FIRELEC Migration Solution

PROVOX™ > DeltaV™

DM Series - Using DIA

Discrete Inputs

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1. INTRODUCTION

The purpose of this document is to guide the user of a 10 series I/Os PROVOX™ system with the safe, efficient and easy way to migrate toward a DeltaV™ system.

FIRELEC has developed an economical migration solution (**FMS-PVXDM-DV-2**) allowing to protect the existing wiring investment as the user convert from an existing PROVOX™ system toward the DeltaV™ system.

The **FMS-PVXDM-DV-2** solution is a set of migration adapters installed in place of the existing I/O cards in the 10 series PROVOX™ files, allowing to migrate easily PROVOX™ I/Os toward a new DeltaV™ system, keeping the I/O wiring in place.

The process I/Os connected with the existing I/O field termination assemblies (FTAs) are kept in place and connected to the migration adapters using the existing front flat cables.
The migration adapters are connected to the DeltaV™ I/O cards using suitable cables provided with each type of migration adapter and DeltaV™ I/O card.

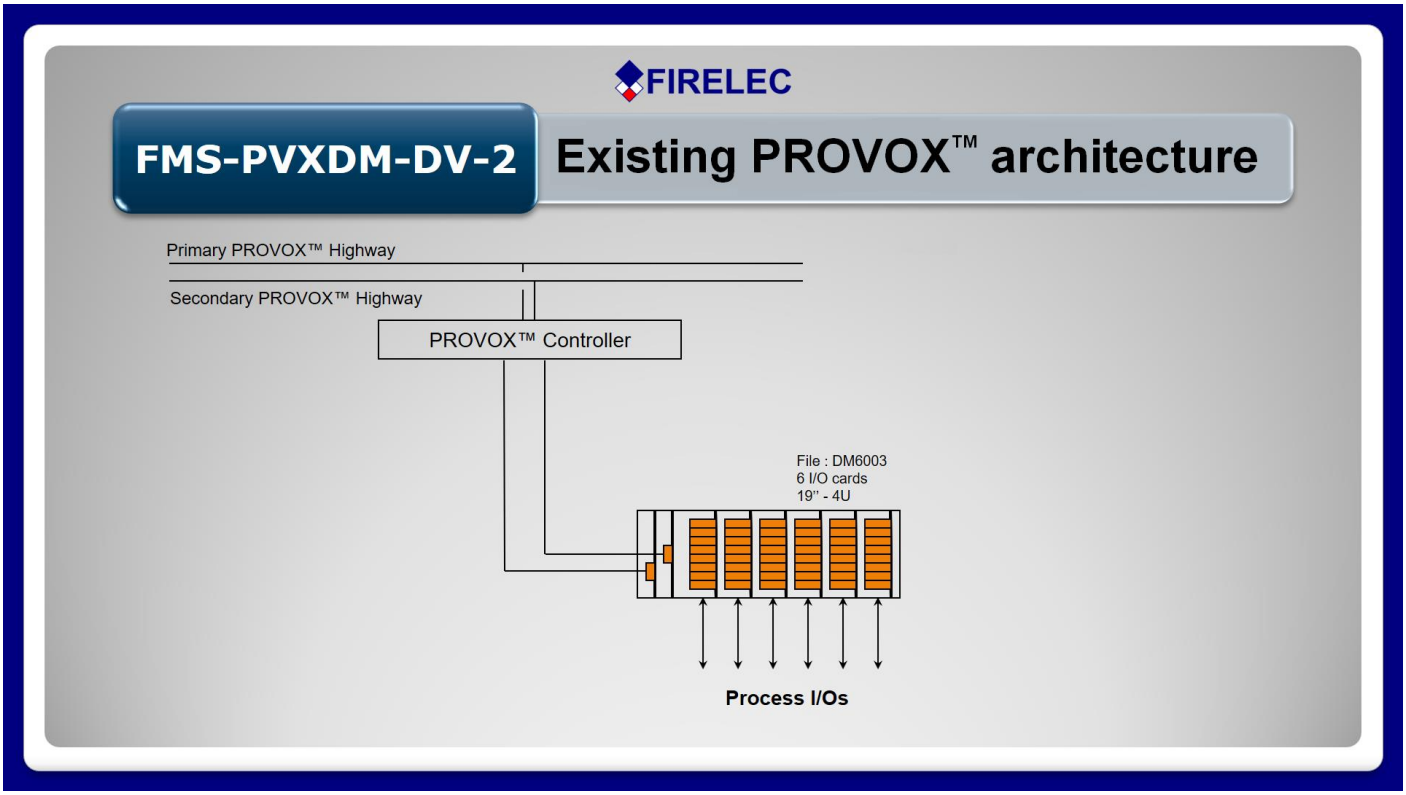
1.1. Key advantages of the FMS-PVXDM-DV-2 solution

FMS-PVXDM-DV-2 solution protects the wiring investment as the user converts from the 10 series PROVOX™ system toward the DeltaV™ system of Emerson Process Management with following advantages :

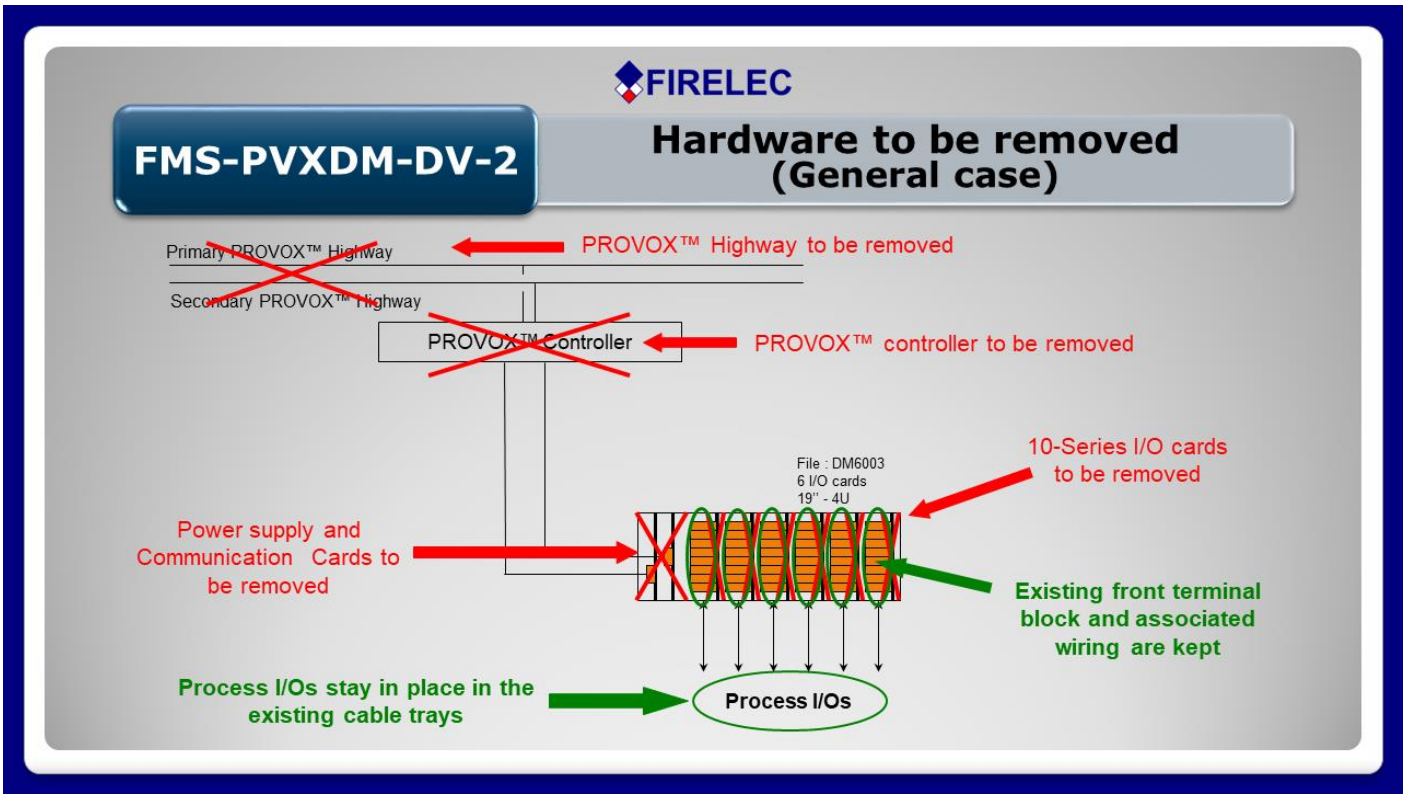
- **FMS-PVXDM-DV-2** is a pre-engineered solution, ready to work without any technical rework or limitation regarding the existing capabilities of the PROVOX™ system to be migrated.
- As the instrument wiring is not disturbed, the instrument checkout during start-up is reduced to the minimum
- The DeltaV™ system's configuration allows for the engineering conversion to be done efficiently. The speed at which **FMS-PVXDM-DV-2** solution can be implemented ensures to reduce the process downtime to the minimum.
- All existing documentations (electrical and loop drawings, maintenance procedures, ...) remain unchanged as the I/O labelling is strictly the same on new migration adapters than on previous PROVOX™ I/O field termination assemblies removed.

1.2. Description of the FMS-PVXDM-DV-2 solution

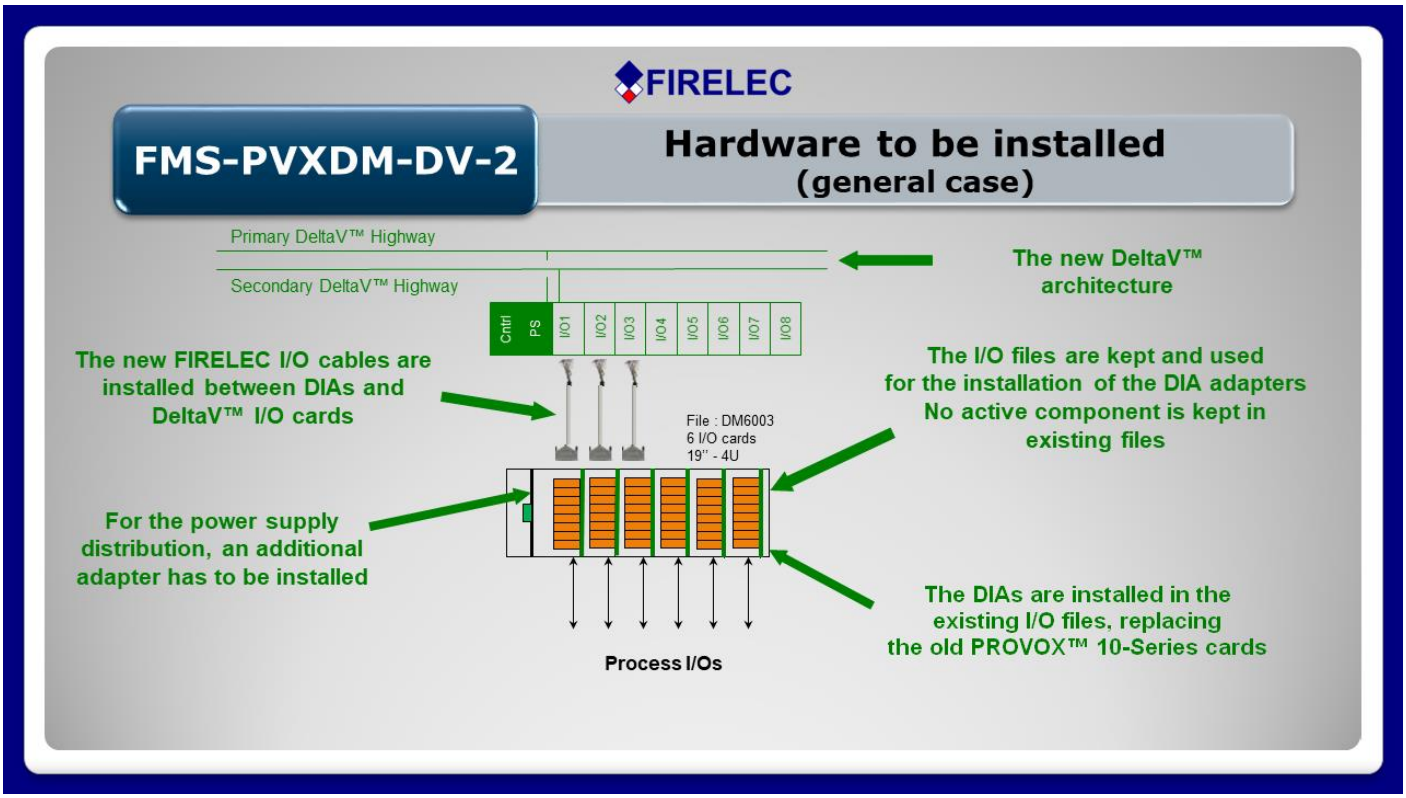
1.2.1. Existing PROVOX™ architecture



1.2.1. Existing PROVOX™ Hardware to be removed (general case)



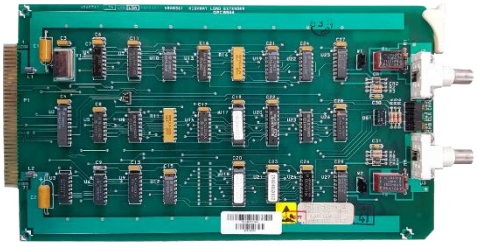
1.2.2. New DeltaV™ architecture (general case)



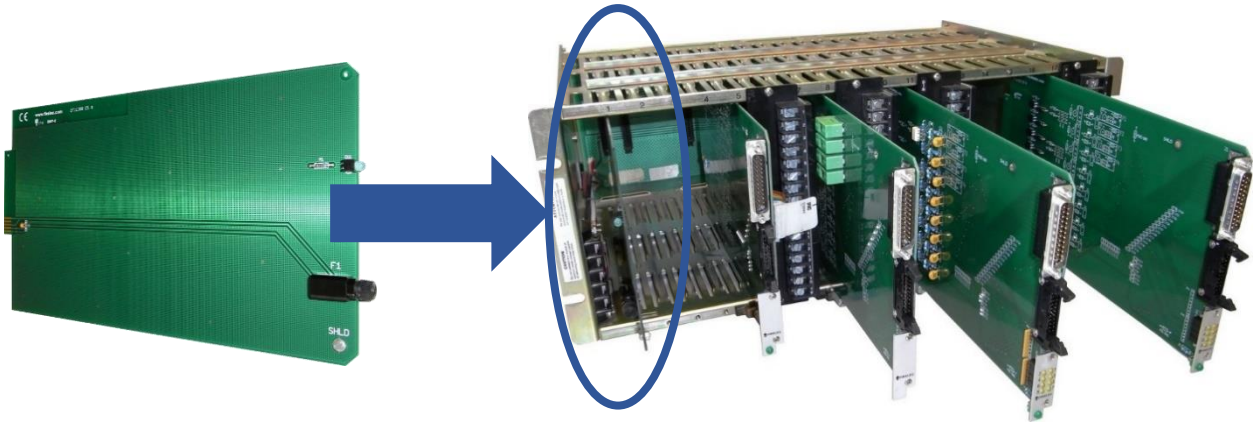
2. POWER SUPPLY

2.1. DM6003X1-GAX (Parallel Buffer) or DH6001X1-GAX (Serial Buffer)

This card ensured previously the power supply of I/O cards of the file and the parallel or serial communication with the I/O driver located in the PROVOX™ controller. Now, this card and its functionalities is not necessary anymore.
It is to be replaced by a “bypass” card providing the 24vdc distribution to the migration adapters (DIAs) located in the file.

Existing PROVOX™ architecture
I/O file and communication card
I/O file
DM6003
Power distribution and communication Card
Parallel Buffer DM6003X1-GAX - PN : 31B1834X012 or **Serial Buffer DH6001X1-GAX** - PN : 38A8362X012


New FIRELEC DIA : DIA-PWS-01-1
Description
Power supply distribution adapter (No active component - Only bypass functionnality)



3. DISCRETE INPUTS

3.1. DM6361

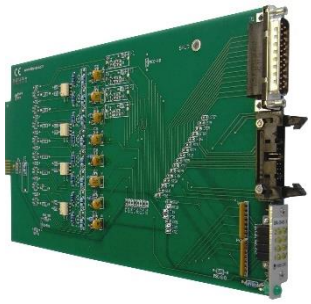
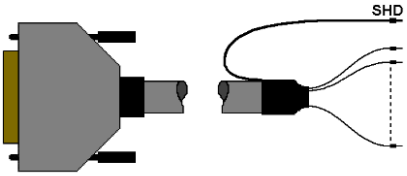
3.1.1. Description and connection

8 channels – Discrete inputs

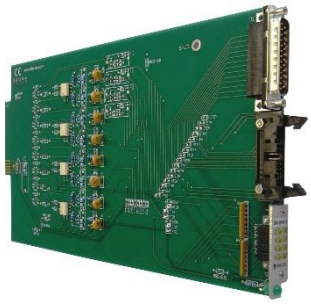
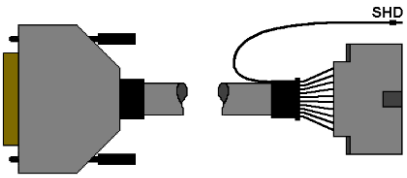
Existing PROVOX™ architecture	
I/O file and communication card	
I/O file	
DM6003	
I/O Card	**Field Termination Assembly**
DM6361-A1 - PN : 46A2626X012 - 39A7279X012	PN : 36A3885X012 - 36A3885X042
Discrete Input - 8 channels - Low voltage 0 - 30Vdc	DI Low voltage

New FIRELEC DIA : DIA-DI-02-1 (8 channels)
Description
8 channels - Discrete input adapter for dry contact powered by an external PS

3.1.1. Solution : FMS-PVXDM-DV-2-DI1-A1

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI1-A1		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-02-1 installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI1-A1	**VE4001S2T1B1 or SE4001S2T1B1** Discrete Input Card : 8 Channels, 24Vdc, Isolated, DI 8Ch Terminal Block
		

3.1.2. Solution : FMS-PVXDM-DV-2-DI1-A2

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI1-A2		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-02-1 installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI1-A2	**VE4001S2T1B3 or SE4001S2T1B3** Discrete Input Card : 8 Channels, 24Vdc, Isolated, 16-Pin Mass Terminal Block
		

3.2. DM6362

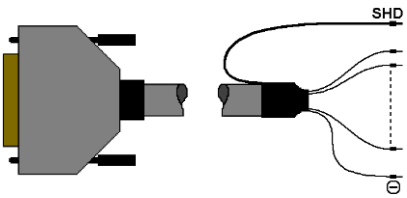
3.2.1. Description and connection

8 channels – Discrete inputs

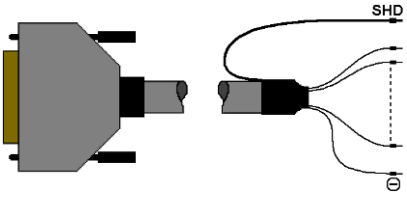
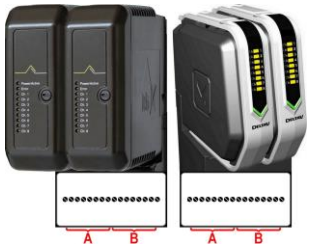
Existing PROVOX™ architecture	
I/O file and communication card	
I/O file	
DM6003	
I/O Card	**Field Termination Assembly**
DM6362-A1 - PN : 46A2626X012 - 39A7279X012	PN : 36A3888X012
Discrete Input - 8 channels - Dry contact	DI Dry contact

New FIRELEC DIA : DIA-DI-01-1 (8 channels)
Description
8 channels - Discrete input adapter for dry contact powered by the DeltaV™ DI card

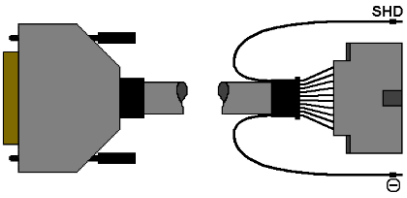
3.2.2. Solution : FMS-PVXDM-DV-2-DI2-A1

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI2-A1		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-01-1 installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI2-A1	**VE4001S2T2B1 or SE4001S2T2B1** Discrete Input Card : 8 Channels, 24Vdc, NAMUR Dry Contact, DI 8Ch Terminal Block
		

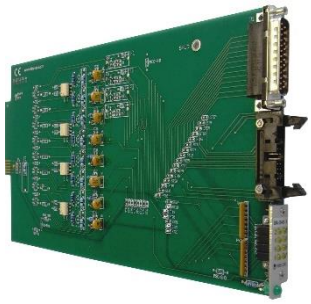
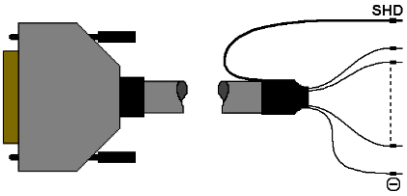
3.2.3. Solution : FMS-PVXDM-DV-2-DI2-A2

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI2-A2		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-01-1 installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI2-A2	**VE4031S2T2B1 or SE4031S2T2B1** 2 x Discrete Input Card 8 Ch, 24Vdc, NAMUR Dry Contact Red. Discrete 8Ch Terminal Block
		

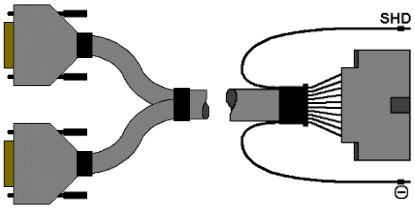
3.2.4. Solution : FMS-PVXDM-DV-2-DI2-A3

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI2-A3		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-01-1 installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI2-A3	**VE4001S2T2B3 or SE4001S2T1B3** Discrete Input Card : 8 Channels, 24Vdc, NAMUR Dry Contact, 16-Pin Mass Terminal Block
		

3.2.5. Solution : FMS-PVXDM-DV-2-DI2-A4

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI2-A4		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-01-1 installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI2-A4 CH 1 to 8 : Cable option A CH 9 to 16 : Cable option B CH 17 to 24 : Cable option C CH 25 to 32 : Cable option D	**¼ VE4001S2T2B4 or** **¼ SE4001S2T2B4** Discrete Input Card : 32 Channels, 24 Vdc, Dry Contact, DI 32Ch Terminal Block
		

3.2.6. Solution : FMS-PVXDM-DV-2-DI2-A5

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI2-A5		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-01-1 installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-1316 CH 1 to 16 : Cable option A CH 17 to 32 : Cable option B	**½ VE4001S2T2B5 or** **½ SE4001S2T2B5** Discrete Input Card : 32 Channels 24 Vdc, Dry Contact, 40-pin Mass Terminal Block
		

3.3. DM6363

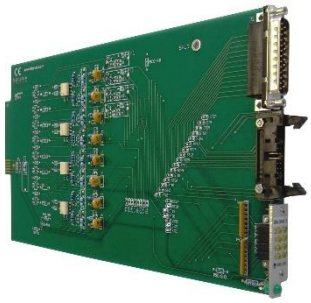
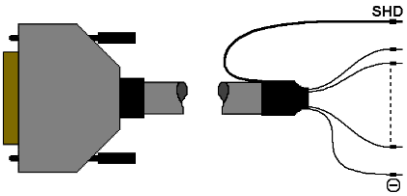
3.3.1. Description and connection

8 channels - Discrete inputs - High voltage 0 - 150Vac

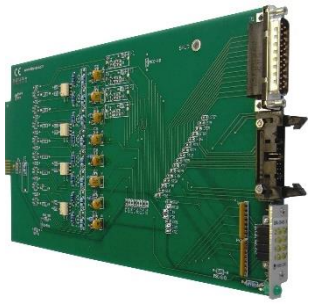
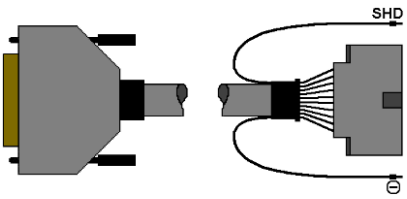
Existing PROVOX™ architecture	
I/O file and communication card	
I/O file	
DM6003	
I/O Card	Field Termination Assembly
DM6363-A1 - PN : 46A2626X012 - 39A7279X012 - 30B8651X012	36A3889X012 - 36A3889X022 36A3889X032 - 30B8622XXXX
Discrete Input - 8 channels - High voltage 0 - 150Vac	DI high voltage

New FIRELEC DIA : DIA-DI-03-1 (8 channels)
Description
8 channels - Discrete input adapter for AC Voltage (0 - 150Vac)

3.3.2. Solution : FMS-PVXDM-DV-2-DI3-A1

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI3-A1		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-03-1 installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI3-A1	**VE4001S2T1B1 or SE4001S2T1B1** Discrete Input Card : 8 Channels, 24Vdc, Isolated, DI 8Ch Terminal Block
		

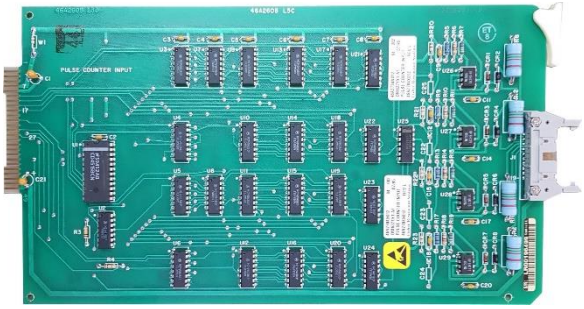
3.3.3. Solution : FMS-PVXDM-DV-2-DI3-A2

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI3-A2		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-03-1 installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI3-A2	**VE4001S2T1B3 or SE4001S2T1B3** Discrete Input Card : 8 Channels, 24Vdc, Isolated, 16-Pin Mass Terminal Block
		

3.1. DM6371-A1 and -A2

3.1.1. Description and connection

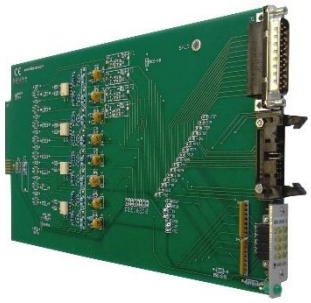
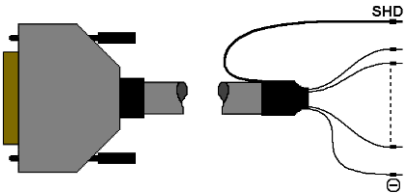
4 channels – Pulse input - 0 - 30Vdc (-A1 : Without debounce filter –A2 : With debounce filter)

Existing PROVOX™ architecture	
I/O file and communication card	
I/O file	
DM6003	
I/O Card	Field Termination Assembly
DM6371-A1 - PN : 46A2784X012 - **DM6371-A2** - PN : 46A2784X022	36A3885X032
Pulse count input - 4 channels - 0 - 30Vdc	PCI
	

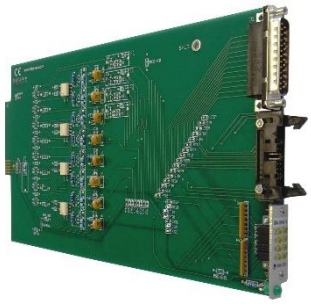
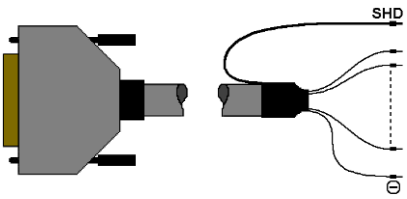
New FIRELEC DIA : DIA-DI-04-1 (4 channels)
Description
4 channels – Pulse count input for DC Voltage (0 - 30Vdc) without debounce filter

New FIRELEC DIA : DIA-DI-04-2 (4 channels)
Description
4 channels – Pulse count input for DC Voltage (0 - 30Vdc) with debounce filter

3.1.1. Solution : FMS-PVXDM-DV-2-DI4-A1

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI4-A1		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-04-1 (without debounce filter) installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI4-A1	**VE4015** **or** **SE4015** PCI Card: 4 Channels, 24V DC Dry Contact; Discrete 32ch Terminal Block
		

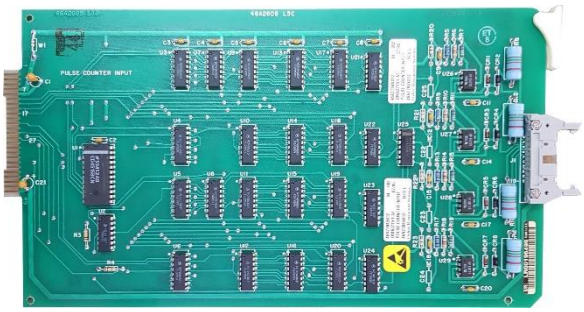
3.1.1. Solution : FMS-PVXDM-DV-2-DI5-A1

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI5-A1		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-04-2 (with debounce filter) installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI5-A1	**VE4015** **or** **SE4015** PCI Card: 4 Channels, 24V DC Dry Contact; Discrete 32ch Terminal Block
		

3.2. DM6372-A1 and -A2

3.2.1. Description and connection

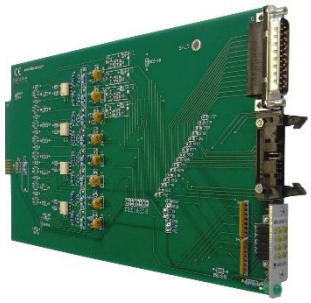
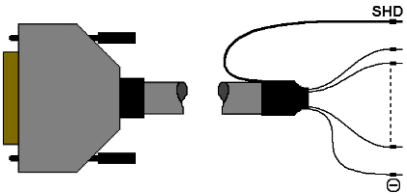
4 channels – Pulse input – Dry contact (-A1 : Without debounce filter –A2 : With debounce filter)

Existing PROVOX™ architecture	
I/O file and communication card	
I/O file	
DM6003	
I/O Card	**Field Termination Assembly**
DM6372-A1 - PN : 46A2784X012 - **DM6372-A2** - PN : 46A2784X022	36A3888X022
Pulse count input - 4 channels – Dry contact	PCI
	

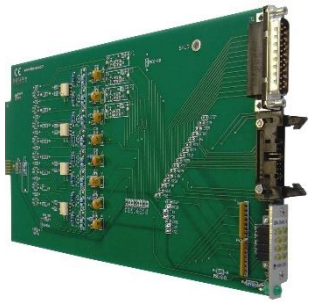
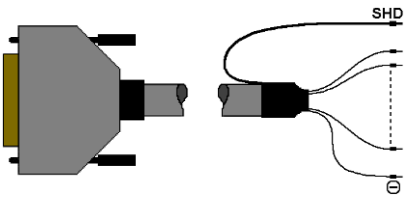
New FIRELEC DIA : DIA-DI-04-1 (4 channels)
Description
4 channels – Pulse count input for Dry contact without debounce filter

New FIRELEC DIA : DIA-DI-04-2 (4 channels)
Description
4 channels – Pulse count input for Dry contact with debounce filter

3.2.2. Solution : FMS-PVXDM-DV-2-DI6-A1

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI6-A1		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-04-1 (without debounce filter) installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI6-A1	**VE4015** **or** **SE4015** PCI Card: 4 Channels, 24V DC Dry Contact; Discrete 32ch Terminal Block
		

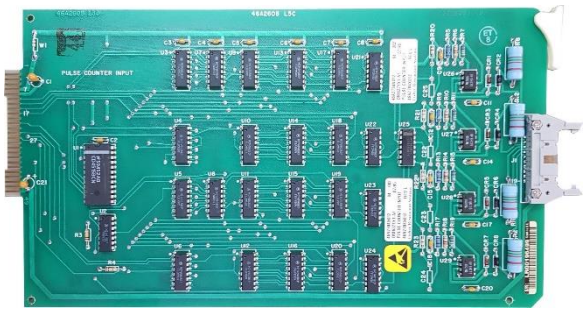
3.2.1. Solution : FMS-PVXDM-DV-2-DI7-A1

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI7-A1		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-04-1 (with debounce filter) installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI7-A1	**VE4015** **or** **SE4015** PCI Card: 4 Channels, 24V DC Dry Contact; Discrete 32ch Terminal Block
		

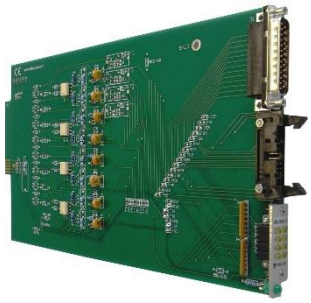
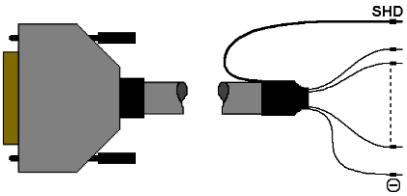
3.3. DM6373

3.3.1. Description and connection

4 channels – Pulse input – VORTEX

Existing PROVOX™ architecture	
I/O file and communication card	
I/O file	
DM6003	
I/O Card	**Field Termination Assembly**
DM6373-A1 - PN : 46A2784X012	30B1011X012
Pulse count input - 4 channels – VORTEX	PCI
	

New FIRELEC DIA : DIA-DI-04-1 (4 channels)
Description
4 channels – Pulse count input for VORTEX

3.3.2. Solution : FMS-PVXDM-DV-2-DI8-A1

New DeltaV™ architecture - FMS-PVXDM-DV-2-DI8-A1		
Interface unit	**Cable**	**DeltaV™ card**
DIA-DI-04-1 (without debounce filter) installed in the existing I/O file type DM6003 and connected to the existing Field Termination Assembly	CBL-PVXDM-DV-2-DI8-A1	**VE4015** **or** **SE4015** PCI Card: 4 Channels, 24V DC Dry Contact; Discrete 32ch Terminal Block