equipment:

VS1SP Inverter
VS1GV Vector
VS1SD Servo

Introduction:
The VS1 Series drives offer enhanced digital inputs that are easy configured for internal or external power supply. Drive control board circuit logic is optically isolated from digital input voltage, thus providing a degree or protection from power surges and immunity from electromagnetic noise. Generally Baldor recommends using electromechanical contacts as digital inputs. Pushbuttons, selector switches, pressure switches, level switches, limit switches and PLC relay outputs are preferred digital input devices. However in those instances when TTL (transistor-to-transistor) attention must be made to the type of devices that provides input to Baldor VS1 drive. DC input TTL logic must have proper +/– polarity, commonly referred as sinking or sourcing input configuration.
Digital inputs have the following characteristics:

- 10-30VDC rated voltage
- leakage current 10µA
- update 16msec

(note: In operating modes with 3 wire momentary digital inputs, a momentary input must be closed for minimum of 50 ms to assure it is recognized as valid.

Procedure:
Wiring diagrams Figures 1 through 4 illustrate typical digital input configuration. Observe +/– polarity when connecting TTL input devices. Connect both negative and positive of external power supply to drive terminal strip to ensure that external power supply voltage is being monitored by drive control circuitry.

Figure 1 below illustrates typical internal drive 24VDC power source connection for active low logic with input device sinking current from drive logic circuit.

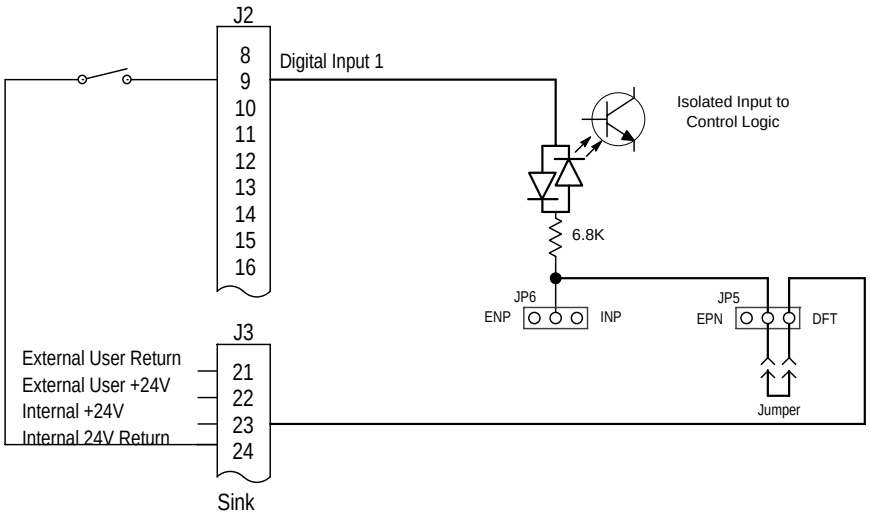

Figure 1

Figure 2 below illustrates typical internal drive 24VDC power source connection for active high logic with input device sourcing current from drive logic circuit.

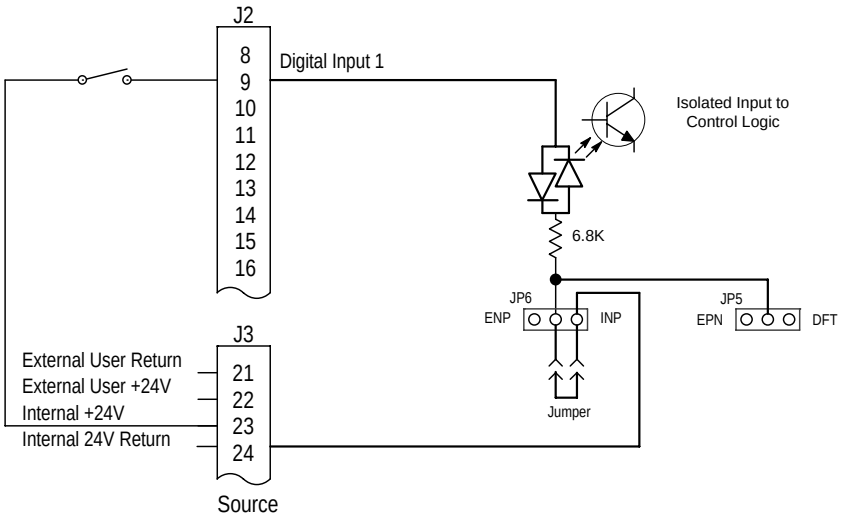

Figure 2

Figure 3 below illustrates typical external 24VDC power source connection for active low logic with input device sinking current from drive logic circuit.

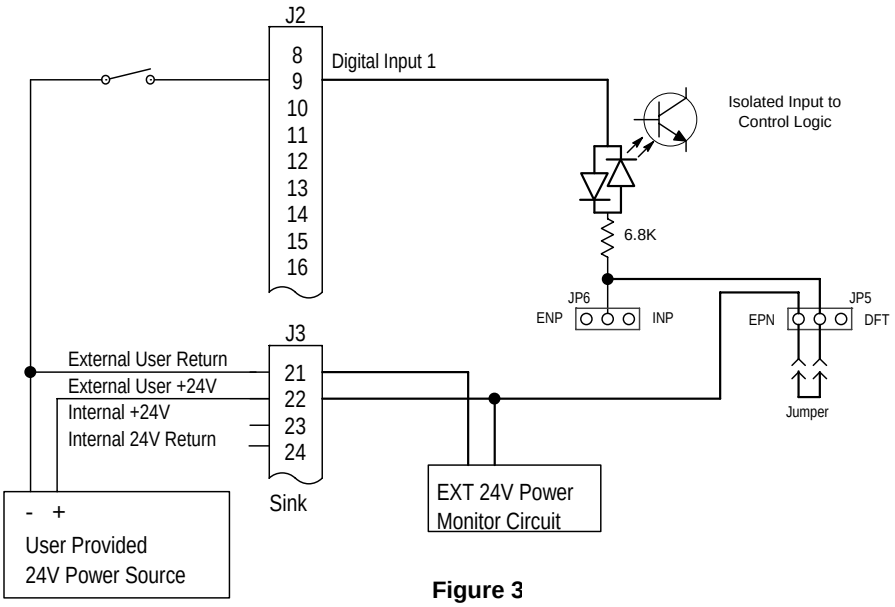

Figure 3

Figure 4 below illustrates typical external 24VDC power source connection for active high logic with input device sourcing current from drive logic circuit.

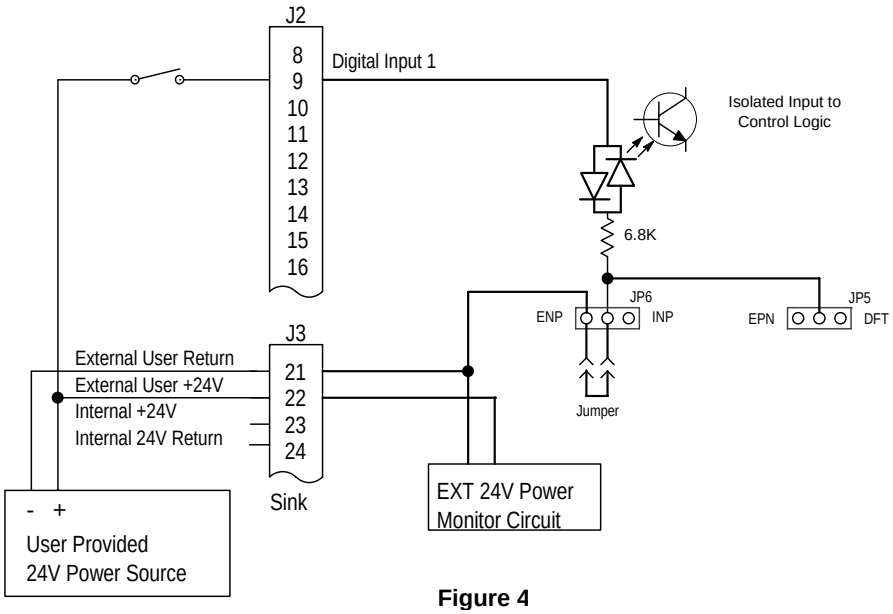
J2
8
9
10
11
12
13
14
15
16
Digital Input 1
Isolated Input to
Control Logic
6.8K
JP6
ENP
INP
JP5
EPN
DFT
Jumper
J3
External User Return
External User +24V
Internal +24V
Internal 24V Return
21
22
23
24
Sink
EXT 24V Power
Monitor Circuit
- +
User Provided
24V Power Source

Figure 4