

DeltaV™ Signal Conditioning Cards for Allen Bradley® PLC-5® / 1771 I/O

- No re-wiring of PLC I/O
- Modular design
- Lowers overall termination footprint
- Significant labor and work reduction
- Easier and faster troubleshooting and maintenance
- Significant cost reduction
- Easy AI transmitter upgrades



Introduction

The DeltaV™ Signal Conditioning Cards for Rockwell Automation, Allen Bradley®, PLC-5® / 1771 I/O Solutions provide a fast, easy and reliable connection from field device 1771 swing-arms to DeltaV M-series simplex and redundant, high density Series 2 Plus traditional I/O cards.

The modular design of the Signal Conditioning Cards for 1771 I/O further helps to lower the overall termination footprint with flexible mounting capabilities.

Ribbon cable connectors will easily connect the Signal Conditioning Cards for 1771 I/O to high density M-series Plus traditional I/O cards with mass-connection I/O terminal blocks.

Benefits

No re-wiring of the PLC I/O; Fast and easy way to connect.

The DeltaV M-series simplex and redundant high density traditional I/O cards can be easily connected to the Signal Conditioning Cards for 1771 I/O within seconds.

No tools are necessary to connect the ribbon cables, so you can significantly reduce labor costs by eliminating additional cabinet wiring.

The modular designed Signal Conditioning Cards and mounting panels for 1771 I/O will fit in to the same envelope as the OEM 1771 I/O chassis.

Optimization of space. The DeltaV Signal Conditioning Cards for 1771 I/O offer significant space advantages by integrating all needed wiring components and signal conditioning circuitry on one assembly.

Significant labor work reduction. No need for re-wiring of the 16-Channel 1771 I/O swing-arms to DeltaV I/O terminal blocks. Also, there is no need to add additional signal conditioning for compatibility with the DeltaV DCS.

Easier and faster troubleshooting and maintenance.

System Technicians can access the field wiring on the OEM swing-arms with multi-meters during the troubleshooting process.

Significant cost reduction. Since off-the-shelf Round Ribbon cables can be used inside a cabinet with a maximum length of 10.0 m, significant cost reductions can be achieved.

Easy AI transmitter upgrades. Take advantage of DCS functionality by updating 4-20mA AI devices to include HART® functionality. This can be done over time with a simple configuration change.

Product Description

AI 4-20mA Signal Conditioning Card (S.E.)



The **Analog Input (AI) 4-20mA Single-Ended Signal Conditioning Card for 1771 I/O** connects to the simplex or redundant M-series Plus AI, 16-Channel cards by using the 48-pin Round Ribbon Cable.

The 21-position OEM contact 1771-WG/WH swing-arm is removed from the OEM 16-channel, AI, 4-20mA single-Ended (S.E), 1771-IFE card and placed on the AI 4-20mA Signal Conditioning Card.

The Signal Conditioning Card has three connectors; swing-arm attachment point on the front which provides secure mechanical and electrical connections and two 24-pin (48-pins total) ribbon cable connectors on the bottom, which is used to connect, via ribbon cables, to the 16-channel DeltaV AI card Plus mass-connection terminal block.

Up to 16 Analog, 4-20mA non-HART® based Field devices can be connected to the OEM 16-channel AI swing-arm by screw terminals. The 2- and 4-wire single-ended, field-powered, non-isolated channel-to-channel signals are supported. Field power from the DeltaV AI card is not supported.

Updating transmitters to include HART functionality is very easy with this solution. No DeltaV hardware needs to be changed when the legacy non-HART transmitters are upgraded to HART; just change the channel type from non-HART to HART in the DeltaV Explorer.

Please refer to the **Cross-Reference List** for your application.

DI 24 VDC Signal Conditioning Card (Non-isolated)



The **Discrete Input (DI) 24 VDC non-isolated Signal Conditioning Card for 1771 I/O** connects to the simplex or redundant M-series Plus DI, 32-Channel, 24 VDC, Dry Contact card by using two of the 20-pin standard Round Ribbon Cables; one for each of the two 16-channel Signal Conditioning Cards for 1771 I/O.

The 21-position OEM contact 1771-WH swing-arm is removed from the OEM 16-channel, DI, 24 VDC, 1771-IBD card and placed on the 16-channel DI 24 VDC, non-isolated, Signal Conditioning Card.

The Signal Conditioning Card has two connectors; swing-arm attachment point on the front which provides secure mechanical and electrical connections and a 20-pin ribbon cable connector on the bottom, which is used to connect, via a ribbon cable, to the DeltaV DI card Plus mass-connection terminal block.

Up to 16 Discrete Input 24 VDC based field devices can be connected to the OEM 16-channel DI swing-arm, by screw terminals. Non-isolated channel-to-channel signals are supported.

Each M-series Plus, DI, 32-Channel, 24 VDC, Dry Contact card supports two 16-Channel swing-arms from the 1771-IBD/IAD DI cards.

The M-series Plus DI, 32-Channel, 24 VDC, Dry Contact card has one parameter in the Explorer view for the cable connection. When this Parameter is turned on, DeltaV Diagnostics will mark the status of affected signals.

Please refer to the **Cross-Reference List** for your application.

DO 24 VDC Signal Conditioning Card (Non-isolated)



The Discrete Output (DO) 24 VDC non-isolated Signal Conditioning Card for 1771 I/O connects to the simplex or redundant M-series Plus DO, 32-Channel, 24 VDC, High-Side card by using two of the 20-pin standard Round Ribbon Cables; one for each of the two 16-channel Signal Conditioning Cards for 1771 I/O. The 21-position OEM contact 1771-WH swing-arm is removed from the OEM 16-channel, DO, 24 VDC, 1771-OBD card and placed on the 16-channel DO 24 VDC, non-isolated, Signal Conditioning Card.

The Signal Conditioning Card has two connectors; swing-arm attachment point on the front which provides secure mechanical and electrical connections and a 20-pin ribbon cable connector on the bottom, which is used to connect, via a ribbon cable, to the DeltaV DO card Plus mass-connection terminal block.

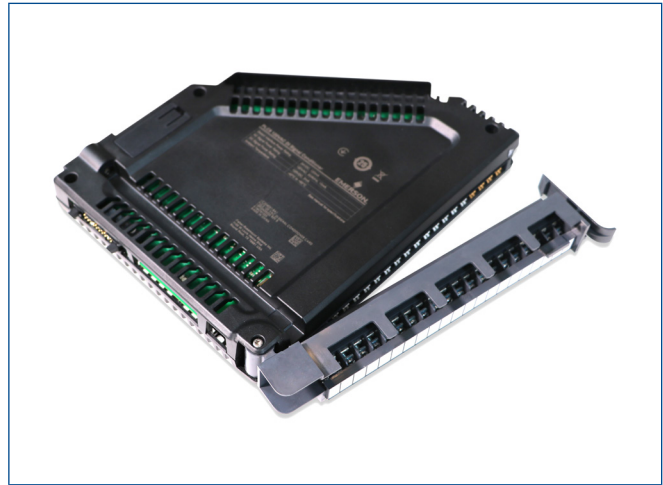
Up to 16 Discrete Output 24 VDC based field devices can be connected to the OEM 16-channel DO swing-arm, by screw terminals. Non-isolated channel-to-channel signals are supported.

Each M-series Plus, DO, 32-Channel, 24 VDC, High-Side card supports two 16-Channel swing-arms from the 1771-OBD/OAD DO cards.

The M-series Plus DO, 32-Channel, 24 VDC, High-Side card has one parameter in the Explorer view for the cable connection. When this Parameter is turned on, DeltaV Diagnostics will mark the status of affected signals.

Please refer to the **Cross-Reference List** for your application.

DI 120 VAC / VDC Signal Conditioning Card (Non-isolated)



The Discrete Input (DI) 120 VAC/VDC non-isolated Signal Conditioning Card for 1771 I/O connects to the simplex or redundant M-series Plus DI, 32-Channel, 24 VDC, Dry Contact card by using two of the 20-pin standard Round Ribbon Cables; one for each of the two 16-channel Signal Conditioning Cards for 1771 I/O. The 21-position OEM contact 1771-WH swing-arm is removed from the OEM 16-channel, DI, 120 VAC/VDC, 1771-IAD card and placed on the 16-channel DI, non-isolated, Signal Conditioning Card.

The Signal Conditioning Card has two connectors; swing-arm attachment point on the front which provides secure mechanical and electrical connections and a 20-pin ribbon cable connector on the bottom, which is used to connect, via a ribbon cable, to the DeltaV DI card Plus mass-connection terminal block.

A filtering jumper is present to select the input delay at 5msec (default) or 20msec.

Up to 16 Discrete Input 120 VAC/VDC based field devices can be connected to the OEM 16-channel DI swing-arm, by screw terminals. Non-isolated channel-to-channel signals are supported.

Each M-series Plus, DI, 32-Channel, 24 VDC, Dry Contact card supports two 16-Channel swing-arms from the 1771-IAD/IBD DI cards.

The M-series Plus DI, 32-Channel, 24 VDC, Dry Contact card has one parameter in the Explorer view for the cable connection. When this Parameter is turned on, DeltaV Diagnostics will mark the status of affected signals.

Please refer to the **Cross-Reference List** for your application.

DO 120 VAC Signal Conditioning Card (Non-isolated)



The **Discrete Output (DO) 120 VAC non-isolated Signal Conditioning Card for 1771 I/O** connects to the simplex or redundant M-series Plus DO, 32-Channel, 24 VDC, High-Side card by using two of the 20-pin standard Round Ribbon Cables; one for each of the two 16-channel Signal Conditioning Cards for 1771 I/O.

The 21-position OEM contact 1771-WH swing-arm is removed from the OEM 16-channel, DO, 120 VAC, 1771-OAD card and placed on the 16-channel DO, non-isolated, Signal Conditioning Card.

The Signal Conditioning Card has two connectors; swing-arm attachment point on the front which provides secure mechanical and electrical connections and a 20-pin ribbon cable connector on the bottom, which is used to connect, via a ribbon cable, to the DeltaV DO card Plus mass-connection terminal block.

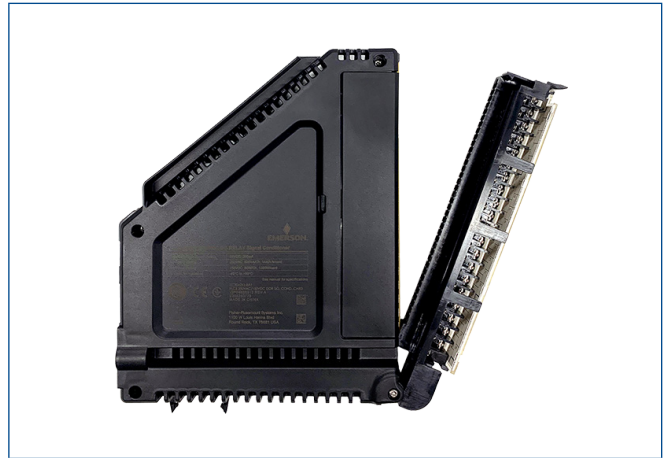
Up to 16 Discrete Output 120 VAC based field devices can be connected to the OEM 16-channel DO swing-arm, by screw terminals. Non-isolated channel-to-channel signals are supported.

Each M-series Plus, DO, 32-Channel, 24 VDC, High-Side card supports two 16-Channel swing-arms from the 1771-OAD/OBD DO cards.

The M-series Plus DO, 32-Channel, 24 VDC, High-Side card has one parameter in the Explorer view for the cable connection. When this Parameter is turned on, DeltaV Diagnostics will mark the status of affected signal.

Please refer to the **Cross-Reference** List for your application.

DO-Relay 250 VAC / 150 VDC Signal Conditioning Card (Isolated)



The Discrete Output - Relay (DO-R) 24-250 VAC/24-150 VDC isolated Signal Conditioning Card for 1771 I/O

connects to the simplex or redundant M-series Plus DO, 32-Channel, 24 VDC, High-Side card by using two of the 20-pin standard Round Ribbon Cables; one for each of the two 16-channel Signal Conditioning Cards for 1771 I/O.

The 40-position OEM contact 1771-WN swing-arm is removed from the OEM 16-channel, DO, 250 VAC/150 VDC, 1771-OW16 card and placed on the 16-channel DO-R, isolated, Signal Conditioning Card.

The Signal Conditioning Card has two connectors; swing-arm attachment point on the front which provides secure mechanical and electrical connections and a 20-pin ribbon cable connector on the bottom, which is used to connect, via a ribbon cable, to the DeltaV DO Plus card mass-connection terminal block.

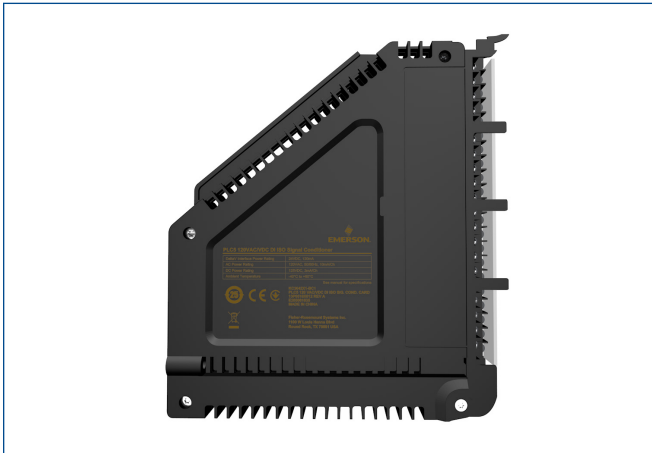
Up to 16 Discrete Output 250 VAC/150 VDC based field devices can be connected to the OEM 16-channel DO-R swing-arm, by screw terminals. Channels #1-8 are Normally-Open (NO) and Channels #9-16 are selectable (NO/NC). Isolated channel-to-channel signals are supported.

Each M-series Plus, DO, 32-Channel, 24 VDC, High-Side card supports two 16-Channel swing-arms from the 1771-OW16 DO-relay cards.

The M-series Plus DO, 32-Channel, 24 VDC, High-Side card has one parameter in the Explorer view for the cable connection. When this Parameter is turned on, DeltaV Diagnostics will mark the status of affected signal.

Please refer to the **Cross-Reference** List for your application.

DI 120 VAC / VDC Signal Conditioning Card (Isolated)



The Discrete Input (DI) 120 VAC/VDC isolated Signal Conditioning Card for 1771 I/O connects to the simplex or redundant M-series Plus DI, 32-Channel, 24 VDC, Dry Contact card by using two of the 20-pin standard Round Ribbon Cables; one for each of the two 16-channel Signal Conditioning Cards for 1771 I/O.

The 40-position OEM contact 1771-WN swing-arm is removed from the OEM 16-channel, DI, 120 VAC/VDC, 1771-ID16 card and placed on the 16-channel DI, isolated, Signal Conditioning Card.

The Signal Conditioning Card has two connectors; swing-arm attachment point on the front which provides secure mechanical and electrical connections and a 20-pin ribbon cable connector on the bottom, which is used to connect, via a ribbon cable, to the DeltaV DI card Plus mass-connection terminal block.

Two filtering jumpers are present to select the input delay at 5msec or 20msec (default).

Up to 16 Discrete Input 120 VAC/VDC based field devices can be connected to the OEM 16-channel DI swing-arm, by screw terminals. Isolated channel-to-channel signals are supported.

Each M-series Plus, DI, 32-Channel, 24 VDC, Dry Contact card supports two 16-Channel swing-arms from the 1771-ID16 DI cards.

The M-series Plus DI, 32-Channel, 24 VDC, Dry Contact card has one parameter in the Explorer view for the cable connection. When this Parameter is turned on, DeltaV Diagnostics will mark the status of affected signals.

Please refer to the **Cross-Reference List** for your application

DO 120 VAC Signal Conditioning Card (Isolated)



The Discrete Output (DO) 120 VAC isolated Signal Conditioning Card for 1771 I/O connects to the simplex or redundant M-series Plus DO, 32-Channel, 24 VDC, High-Side card by using two of the 20-pin standard Round Ribbon Cables; one for each of the two 16-channel Signal Conditioning Cards for 1771 I/O.

The 40-position OEM contact 1771-WN swing-arm is removed from the OEM 16-channel, DO, 120 VAC, 1771-OD16 & -ODD cards and placed on the 16-channel DO, isolated, Signal Conditioning Card.

The Signal Conditioning Card has two connectors; swing-arm attachment point on the front which provides secure mechanical and electrical connections and a 20-pin ribbon cable connector on the bottom, which is used to connect, via a ribbon cable, to the DeltaV DO card Plus mass-connection terminal block.

Up to 16 Discrete Output 120 VAC based field devices can be connected to the OEM 16-channel DO swing-arm, by screw terminals. Isolated channel-to-channel signals are supported.

Each M-series Plus, DO, 32-Channel, 24 VDC, High-Side card supports two 16-Channel swing-arms from the 1771-ODD & -OD16 DO cards.

The M-series Plus DO, 32-Channel, 24 VDC, High-Side card has one parameter in the Explorer view for the cable connection. When this Parameter is turned on, DeltaV Diagnostics will mark the status of affected signal.

Please refer to the **Cross-Reference List** for your application.

Support of Additional 1770 I/O Cards

What to do if the 9 DeltaV Signal Conditioning card types do not cover all the 1771 cards in your PLC application. A couple of popular examples are: 4-channel AO (OFE) and the 8-channel AI isolated (IFE) cards. For these, and many other 1771 I/O, cards a custom DeltaV mounting kit to DIN-rail adapter along with a passive DIN-rail mounted swing-arm interface adapter card with attached flying-lead/open-end cables (available in 1, 3, 5, 10, 15, or 30-meter lengths) have been developed and are available from Weidmuller for the following 1771 swing-arm types: WA, WB, WC, WD, WF, WG, WH, and WN.

Please refer to the **Passive Interface Adapter Cards** section at the end of this document for your application.

For the 5, 10, 15, and 30-meter cables, an RSV plug & socket connector will be present at the 1-meter location past the interface adapter cards to facilitate running the longer cables in the cabinets.

These passive swing-arm interface adapter cards also have matching contact material that matches the OEM swing-arm Example: Gold contacts on both the 21-position 1771-WG swing-arm and on the adapter card contact connectors.

These passive swing-arm interface adapter cards fit on to the same DeltaV mounting kit as the DeltaV Signal Conditioning cards.

In most cases the raw field signal can just be “re-routed” with these passive swing-arm interface adapter cards. However, there are cases where external signal conditioning will need to be installed to make the field signals compatible with the DeltaV I/O solution. Examples are: 48, 60, 120, and 220 VDC input signals and some higher current DO applications.

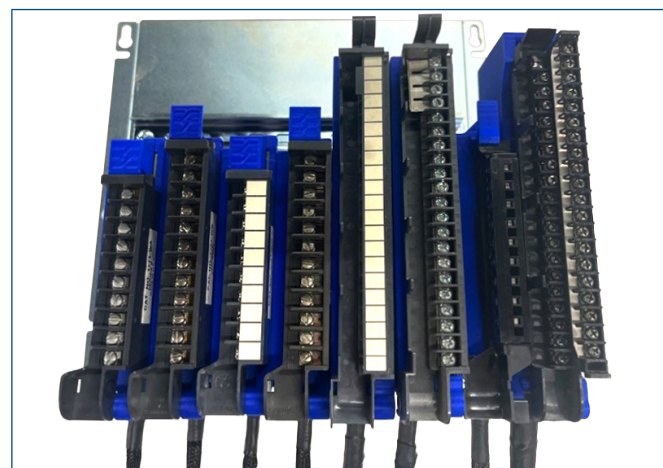
The flying-lead/open-end loomed cables, which have ferruled and numbered individual conductors, can be pre-terminated, ahead of the migration, to DeltaV M-series traditional I/O card screw type I/O terminal blocks.

Specifications

Description	Details
Approvals	cURus
Wire Gauge	18 AWG
Operating Temperature	-4 to +120°F -20 to +50°C
Maximum Current per Channel	2A
Total Operating Current per Interface Card	8A
Clamping Technology	Tension



Example of the 1771-WH swing-arm interface adapter card with a 1-m flying lead cable.



Examples of all 8 1771 wing-arm interface adapter cards mounted on to an 8-wide DeltaV mounting kit.

Mounting Options

Five (5) mounting kits (4, 8, 12{x2} and 16-wide) are available that replace the OEM 4, 8, 12 and 16-wide I/O chassis. The mounting plate contained in the replacement I/O chassis mounting kit fits in to the same space and uses the same mounting bolts as the OEM I/O chassis. There is a DIN-rail installed on the mounting plate that is used for the DeltaV I/O carrier, carrier extenders, and possibly a DeltaV controller. There is a round plastic spacer washer included in the mounting kits for installations where the DIN-rail can be extended to accommodate more DeltaV hardware. This spacer is to be used between the longer DIN-rail and the cabinet mounting sub panel. There are 4-wide Signal Conditioning Card mounting hangers pre-installed on the mounting plates.

The ground stud location on the OEM I/O chassis and DeltaV mounting plate are the same location so the grounding mechanisms can be re-used.

The depth of the solution from the front of the 1771 swing-arms to the back of the mounting kit is 8,7 inches or 220mm's. **Note:** *If the field wiring extends past the front of the swing-arm, then the depth of the solution will be larger.*

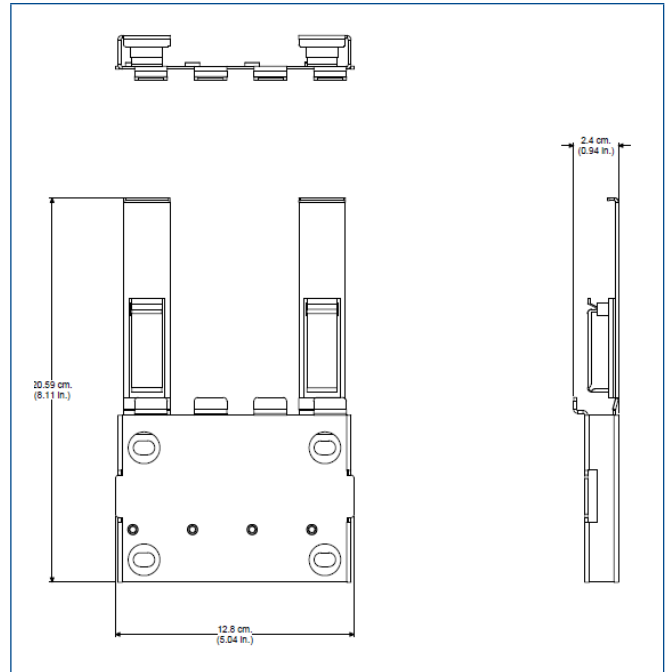
For those installations where the mounting kit isn't required, the 4-wide Signal Conditioning Card mounting hanger assembly is available as a spare part. Four screws will be required to mount this assembly to the cabinet mounting sub panel.

Please refer to the Ordering Information and Spare Part Ordering Information for the available mounting options.

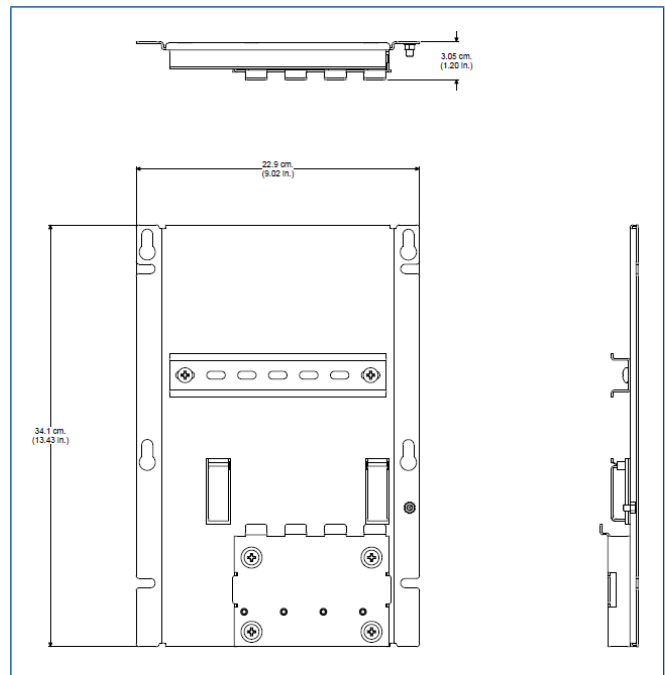
Additional Details

Type	OEM	Dimensions (L x W x H in CM)
4-wide	1771-A1B/B	22.9 x 34.1 x 3.05
8-wide	1771-A2B/B	35.6 x 34.1 x 3.05
12-wide, R0*	1771-A3B/B	48.3 x 34.1 x 3.05
12-wide, R1	1771-A3B1/B	48.3 x 34.1 x 3.05
16-wide	1771-A4B/B	61.0 x 34.1 x 3.05
4-card hanger	N/A	12.8 x 20.59 x 2.4

*Panel-mount solution only.

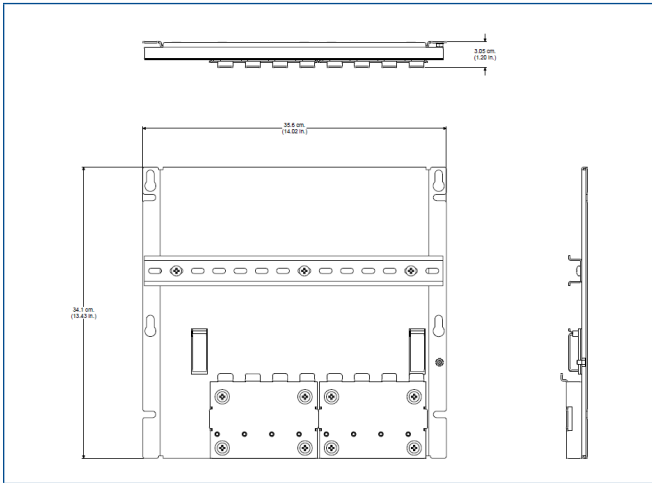


4-card Hanger Assembly.

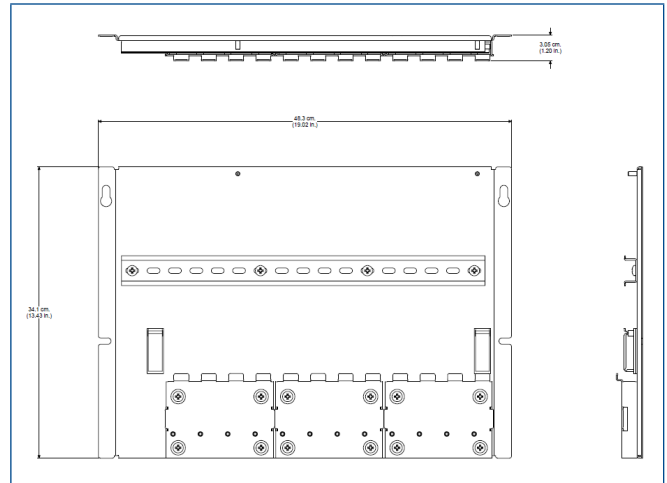


4-wide Mounting Kit.

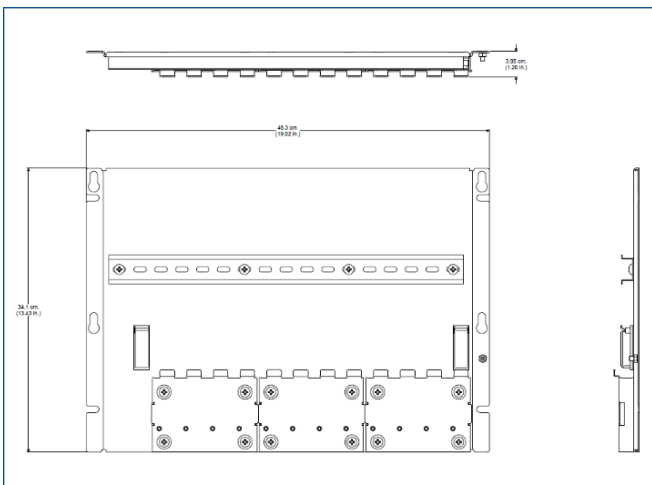
Additional Details (cont'd)



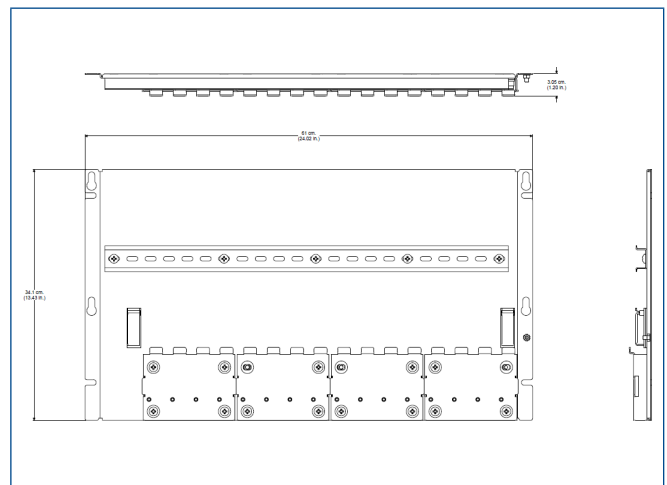
8-wide Mounting Kit.



12-wide (R0) Mounting Kit.



12-wide (R1) Mounting Kit.



16-wide Mounting Kit.

Cross Reference List

Signal Conditioning Card Description	OEM Information I/O Card / Swing-Arm Combination	VE4306S1T1	VE4301S1T1	VE4302S1T1	VE4303S1T1	VE4304S1T1	VE4301S2T1	VE4302S2T1	VE4302S2T2	VE4305S2T1	Compatible DeltaV M-series I/O card and Simplex Mass-Connection I/O Terminal Block ⁽²⁾
AI, 4-20mA 16-channel single-ended ⁽¹⁾	1771-IFE / 1771-WG/WH	✓	–	–	–	–	–	–	–	–	VE4003S2B11
DI, 120 VAC/VDC 16-channel non-isolated	1771-IAD / 1771-WH	–	✓	–	–	–	–	–	–	–	VE4001S2T2B7
DO, 120 VAC 16-channel non-isolated	1771-OAD / 1771-WH	–	–	✓	–	–	–	–	–	–	VE4002S1T2B8
DI, 24 VDC 16-channel non-isolated	1771-IBD / 1771-WH	–	–	–	✓	–	–	–	–	–	VE4001S2T2B7
DO, 24 VDC 16-channel non-isolated	1771-OBD / 1771-WH	–	–	–	–	✓	–	–	–	–	VE4002S1T2B8
DI, 120 VAC/VDC 16-channel isolated	1771-ID16 / 1771-WN	–	–	–	–	–	✓	–	–	–	VE4001S2T2B7
DO, 120 VAC 16-channel isolated	1771-OD16 / 1771-WN	–	–	–	–	–	–	✓	–	–	VE4002S1T2B8
DO, 120 VAC 16-channel isolated	1771-ODD / 1771-WN	–	–	–	–	–	–	–	✓	–	VE4002S1T2B8
DO-Relay 250 VAC / 120 VDC 16-channel, isolated	1771-OW16 / 1771-WN	–	–	–	–	–	–	–	–	✓	VE4002S1T2B8

Notes:

⁽¹⁾Only Single-ended, field powered, transmitters are supported on this Signal Conditioning Card.

⁽²⁾Only simplex I/O terminal block shown for clarity. Check M-series Traditional I/O Product Data Sheet for redundant I/O terminal block part numbers.

Hardware Specifications

Common Environmental Specifications for all Signal Conditioning Cards	
Category	Specifications
Operating Temperature	-40 to +60°C
Storage Temperature	-40 to +85°C
Relative Humidity	5 to 95% Non-Condensing
Airborne Contaminates	ISA-S71.04-1985 Airborne Contaminants Class G3 Conformal coating
Protection Rating	IP 20
Shock	10g, 1/2 sine wave for 11 milliseconds
Vibration	1mm Peak-to-Peak from 2 to 13.2Hz, 0.7g from 13.2 to 150Hz

Specifications for Analog Input (AI) 4-20mA Signal Conditioning Card (Single-Ended)	
Category	Specifications
Field Device Type	4-20mA HART
Number of Channels	16
Field Signals	2 or 4-wire field powered transmitters
Electrical Connections	Front; one 1771-WG/WH swing-arm Bottom; two 24-Pin ribbon cables
Dimensions	Depth: 168mm; Height: 208mm; Width: 32mm

Specifications for Discrete Input (DI) 24 VDC Signal Conditioning Card (Non-isolated)	
Category	Specifications
Field Device Type	24 VDC Dry Contact
Number of Channels	16
Isolation	Channels share a common ground return
Nominal Input Current	4.5mA @ 10 VDC 15mA @ 30 VDC
Minimum ON-state Voltage	10 VDC
Minimum OFF-state Voltage	5 VDC
Nominal Input Impedance	2.2K Ω (Max.)
Input Voltage Range	10 to 30 VDC
Electrical Connections	Front; one 1771-WH swing-arm Bottom; one 20-Pin ribbon cable
Dimensions	Depth: 168mm; Height: 208mm; Width: 32mm

Specifications for Discrete Output (DO) 24 VDC Signal Conditioning Card (Non-isolated)	
Category	Specifications
Field Device Type	24 VDC High-Side
Number of Channels	16
Isolation	1000 VDC channel to system isolation No channel-to-channel isolation
User Supply Voltage	10 to 60 VDC
Output Current Rating	2A per output. Not to exceed 8A per card
Maximum Surge Current	4A per output for 10ms, repeatable every 2 seconds 25A per card for 10ms, repeatable every 2 seconds
Maximum ON-state Voltage Drop	1.5 VDC at rated current
Minimum Load Current	2.5mA per output
Maximum OFF-state Leakage Current	0.5mA per output
Electrical Connections	Front; one 1771-WH swing-arm Bottom; one 20-Pin ribbon cable
Dimensions	Depth: 168mm; Height: 208mm; Width: 32mm

Specifications for Discrete Input (DI) 120 VAC / VDC Signal Conditioning Card (Non-isolated)	
Category	Specifications
Field Device Type	120 VAC/VDC Dry Contact
Number of Channels	16
Isolation	250 VAC channel to system isolation No channel-to-channel isolation
Nominal Input Voltage	120 VAC @ 50/60Hz 125 VDC
Nominal Input Current	9.9mA @ 120 VAC @ 60Hz 8.7mA @ 120 VAC @ 50Hz 2.56mA @ 125 VDC
ON-state Voltage Range	79 to 138 VAC/VDC
Maximum OFF-state Voltage	43 VAC/VDC
Input Impedance	11.2K Ω @ 60Hz
Input Signal Delay OFF to ON	Time delay jumper for 5 and 20 milliseconds; factory set to 5ms.
Electrical Connections	Front; one 1771-WH swing-arm Bottom; one 20-Pin ribbon cable
Dimensions	Depth: 168mm; Height: 208mm; Width: 32mm

Specifications for Discrete Output (DO) 120 VAC Signal Conditioning Card (Non-isolated)	
Category	Specifications
Field Device Type	120 VAC High-Side
Number of Channels	16
Isolation	250 VAC Channel to system isolation No channel-to-channel isolation
Output Voltage Range	10 to 138 VAC @ 47-63Hz
Output Current Rating	2A per channel, not to exceed 8A per card
Maximum Surge Current	25A per output for 10ms, repeatable every 1 second 25A per card for 10ms, repeatable every 1 second
Maximum ON-state Voltage Drop	1.5V at load current = 50mA to 2A
ON-state Load Current	50mA minimum per channel
Maximum OFF-state Leakage Current	3.0mA at 138 VAC
Fusing	One fuse (10A / 250 VAC, Fast Acting, Cartridge, Ceramic, 3AB, 3AG, ¼" x 1-1/4") Littlefuse P/N 0332010.HXP
Electrical Connections	Front; one 1771-WH swing-arm Bottom; one 20-Pin ribbon cable
Dimensions	Depth: 168mm; Height: 208mm; Width: 32mm

Specifications for Discrete Input (DI) 120 VAC / VDC Signal Conditioning Card (Isolated)	
Category	Specifications
Field Device Type	120 VAC/VDC Dry Contact
Number of Channels	16
Isolation	250 VAC Channel to system isolation 150 VAC Channel-to-channel isolation
Nominal Input Voltage	120 VAC @ 47-63Hz 120 VDC
Nominal Input Current	9.9mA @ 120 VAC @ 60Hz 8.7mA @ 120 VAC @ 50Hz 2.56mA @ 125 VDC
ON-state Voltage Range	79 to 138 VAC/VDC
Maximum OFF-state Voltage	43 VAC/VDC
Input Impedance	11.2K Ω @ 60Hz
Input Signal Delay OFF to ON	Two time delay jumpers J1 (Channels 1 through 8) and J4 (Channels 9 through 16) for 5 and 20 milliseconds; factory set to 20 ms
Electrical Connections	Front; one 1771-WN swing-arm Bottom; one 20-Pin ribbon cable
Dimensions	Depth: 168mm; Height: 208mm; Width: 32mm

Specifications for Discrete Output (DO) 120 VAC Signal Conditioning Card (Isolated)	
Category	Specifications
Field Device Type	120 VAC High-Side
Number of Channels	16
Isolation	250 VAC Channel to system isolation 150 VAC Channel-to-channel isolation
Output Voltage Range	74 to 138 VAC @ 47-63Hz
Output Current Rating	5mA – 2A per channel, not to exceed 8A per card
Maximum Surge Current	20A per output for 100ms, repeatable every 2 seconds
Maximum ON-state Voltage Drop	5.8V rms @load current <50mA 1.5V rms @load current >50mA
Maximum OFF-state Leakage Current	3.0mA at 138 VAC
Fusing	Sixteen (16) fuses (3.5A / 250 VAC, 125 VDC, Slo-Blo, Cartridge, 2AG, 0.177" x 0.57") Littlefuse P/N 229 03.5MXP
Electrical Connections	Front; one 1771-WN swing-arm Bottom; one 20-Pin ribbon cable
Dimensions	Depth: 168mm; Height: 208mm; Width: 32mm

Specifications for Discrete Output-Relay (DO-R) 250 VAC / 120 VDC Signal Conditioning Card (Isolated)	
Category	Specifications
Field Device Type	24-250 VAC / 24-150 VDC
Number of Channels	16 (Channels 1-8 NO, Channels 9-16 selectable NO/NC)
Isolation	250 VAC Channel to system isolation 250 VAC Channel-to-channel isolation
Output Voltage Range	24-250 VAC @ 47-63Hz 24-150 VDC
Maximum power rating	AC: 500VA per output; 1440VA per card DC: 80W per output; 1280W per card
Maximum Output Current Rating per Channel	AC: 2A per output at rated power DC: 2A per output up to 40V, 1A per output up to 50V 0.5A per output at 100V, 0.25A per output at 150V
Maximum Surge Current	DC: 2A per output at rated power AC: Contact Emerson for details
Minimum Contact Load	10mA
Operate Time	Maximum 15ms (without bounce)
Release Time	Maximum 5ms (without bounce, no diode)
Switching Frequency Maximum	1/3Hz @ maximum load
Expected life of Electrical Contacts	100K operations @25C (1 seconds ON/ 9 seconds OFF, cosΦ=1)
Electrical Connections	Front; one 1771-WN swing-arm Bottom; one 20-Pin ribbon cable
Dimensions	Depth: 168mm; Height: 208mm; Width: 32mm

Common Environmental / Specifications for Round Ribbon Cables	
Category	Specifications
Operating Temperature*	-20 to +70°C
Storage Temperature	-20 to +70°C
Relative Humidity	5 to 95% Non-Condensing
Airborne Contaminates	ISA-S71.04-1985 Airborne Contaminants Class G3 Conformal coating
Protection Rating	IP 20
Allowed Cable Lengths	0.5 to 10 meters
Wires/Pairs per Cable	50/25 or 20/10
Wire Gauge	0.14mm ² / 26AWG

*Operating any electronics at the higher end of its temperature range for long periods of time will shorten its expected lifetime, see **Effects of Heat and Airflow Inside an Enclosure White Paper** for more information.

Certifications

The following certifications are available for Signal Conditioning Cards for 1771 I/O Solutions:

- European EMC Compliance (CE MARK)
- IEC61010-1 personal safety and Low Voltage Directive approval
- CAN/CSA C22.2 No.61010-1-12

Hazardous Area/Location

Signal Conditioning Cards for 1771 I/O can be installed and used based on the following Standards:

- FM 3611-Class 1 Division 2
- ATEX Zone 2: EN 60079-0, EN 60079-7
- IECEx Zone 2: IEC 60079-0, IEC 60079-7

Ordering Information

Description	Model Number
Analog Input Signal Conditioning Card for 1771-IFE; 16-Channel, 4-20mA, field powered, non-isolated, single-ended, 21-position WG/WH swing-arms*	VE4306S1T1
Discrete Input Signal Conditioning Card for 1771-IAD; 16-Channel, 120 VAC/VDC, non-isolated, 21-position WH swing-arm*	VE4301S1T1
Discrete Output Signal Conditioning Card for 1771-OAD; 16-Channel, 120 VAC, non-isolated, 21-position WH swing-arm*	VE4302S1T1
Discrete Input Sinking Signal Conditioning Card for 1771-IBD; 16-Channel, 24 VDC, non-isolated, 21-position WH swing-arm*	VE4303S1T1
Discrete Output Sourcing Signal Conditioning Card for 1771-OBD; 16-Channel, 24 VDC, non-isolated, 21-position WH swing-arm*	VE4304S1T1
Discrete Input Signal Conditioning Card for 1771-ID16; 16-channel, 120 VAC/VDC, isolated, 40-position WN swing-arm*	VE4301S2T1
Discrete Output Signal Conditioning Card for 1771-OD16; 16-channel, 120 VAC, isolated, 40-position WN swing-arm*	VE4302S2T1
Discrete Output Signal Conditioning Card for 1771-ODD; 16-channel, 120 VAC, isolated, 40-position WN swing-arm*	VE4302S2T2
Discrete Output Relay Contact Signal Conditioning Card for 1771-OW16; 16-channel, 24 to 250 VAC/ 24-120 VDC, isolated, 40-position WN swing-arm*	VE4305S2T1

4-wide replacement I/O chassis (1771-A1B/B) mounting panel for Signal Conditioning cards for 1771 I/O	VE4300S0T1
8-wide replacement I/O chassis (1771-A2B/B) mounting panel for Signal Conditioning cards for 1771 I/O	VE4300S0T2
12-wide replacement I/O chassis (1771-A3B/B) mounting panel for Signal Conditioning cards for 1771 I/O	VE4300S0T3
12-wide replacement I/O chassis (1771-A3B1/B) mounting panel for Signal Conditioning cards for 1771 I/O	VE4300S0T4
16-wide replacement I/O chassis (1771-A4B/B) mounting panel for Signal Conditioning cards for 1771 I/O	VE4300S0T5

**Ribbon cables, replacement I/O chassis mounting panel and DeltaV traditional I/O cards / mass-connection terminal blocks are sold separately.*

Spare Part Ordering Information

Description	Model Number
4-card hanger assembly for mounting on locally supplied cabinet mounting panels	VE4300S0T6

Related 3rd Party Products

Ribbon cables are required between the Signal Conditioning Cards for 1771 I/O and the DeltaV Mass-Termination I/O terminal blocks. These ribbon cables are orderable directly from Phoenix Contact.

Passive interface adapter cards may be required for 1771 I/O cards that are not supported by the DeltaV Signal Conditioning Cards. These adapters are orderable directly from Weidmuller.

Ribbon Cables for Discrete Input / Discrete Output (DI/DO) Signal Conditioning Cards

Description	Phoenix Contact Information	
	Part Number	Part Type
20-pin Round Ribbon Cable 0.5m	2296391	FLK 20/EZ-DR/ 50KONFEK
20-pin Round Ribbon Cable 1.0m	2296401	FLK 20/EZ-DR/ 100KONFEK
20-pin Round Ribbon Cable 1.5m	2296472	FLK 20/EZ-DR/ 150KONFEK
20-pin Round Ribbon Cable 2.0m	2296485	FLK 20/EZ-DR/ 200KONFEK
20-pin Round Ribbon Cable 3.0m	2296498	FLK 20/EZ-DR/ 300KONFEK
20-pin Round Ribbon Cable 4.0m	2296508	FLK 20/EZ-DR/ 400KONFEK
20-pin Round Ribbon Cable 8.0m	2296524	FLK 20/EZ-DR/ 800KONFEK
20-pin Round Ribbon Cable 10.0m	2296537	FLK 20/EZ-DR/1000KONFEK

Ribbon Cables for Analog Input (AI) Signal Conditioning Cards

Description	Phoenix Contact Information	
	Part Number	Part Type
24-pin Round Ribbon Cable 0.5m	2906950	CABLE-2FLK24/2FLK24/DV/ 0,5M/S
24-pin Round Ribbon Cable 1.0m	2906951	CABLE-2FLK24/2FLK24/DV/ 1,0M/S
24-pin Round Ribbon Cable 1.5m	2906952	CABLE-2FLK24/2FLK24/DV/ 1,5M/S
24-pin Round Ribbon Cable 2.0m	2906954	CABLE-2FLK24/2FLK24/DV/ 2,0M/S
24-pin Round Ribbon Cable 3.0m	2906955	CABLE-2FLK24/2FLK24/DV/ 3,0M/S
24-pin Round Ribbon Cable 4.0m	2906956	CABLE-2FLK24/2FLK24/DV/ 4,0M/S
24-pin Round Ribbon Cable 8.0m	2906958	CABLE-2FLK24/2FLK24/DV/ 8,0M/S
24-pin Round Ribbon Cable 10.0m	2906959	CABLE-2FLK24/2FLK24/DV/ 10,0M/S

Passive Interface Adapter Cards

		Weidmuller Ordering Information					
Swing-Arm Type	Description	1-meter	3-meter	5-meter	10-meter	15-meter	30-meter
1771-WA	10-position, 1 Gold/9 Tin	8000118200	8000118201	8000118357	8000118358	8000118359	8000118360
1771-WB	12-position, Gold	8000118333	8000118334	8000118365	8000118366	8000118367	8000118368
1771-WC	10-position, Gold	8000118198	8000118199	8000118353	8000118354	8000118355	8000118356
1771-WD	12-position, Tin	8000118202	8000118330	8000118361	8000118362	8000118363	8000118364
1771-WF	18-position, Gold	8000118336	8000118339	8000118369	8000118370	8000118372	8000118373
1771-WG	21-position, Gold	8000118340	8000118341	8000118374	8000118375	8000118376	8000118377
1771-WH	21-position, Tin	8000118342	8000118344	8000118378	8000118379	8000118380	8000118381
1771-WN	40-position, Tin	8000118196	8000118197	8000118349	8000118350	8000118351	8000118352

Spare Part Ordering Information

Description	Part Number
Replacement hanger assemblies are available from Weidmuller	8000125424

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