

FIRELEC Migration Solution

ABB S600™ > EMERSON Ovation™

FMS-S600-OV-1

(Using ADP-TF620)

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1. Introduction

This document is part of the FIRELEC Migration Solutions documentation set and provides technical guidance for system migration projects. It is intended to support the safe, efficient, and streamlined migration of an ABB S600™ system to an Emerson Ovation™ system.

To address this need, FIRELEC has developed the FMS-S600-OV-1 migration solution, designed to preserve existing wiring while enabling the transition to the Ovation™ platform.

The **FMS-S600-OV-1** consists of migration adapters installed in place of the original I/O cards. These adapters allow existing ABB TF620 connectors to interface directly with Ovation™ I/O cards, eliminating the need for rewiring, as field wiring remains unchanged.

The existing TF620 connectors remain in place and are connected to the Ovation™ I/O cards via the ADP-TF620 adapters using dedicated shielded cables. These cables are equipped with FK-MCP 12 connectors on one end and numbered wires or suitable connectors on the other end, depending on the Ovation I/O module type.

The descriptions and configurations presented in this document are based on standard scenarios and may require adaptation to meet specific project constraints.

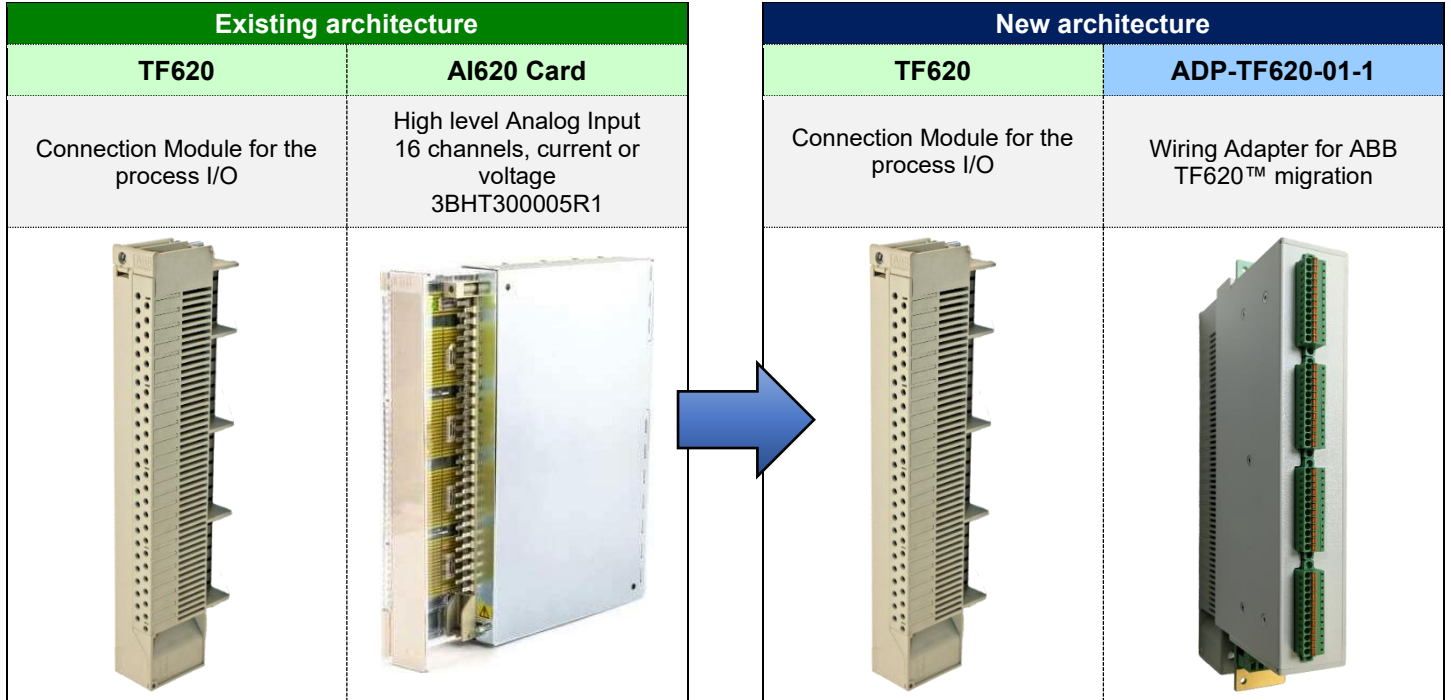
1.1. Key advantages of the FMS-S600-OV-1 solution

The **FMS-S600-OV-1** migration solution offers several key benefits:

- **Reduced project costs:** The reuse of existing TF620 connector eliminates the need for new process wiring, architectural redesign, and extensive engineering work, resulting in significant savings in both materials and labor.
- **Preservation of existing wiring:** The solution protects your investment in field cabling by enabling direct reuse of the wiring of the TF620 connector with the Ovation™ system
- **Plug-and-play design:** The cables are pre-engineered and fully compatible with the Ovation™ system, requiring no technical rework or compromise in system capabilities.
- **Minimized commissioning time:** Since instrument wiring remains untouched, field checkout during startup is significantly reduced.
- **Accelerated deployment:** Pre-engineered cables ensure fast and reliable installation.
- **Efficient engineering conversion:** The Ovation™ system configuration supports streamlined migration, minimizing downtime during implementation.
- **Documentation continuity:** All existing electrical drawings, loop diagrams, and maintenance procedures remain valid, as the original I/O and wiring labels are retained.

2. Analog Inputs



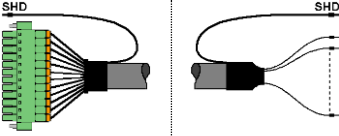

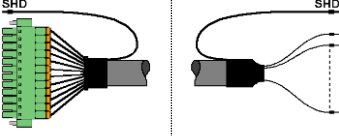
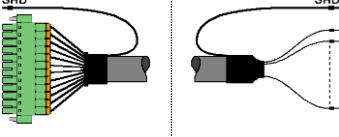
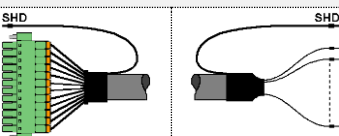
2.1. EXISTING CARD TO BE REMOVED: AI620 (16 channels)





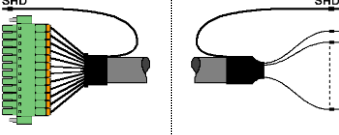
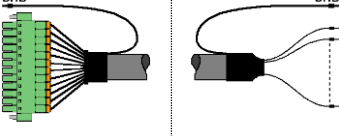
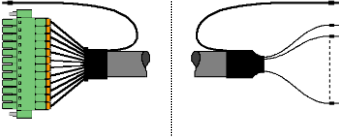
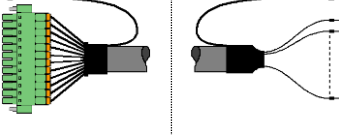

The existing architecture consists of an AI620 card connected to a TF620 module, where the process I/Os are wired.

In the new architecture, the TF620 module and its associated wiring are retained. The AI620 card is replaced by the ADP-TF620 migration adapter, which connects to the corresponding Emerson Ovation™ I/O card.

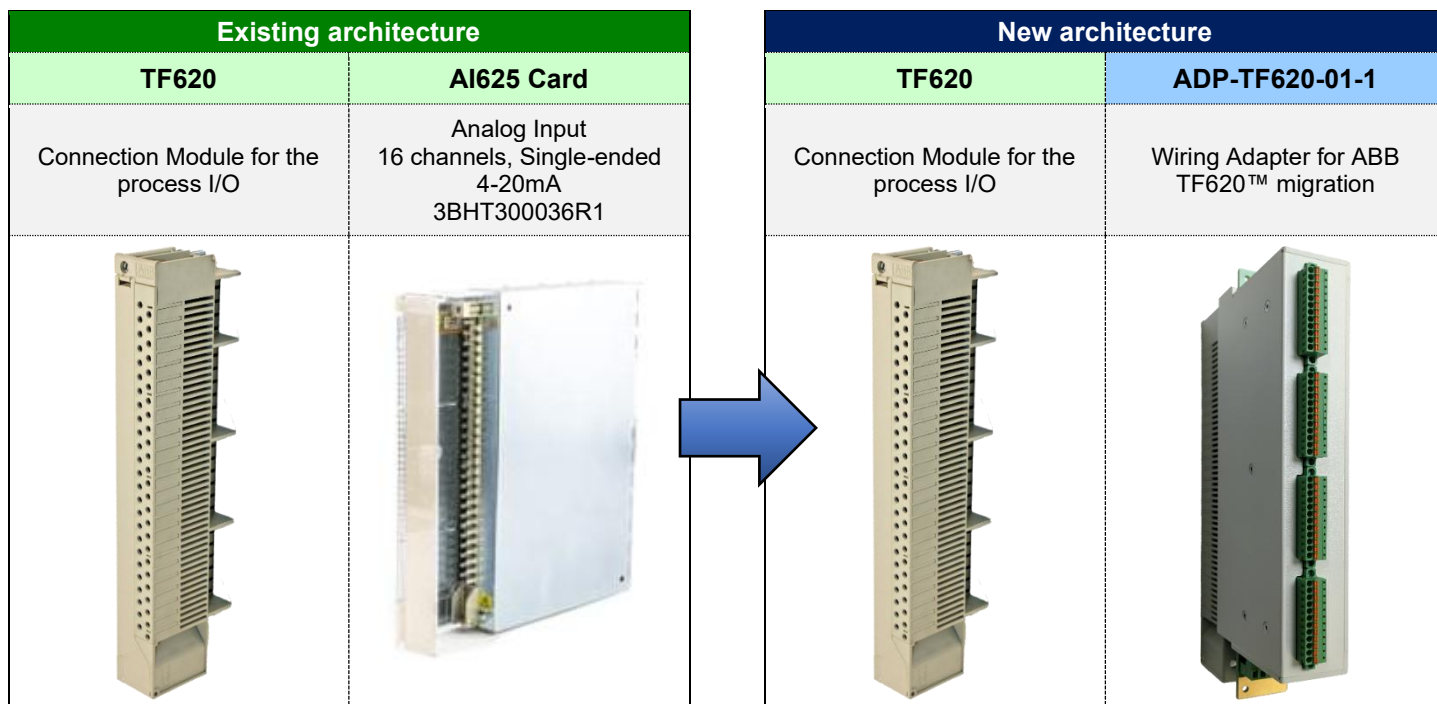
New EMERSON Ovation™ architecture - FMS-S600-OV-1-A11-A1

Existing Process Connection	Adapter	Cable	I/O Card
<p>TF620</p>	<p>ADP-TF620-01-1</p>	<p>Four cables for connection with one Ovation card</p>	<p>Emod : 5X00501G01 Pmod : 5X00502G01</p>
<p>TF620 Process Connector and associated wiring are kept in place (4W transmitter, 4-20mA)</p>	<p>Adapter installed in place of the AI620</p>	<p>Detail of the cable See cable section on firelec.com</p>	<p>Analog Input module, 16 channels, 4-20mA, Local Power Supply (4W) Terminal block</p>
		<p>CBL-2038A CH 1 to 4 : Cable option A</p> 	
		<p>CBL-2038B CH 5 to 8 : Cable option B</p> 	
		<p>CBL-2038C CH 9 to 12 : Cable option C</p> 	
		<p>CBL-2038D CH 13 to 16 : Cable option D</p> 	

New EMERSON Ovation™ architecture - FMS-S600-OV-1-AI1-A2



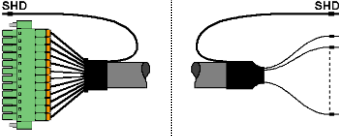

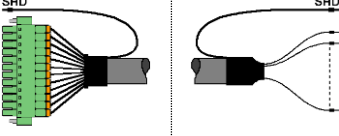
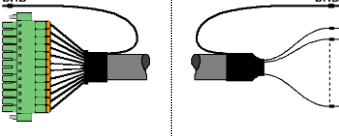
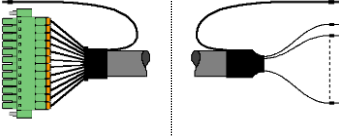
Existing Process Connection	Adapter	Cable	I/O Card
<p>TF620</p>	<p>ADP-TF620-01-1</p>	<p>Four cables for connection with Two Ovation cards</p>	<p>2 x Emod : 1C31113G06 2 x Pmod : 1C31116G01</p>
<p>TF620 Process Connector and associated wiring are kept in place (± 10 V)</p>	<p>Adapter installed in place of the AI620</p>	<p>Detail of the cable See cable section on firelec.com</p>	<p>Analog Input, 8 channels, ± 10 V, Terminal block</p>
		<p>CBL-TF620-OV-1-AI2-A1A 1st card CH 1 to 4 : Option A</p>  <p>CBL-TF620-OV-1-AI2-A1B 1st card CH 5 to 8 : Option B</p>  <p>CBL-TF620-OV-1-AI2-A1A 2nd card CH 1 to 4 : Option A</p>  <p>CBL-TF620-OV-1-AI2-A1B 2nd card CH 5 to 8 : Option B</p> 	

2.1. EXISTING CARD TO BE REMOVED : AI625 (16 channels)



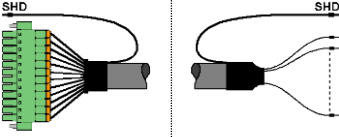

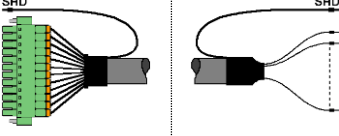
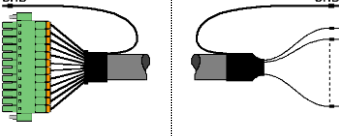
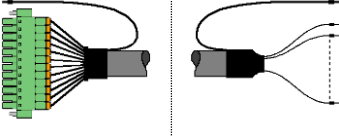


The existing architecture consists of an AI625 card connected to a TF620 module, where the process I/Os are wired. In the new architecture, the TF620 module and its associated wiring are retained. The AI625 card is replaced by the ADP-TF620 migration adapter, which connects to the corresponding Emerson Ovation™ I/O card.

New EMERSON Ovation™ architecture - FMS-S600-OV-1-AI2-A1

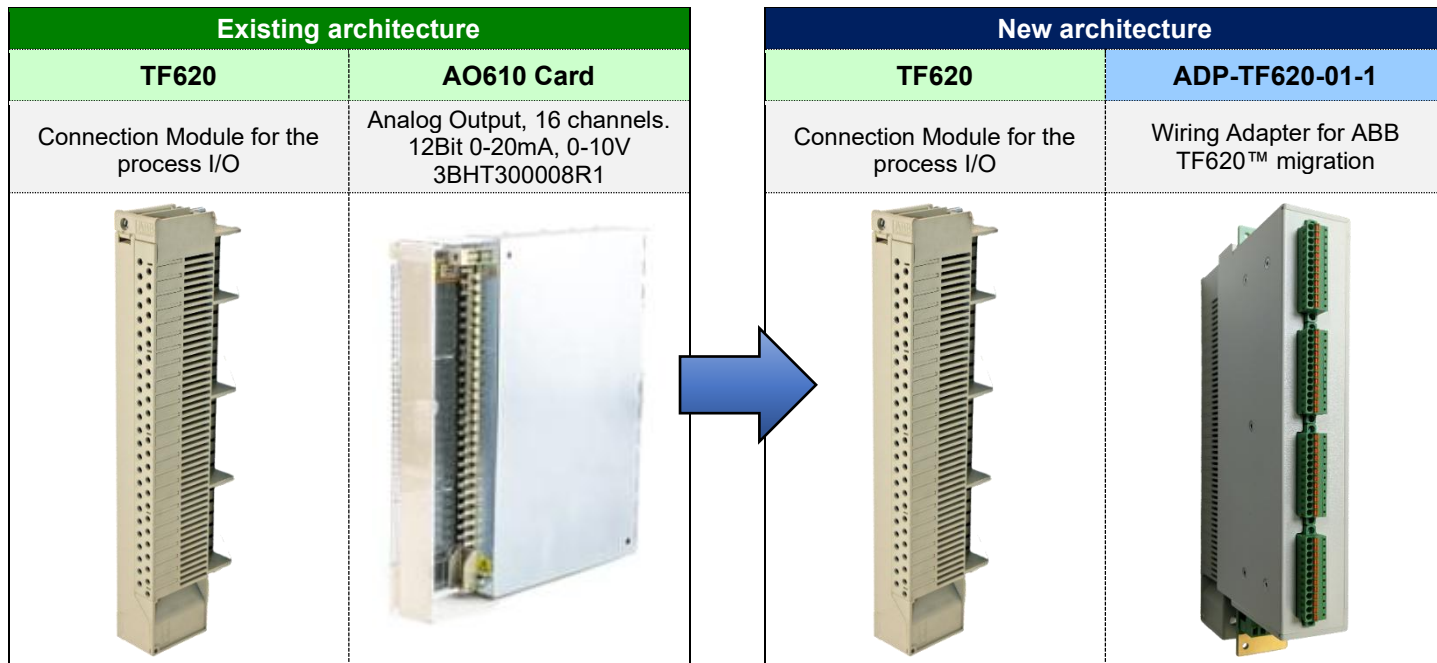
Existing Process Connection	Adapter	Cable	I/O Card
<p>TF620</p>	<p>ADP-TF620-01-1</p>	<p>Four cables for connection with one Ovation card</p>	<p>Emod : 5X00501G01 Pmod : 5X00502G01</p>
<p>TF620 Process Connector and associated wiring are kept in place</p>	<p>Adapter installed in place of the AI625</p>	<p>Detail of the cable See cable section on firelec.com</p>	<p>Analog Input module, 16 channels, 4-20mA, Terminal block</p>
		<p>CBL-1924A CH 1 to 4 : Cable option A</p> 	
		<p>CBL-2192B CH 5 to 8 : Cable option B</p> 	
		<p>CBL-1924C CH 9 to 12 : Cable option C</p> 	
		<p>CBL-1924D CH 13 to 16 : Cable option D</p> 	

New EMERSON Ovation™ architecture - FMS-S600-OV-1-AI2-A2

Existing Process Connection	Adapter	Cable	I/O Card
<p>TF620</p>	<p>ADP-TF620-01-1</p>	<p>Four cables for connection with one Ovation card</p>	<p>Emod : 5X00784G01 Ovation four-slot I/O base</p>
<p>TF620 Process Connector and associated wiring are kept in place</p>	<p>Adapter installed in place of the AI625</p>	<p>Detail of the cable See cable section on firelec.com</p>	<p>Analog Input, HART, 16 channels, 4-20mA, Terminal block</p>
		<p>CBL-2032A CH 1 to 4 : Cable option A</p> 	 <p>Local power (2-wire) Jumpers installed.</p> <p>Field power (4-wire) Jumpers removed.</p>
		<p>CBL-2032B CH 5 to 8 : Cable option B</p> 	
		<p>CBL-2032C CH 9 to 12 : Cable option C</p> 	
		<p>CBL-2032D CH 13 to 16 : Cable option D</p> 	

3. ANALOG OUTPUTS

3.1. EXISTING CARD TO BE REMOVED : AO610 (16 channels)



The existing architecture consists of an AO610 card connected to a TF620 module, where the process I/Os are wired.

In the new architecture, the TF620 module and its associated wiring are retained. The AO610 card is replaced by the ADP-TF620 migration adapter, which connects to the corresponding Emerson Ovation™ I/O card.

Note :



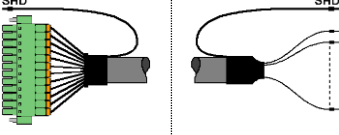
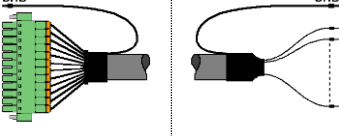
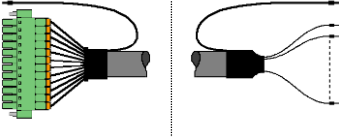
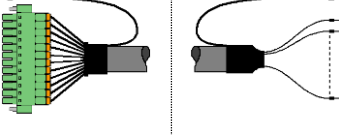

Electronics module 1C31129G02 provides voltage output range of **0 to 10V** (for simplex applications).

Electronics module 1C31129G03 provides current output range of **0 to 20mA** with diagnostics (for simplex applications).



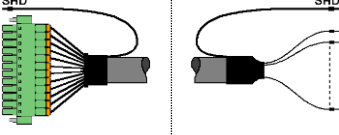
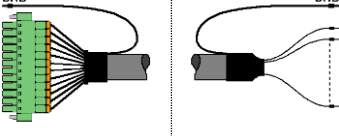
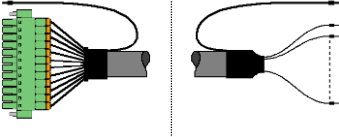
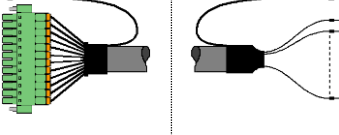

Electronics module 1C31129G04 provides current output range of **0 to 20mA** without diagnostics (for simplex applications).

0-10V and 0-20mA signals cannot be mixed on the same Ovation™ I/O card.

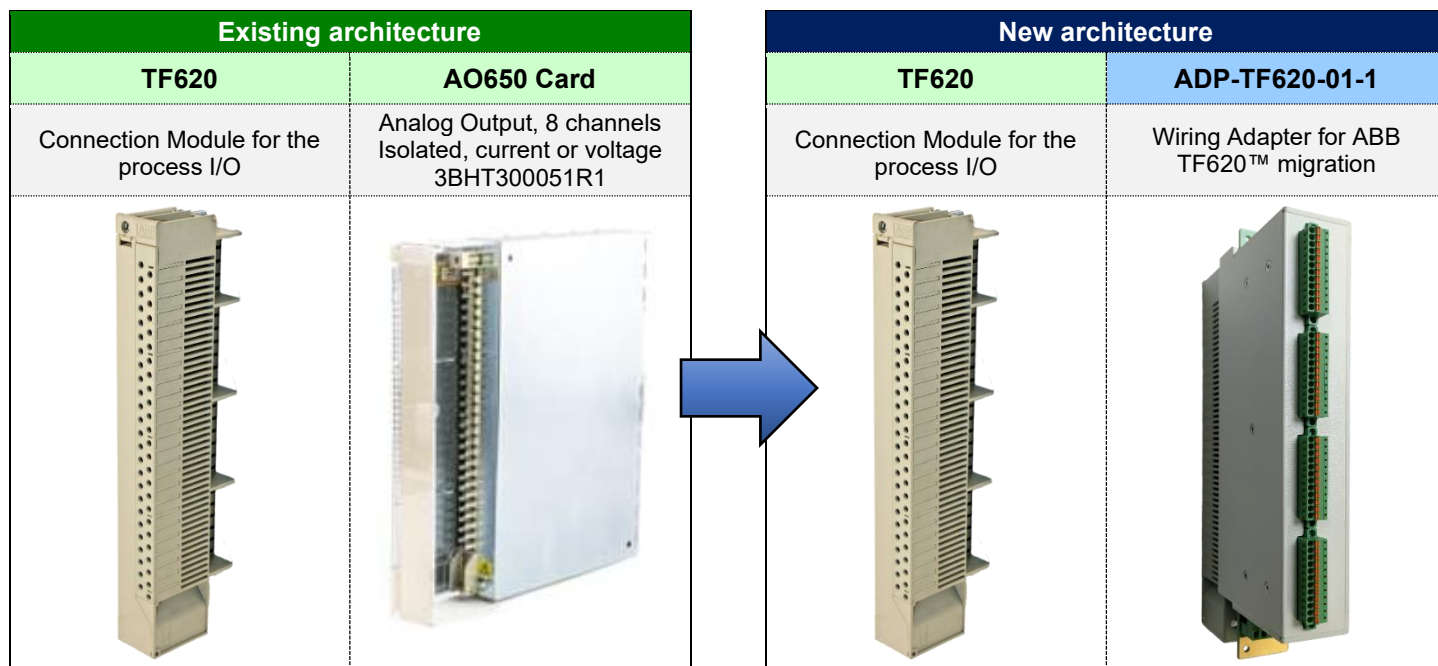
New EMERSON Ovation™ architecture - FMS-S600-OV-1-AO1-A1

Existing Process Connection	Adapter	Cable	I/O Card
<p>TF620</p> <p>TF620 Process Connector and associated wiring are kept in place. (0-20mA)</p>	<p>ADP-TF620-01-1</p> <p>Adapter installed in place of the AO610</p>	<p>Four cables for connection with four Ovation cards</p> <p>Detail of the cable See cable section on firelec.com</p>	<p>EM:1C31129G03 or G04 PM:1C31132G01</p> <p>Analog Output module, 4 channel, 0-20mA, Terminal block</p>
		<p>CBL-1926 To the 1st Card</p>  <p>CBL-1926 To the 2nd Card</p>  <p>CBL-1926 To the 3rd Card</p>  <p>CBL-1926 To the 4th Card</p> 	

New EMERSON Ovation™ architecture - FMS-S600-OV-1-AO1-A2

Existing Process Connection	Adapter	Cable	I/O Card
<p>TF620</p> <p>TF620 Process Connector and associated wiring are kept in place. (0-10V)</p>	<p>ADP-TF620-01-1</p> <p>Adapter installed in place of the AO610</p>	<p>Four cables for connection with four Ovation cards</p> <p>Detail of the cable See cable section on firelec.com</p>	<p>EM: 1C31129G02 PM: 1C31132G01</p> <p>Analog Output module, 4 channel, 0-10Vdc, Terminal block</p>
		<p>CBL- TF620-OV-1-AO1-A2 To the 1st Card</p>  <p>CBL- TF620-OV-1-AO1-A2 To the 2nd Card</p>  <p>CBL- TF620-OV-1-AO1-A2 To the 3rd Card</p>  <p>CBL- TF620-OV-1-AO1-A2 To the 4th Card</p> 	

3.1. EXISTING CARD TO BE REMOVED : AO650 (8 channels)



The existing architecture consists of an AO650 card connected to a TF620 module, where the process I/Os are wired.

In the new architecture, the TF620 module and its associated wiring are retained. The AO650 card is replaced by the ADP-TF620 migration adapter, which connects to the corresponding Emerson Ovation™ I/O card.

Note :



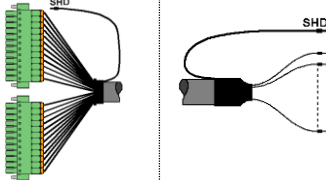

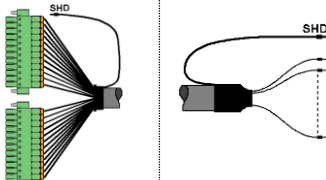
Electronics module 1C31129G02 provides voltage output range of **0 to 10V** (for simplex applications).

Electronics module 1C31129G03 provides current output range of **0 to 20mA** with diagnostics (for simplex applications).



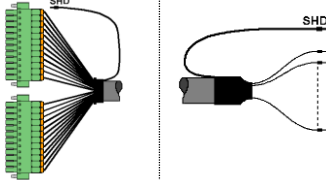

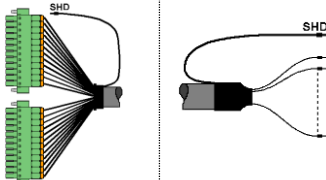
Electronics module 1C31129G04 provides current output range of **0 to 20mA** without diagnostics (for simplex applications).

0-10V and 0-20mA signals cannot be mixed on the same Ovation™ I/O card.



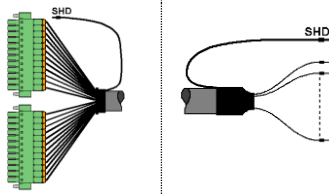

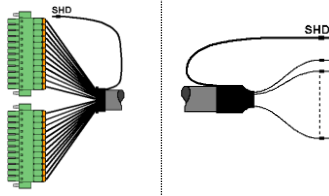
New EMERSON Ovation™ architecture - FMS-S600-OV-1-AO2-A1

Existing Process Connection	Adapter	Cable	I/O Card
TF620	ADP-TF620-01-1	Two cables for connection with Two Ovation cards	EM: 1C31129G03 or G04 PM: 1C31132G01
TF620 Process Connector and associated wiring are kept in place (0-20mA or 4-20mA)	Adapter installed in place of the AO650	Detail of the cable See cable section on firelec.com	Analog Output module, 4 channels, 0-20mA, Terminal block
		CBL-2037 To the 1 st Card 	
		CBL-2037 To the 2 nd Card 	



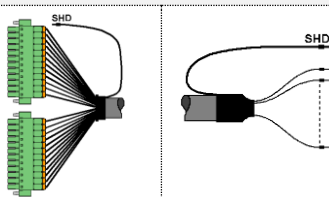

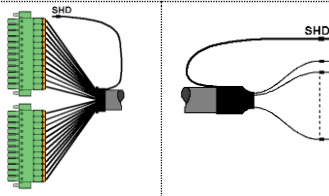
New EMERSON Ovation™ architecture - FMS-S600-OV-1-AO2-A2

Existing Process Connection	Adapter	Cable	I/O Card
TF620	ADP-TF620-01-1	Two cables for connection with Two Ovation cards	EM: 1C31129G02 PM: 1C31132G01
TF620 Process Connector and associated wiring are kept in place (0-10V)	Adapter installed in place of the AO650	Detail of the cable See cable section on firelec.com	Analog Output module, 4 channels, 0-10Vdc, Terminal block
		CBL-S600-OV-1-AO2-A2 To the 1 st Card 	
		CBL-S600-OV-1-AO2-A2 To the 2 nd Card 	

New EMERSON Ovation™ architecture - FMS-S600-OV-1-AO2-A3

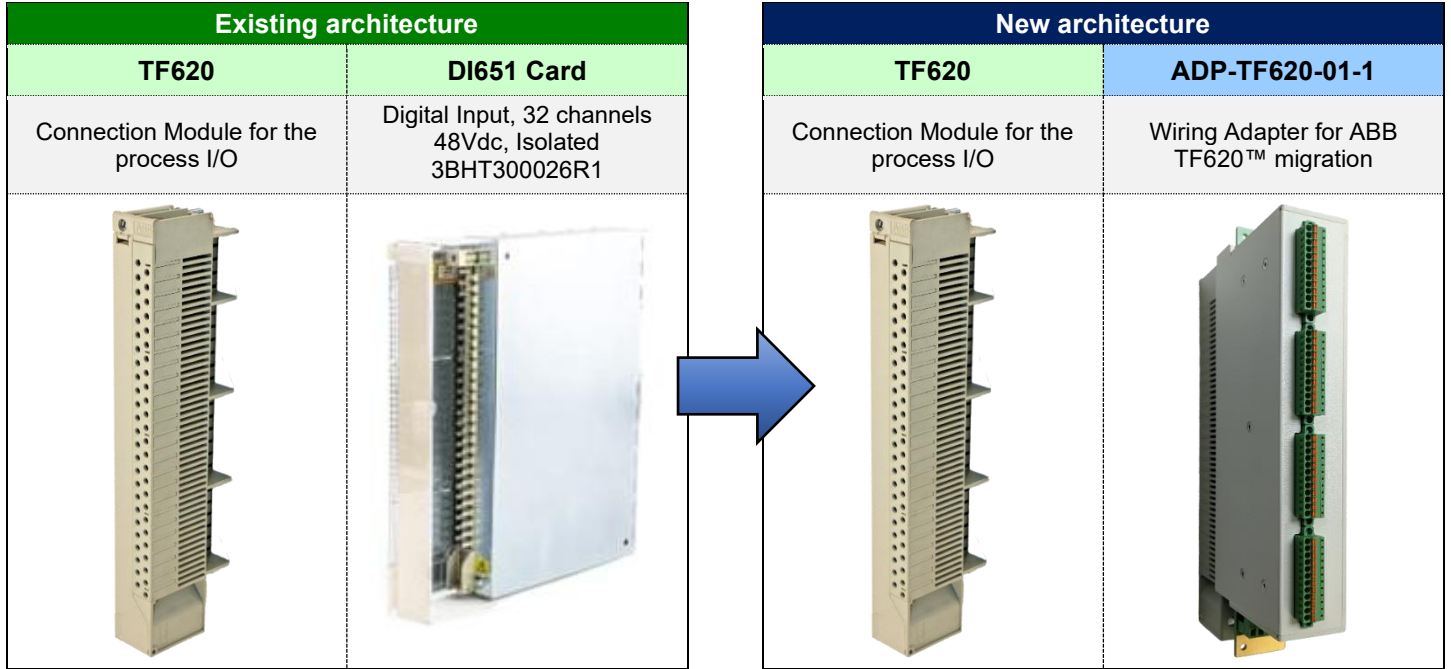
Existing Process Connection	Adapter	Cable	I/O Card
TF620	ADP-TF620-01-1	Two cables for connection with Two Ovation cards	EM: 5X00167G01 PM : 1X00188H01
TF620 Process Connector and associated wiring are kept in place (4-20mA)	Adapter installed in place of the AO650	Detail of the cable See cable section on firelec.com	Analog Output module, 4 channels, 4-20mA, HART, Terminal block
		CBL-S600-OV-1-AO2-A3 To the 1 st Card 	
		CBL-S600-OV-1-AO2-A3 To the 2 nd Card 	

New EMERSON Ovation™ architecture - FMS-S600-OV-1-AO2-A4

Existing Process Connection	Adapter	Cable	I/O Card
TF620	ADP-TF620-01-1	Two cables for connection with One Ovation card	EM: 5X00846G01
TF620 Process Connector and associated wiring are kept in place (4-20mA)	Adapter installed in place of the AO650	Detail of the cable See cable section on firelec.com	Analog Output module, 8 channels, 4-20mA, HART, Terminal block
		CBL-1927A To the 1 st Card 	
		CBL-1927B To the 2 nd Card 	



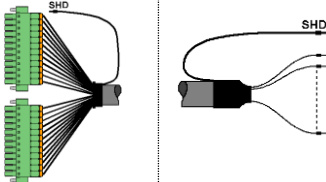
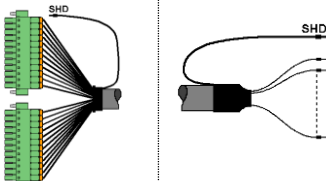

4. Digital Inputs

4.1. EXISTING CARD TO BE REMOVED : DI651 (32 channels)





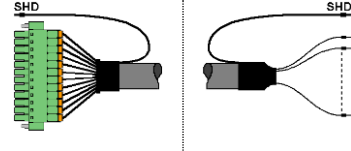

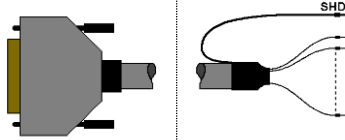

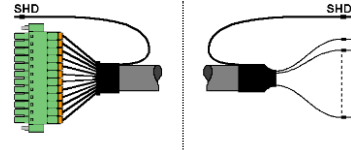
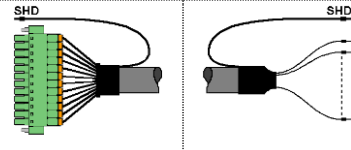
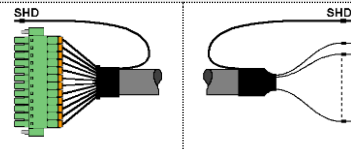
The existing architecture consists of a DI651 card connected to a TF620 module, where the process I/Os are wired. In the new architecture, the TF620 module and its associated wiring are retained. The DI651 card is replaced by the ADP-TF620 migration adapter, which connects to the corresponding Emerson Ovation™ I/O card.

New EMERSON Ovation™ architecture - FMS-S600-OV-1-DI1-A1

Existing Process Connection	Adapter	Cable	I/O Card
<p>TF620</p>	<p>ADP-TF620-01-1</p>	<p>Two cables for connection with Two Ovation cards</p>	<p>2 x EM: 5X00357G01 2 x PM: 1C31238H01</p>
<p>TF620 Process Connector and associated wiring are kept in place (48Vdc)</p>	<p>Adapter installed in place of the DI651</p>	<p>Detail of the cable See cable section on firelec.com</p>	<p>Digital Input module, 16 channels, 48Vdc differential, current sinking Terminal block</p>
		<p>CBL-2056 To the 1st Card</p>  <p>CBL-2056 To the 2nd Card</p> 	

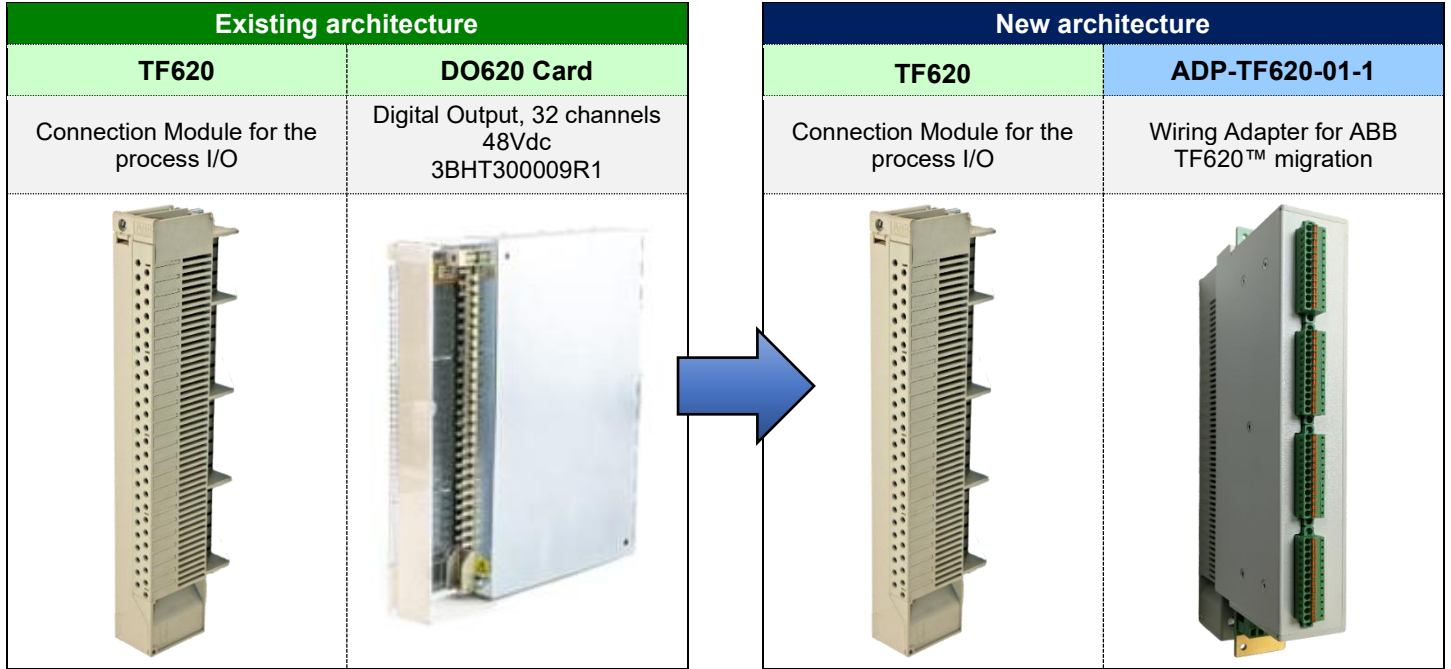
Using an auxiliary power supply voltage on the DI card. AUX Power fuses must be removed

New EMERSON Ovation™ architecture - FMS-S600-OV-1-DI1-A2

Existing Process Connection	Adapter	Cable	Interface	Cable	I/O Card
TF620	ADP-TF620-01-1	Four cables for connection with one interface	INT-DI323-ISO48DC	One cable for connection with one Ovation card	EM: 5X00605G01 PM: 1X00884H01
TF620 Process Connector and associated wiring are kept in place (48Vdc)	Adapter installed in place of the DI651	Detail of the cable See cable section on firelec.com	Digital Input Interface, 32 channels, 48Vdc	Detail of the cable See cable section on firelec.com	Contact Input SOE module, 32 channels, 48Vdc, current-sourcing Terminal block
		CBL-2034A CH 1 to 8 : Cable option A 		CBL-1794 	
		CBL-2034B CH 9 to 16 : Cable option B 			
		CBL-2034C CH 17 to 24 : Cable option C 			
		CBL-2034D CH 25 to 32 : Cable option D 			



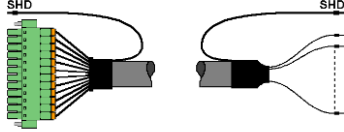

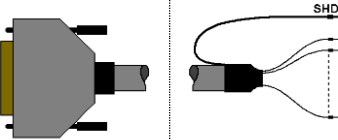

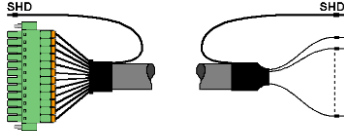
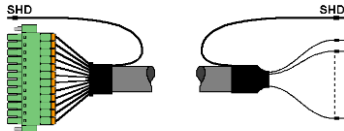
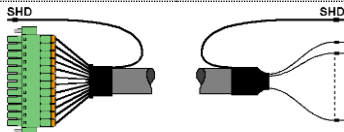
Digital Outputs

4.2. EXISTING CARD TO BE REMOVED : DO620 (32 channels)

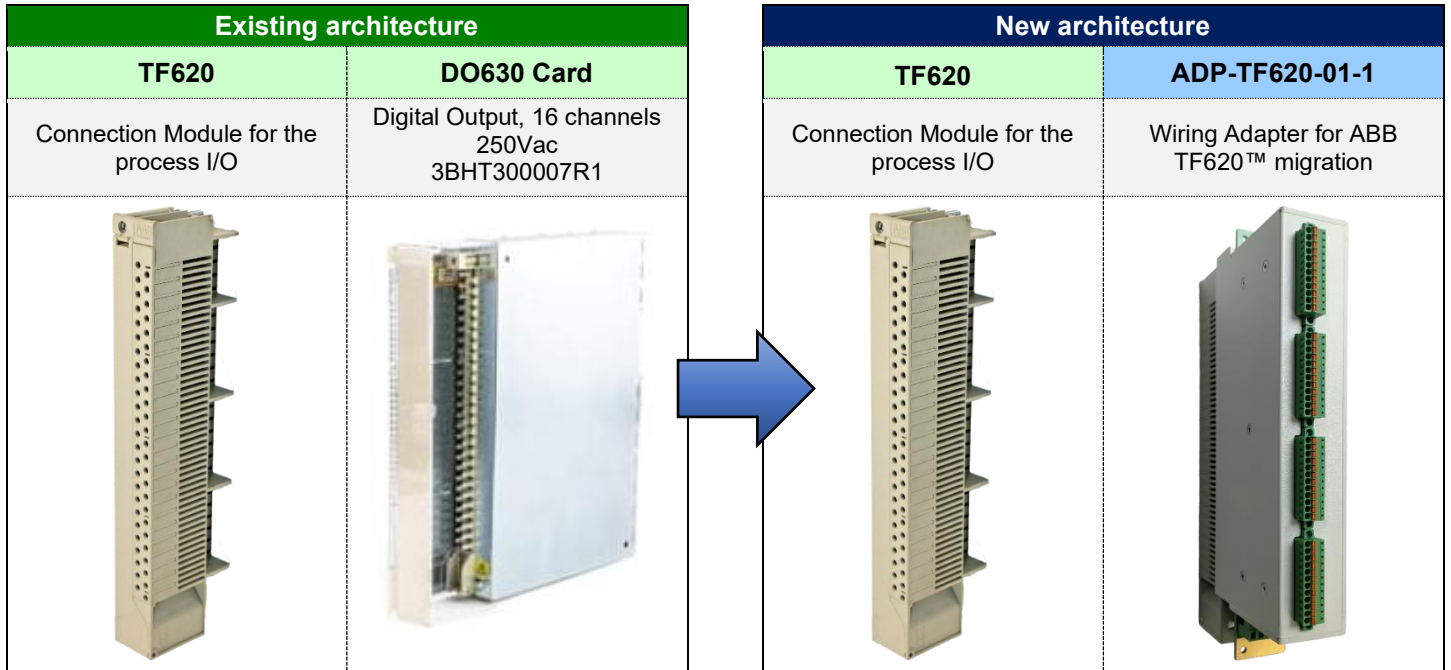


The existing architecture consists of a DO620 card connected to a TF620 module, where the process I/Os are wired. In the new architecture, the TF620 module and its associated wiring are retained. The DO620 card is replaced by the ADP-TF620 migration adapter, which connects to the corresponding Emerson Ovation™ I/O card.

New EMERSON Ovation™ architecture - FMS-S600-OV-1-DO1-A1

Existing Process Connection	Adapter	Cable	Interface	Cable	I/O Card
TF620	ADP-TF620-01-1	Four cables for connection with one interface	INT-DO32-R-F-SLD	One cable for connection with one Ovation card	EM: 5X00500G01 PM: 1X00691H01
TF620 Process Connector and associated wiring are kept in place (48Vdc)	Adapter installed in place of the DI651	Detail of the cable See cable section on firelec.com	Digital Output Interface, 32 channels, Solid state relays	Detail of the cable See cable section on firelec.com	Digital Output module, 32 channels, 24Vdc Terminal block
		CBL-2033A CH 1 to 8 : Cable option A 		CBL-1466 	
		CBL-2033B CH 9 to 16 : Cable option B 			
		CBL-2033C CH 17 to 24 : Cable option C 			
		CBL-2033D CH 25 to 32 : Cable option D 			


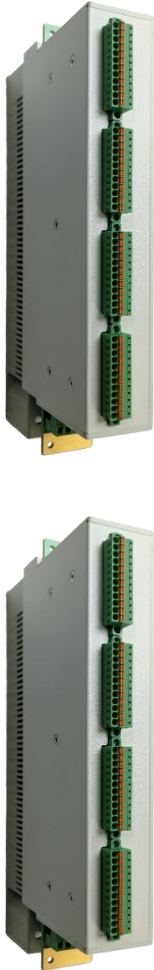

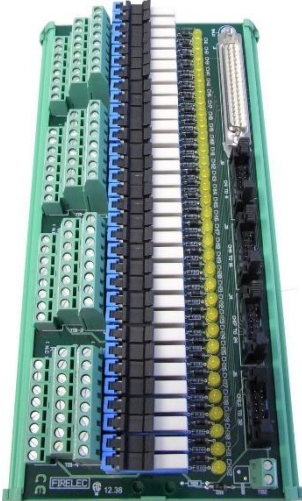
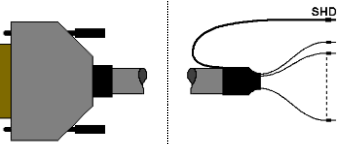







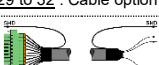
4.1. EXISTING CARD TO BE REMOVED : DO630 (32 channels)



The existing architecture consists of a DO620 card connected to a TF620 module, where the process I/Os are wired.

In the new architecture, the TF620 module and its associated wiring are retained. The DO620 card is replaced by the ADP-TF620 migration adapter, which connects to the corresponding Emerson Ovation™ I/O card.

New EMERSON Ovation™ architecture - FMS-S600-OV-1-DO2-A1

Existing Process Connection	Adapter	Cable	Interface	Cable	I/O Card
2 x TF620	2 x ADP-TF620-01-1	Four cables for connection with one interface	INT-DO32-R-STD	One cable for connection with one Ovation card	EM: 5X00500G01 PM: 1X00691H01
TF620 Process Connector and associated wiring are kept in place	Adapter installed in place of the DI651	Detail of the cable See cable section on firelec.com	Digital Output Interface, 32 channels, Electromechanical relays	Detail of the cable See cable section on firelec.com	Digital Output module, 32 channels, 24Vdc Terminal block
		CBL-TF620-OV-1-DO2-A1A CH 1 to 4 : Cable option A 		CBL-1794 	
		CBL-TF620-OV-1-DO2-A1B CH 5 to 8 : Cable option B 			
		CBL-TF620-OV-1-DO2-A1C CH 9 to 12 : Cable option C 			
		CBL-TF620-OV-1-DO2-A1D CH 13 to 16 : Cable option D 			
		CBL-TF620-OV-1-DO2-A1E CH 17 to 20 : Cable option E 			
		CBL-TF620-OV-1-DO2-A1F CH 21 to 24 : Cable option F 			
		CBL-TF620-OV-1-DO2-A1G CH 25 to 28 : Cable option G 			
		CBL-TF620-OV-1-DO2-A1H CH 29 to 32 : Cable option H 			

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