

iVPI® Direct Input Board



Vitally Connecting Field Devices to the Interlocking Processor

The Integrated Vital Processor Interlocking (iVPI®) Direct Input Boards connect vital field devices – such as switch machines, track circuits, and line circuits – to the interlocking processor with precision and reliability. A proprietary time-interval sampling technique safeguards inputs against false indications from induced AC frequencies, ensuring accuracy and safety in vital signaling applications.



KB SIGNALING™

iVPI® Direct Input Board

Key Benefits

- Diagnostic and input status indications
- LED indicators display board health and activity statuses
- Input-specific LED illuminates when on
- Activity LED flashes every second to indicate data has been written to the DI Board
- Health LED displays one of three possible statuses: green (OK), amber (warning), and red (error)
- AREMA-compliant
- Includes Vitally isolated input circuits, isolated from ground and power using techniques that meet AREMA isolation requirements
- Operates in AREMA Wayside Class C and D environments with operating temperatures ranging from -40°C to +70°C without the need for heating or cooling devices

Customer Benefits

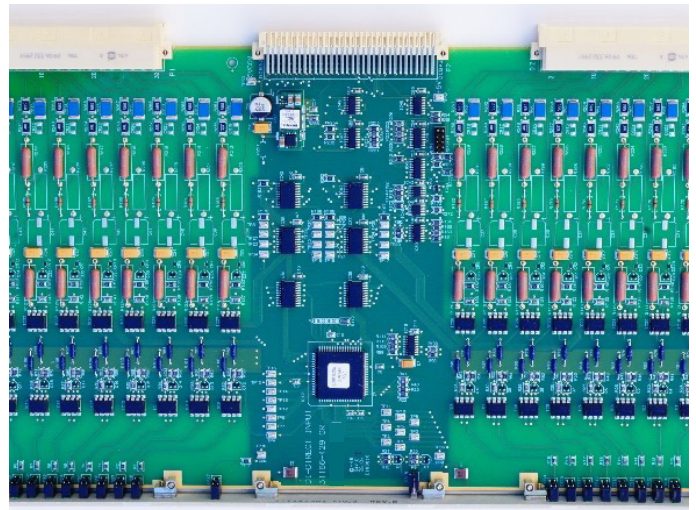
Vital Inputs for DC Current Sensing

Two types of Vital DI boards are available to address systems which operate with either nominal 12VDC (9-16 VDC) systems or nominal 28VDC (24-34 VDC) systems. An Input is ON with current flow from PT+ to PT- terminals (polarity sensitive). Each board is capable of up to 16 inputs.

Refer to KB Signaling manual series P2521 for additional information.

General Description

The Vital Direct Input (DI) Board supports two-wire field device connections for each input, allowing field devices with opposite polarity to form a bipolar input circuit – commonly used in switch machine point indication and line circuits. The iVPI® DI Board has sixteen isolated Vital inputs per board for DC input current sensing. Each input circuit is Vitally isolated from other Vital inputs, ground and logic power, and includes two connections to field equipment.



Electronic Revision Configuration

Improved revision configuration functionality reduces maintenance effort. All iVPI printed circuit boards are programmed with configuration data during manufacturing. Vital board hardware descriptions, part and serial numbers, and revisions are accessible using either the Maintenance Management System (MMS) report function or using the VSP2 Board Ethernet web browser.

iVPI® Direct Input Board

Board Edge Connectors

The Vital DI Board is equipped with three board edge connectors to seamlessly interface with iVPI® system bus and input port wiring:

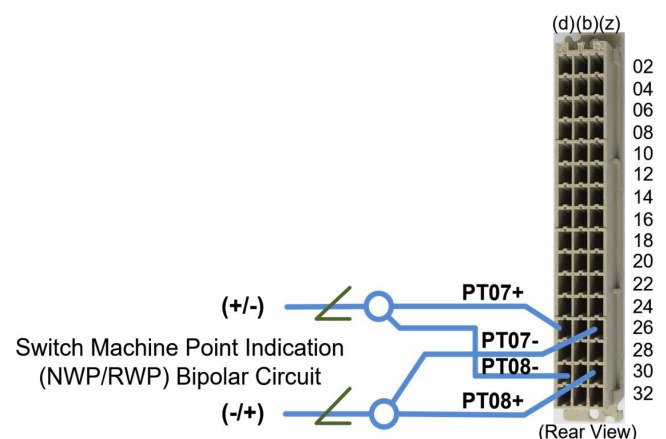
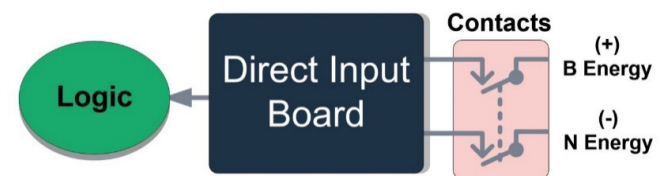
- P1 (upper connector) is a 32-pin connector with wiring to ports 1-8
- P2 (middle connector) is a 160-pin connector that interfaces to the iVPI system bus
- P3 (lower connector) is a 32-pin connection with wiring to ports 9-16

For ease of wiring the P1 and P3 connectors have manufactured column and row markings matching the pin assignments for the group energies and output ports as summarized below.

Connector	P1		P3	
Pin	d	z	d	z
2	PT01+	PT01-	PT09+	PT09-
4	No Wire	No Wire	No Wire	No Wire
6	PT02-	PT02+	PT10-	PT10+
8	No Wire	No Wire	No Wire	No Wire
10	PT03+	PT03-	PT11+	PT11-
12	No Wire	No Wire	No Wire	No Wire
14	PT04-	PT04+	PT12-	PT12+
16	No Wire	No Wire	No Wire	No Wire
18	PT05+	PT05-	PT13+	PT13-
20	No Wire	No Wire	No Wire	No Wire
22	PT06-	PT06+	PT14-	PT14+
24	No Wire	No Wire	No Wire	No Wire
26	PT07+	PT07-	PT15+	PT15-
28	No Wire	No Wire	No Wire	No Wire
30	PT08-	PT08+	PT16-	PT16+
32	No Wire	No Wire	No Wire	No Wire

Ordering and Board Specification Information

Specification	P/N 31166-429	
	-03	-04
Maximum number of boards per iVPI System	20	
Board slots required	1	
Number of ports per board	16	
Nominal board logic current supply	100 mA	
Maximum input voltage per port	34 VDC	16 VDC
Minimum output voltage	24 VDC	9 VDC
Input current	12.8 – 33.0 mA	
Isolation between inputs	> 3000 Vrms	
Equipped with low-pass filter	Yes	
Supports bi-polar applications	Yes	



Contact your KB Signaling Business Development Manager
Call 1-800-825-7090, or Email us at kbsignaling.techsupport@knorr-bremse.com for more information today.

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