

Technical News Bulletin

Cham, 22-September-2021



FlexIS 3
Standalone S4.0

Servo Electric Invert (SEI), Servo Electric Takeout (SETO)
and/or FlexPusher as standalone system

Introduction

The FlexIS 3 Standalone S4.0 system is designed to control the Servo Electric Invert (SEI), the Servo Electric Takeout (SETO), and the FlexPusher or 860 Pusher, to be installed as an upgrade on an existing forming machine for up to 12 sections.

The software is based on the full FlexIS 3 system.

System Description

The FlexIS 3 Standalone S4.0 system consists of:

- Main cabinet for FlexPusher drives and main controls
- Extension cabinet for SEI and/or SETO drives
- User interface
- Interface cables to the timing system
- Additional control switches



Required Input and Output Signals

The system requires following 24VDC inputs from the main timing system over optocouplers:

- 1/cut signal
- Emergency Stop – Dual signal
- Maintenance Stop – Dual signal (with only Pusher this can come from separate push button)
- Normal Stop (optional) signal
- Invert ON (SEI) trigger signal
- Revert ON (SEI) trigger signal
- Takeout IN (SETO) trigger signal
- Takeout OUT (SETO) trigger signal
- Takeout Kickback (SETO) trigger signal
- Pusher Start trigger signal

Following outputs are available from the standalone system:

- Ready to start (prevent section start if standalone system is not ready to run)
- Signal high when mechanisms are calibrated
- Stop “gob in”
- Section Stop (used to stop the section at any fault of the standalone system)
- Signal high when controller is booted
- Pulse signal (low) at any fault
- Alarm output
- HEWR Release output
- Pocket Air valve outputs
- Air Guide valve outputs

At the machine, additional push buttons must be installed:

- Calibration Request push button
- Pusher Disable switch
- SEI Disable switch
- SEI Jog switch
- SETO Disable switch
- SETO Jog switch
- For Pusher: Maintenance Stop (if signal is not provided by main timing system)

Hardware

The Main Cabinet consists of:

- Section Controllers, Maintenance Stop circuits, and interface circuits, mounted on the back of the left door.
- The Master Synchronization Unit, power supply distribution and connectors, mounted on the top plate in the cabinet, with one 24 VCA power supply and a circuit breaker per section.
- The drives for the Pushers and the connectors for sections 1 to 6 and 7 to 12, mounted on two mounting plates in the cabinet.

The extension cabinet consists of:

- The drives for SEI and/or SETO for sections 1 to 6 and 7 to 12, mounted on two mounting plates in the cabinet
- Interface to the main cabinet

The Section Controller includes:

- 1 CPU module
- 2 expansion input modules
- 1 expansion output module

The standalone control uses the same controllers, I/O modules and drives as the standard FlexIS 3:

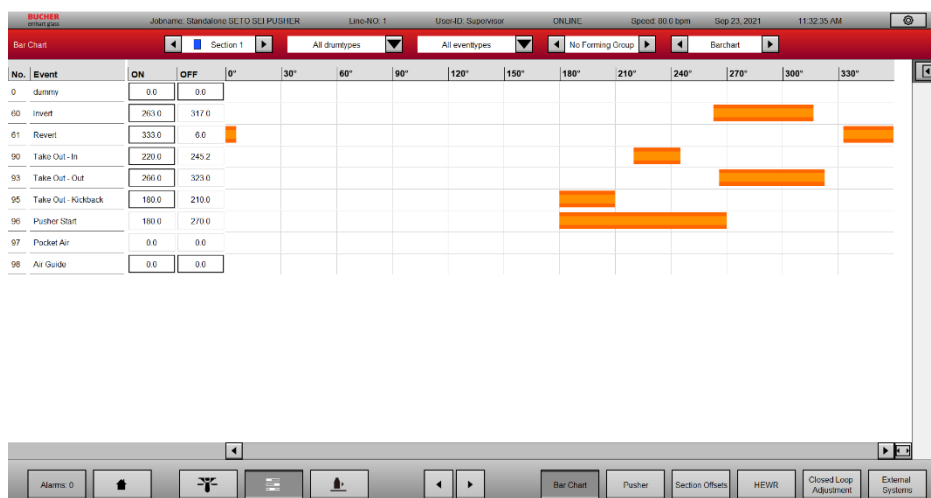
- Drive JM-215 for SEI and SETO
- Drive JM 204 for FlexPusher



User Interface

The user interface is the standard FlexIS UC2 cabinet (recommended) or a desktop computer. The UC2 is located near the machine.

The setup of all servomechanisms can be accessed from the FlexIS home screen, by pressing the corresponding symbol on the working area.



Interfaces

Timing system

The Servo Invert (SEI), Servo Takeout (SETO), and FlexPusher are section mechanisms. Therefore, their motion is part of the section cycle. The FlexIS standalone receives the signals to start the motion of each of the three servo mechanisms, within the section cycle, from the existing Timing System.

The standalone system status is sent back to Timing System as interlock.

Interface cables

TSI cable:

- 1/cut
- Maintenance Stop – Dual signal (with only Pusher this can come from separate push button)
- Normal Stop (optional)
- Invert ON (SEI) trigger
- Revert ON (SEI) trigger
- Takeout IN (SETO) trigger
- Takeout OUT (SETO) trigger
- Takeout Kickback (SETO) trigger
- Pusher Start trigger
- Ready-to-start
- Stop “gob in”
- Section Stop
- Alarm output
- HEWR release output
- 0V from timing system (for optocouplers)
- 24VDC from timing system (for optocouplers)

BK cable

- 24VDC and 0V
- Calibration
- SEI Disable
- SEI Override Invert
- SEI Override Revert
- Calibration light
- Alarm light

BW cable

- 24VDC and 0V
- Calibration
- SETO Disable
- SETO Override In
- SETO Override Out
- Pusher Disable
- Calibration light
- Alarm light

VB cable

- Pocket Air valve outputs
- Air Guide valve outputs
- 0V

Blankside face plate

Calibration push button with light
Alarm light (Optional)

Additional control switches for SEI, per section:

- SEI Disable switch
- SEI Override switch

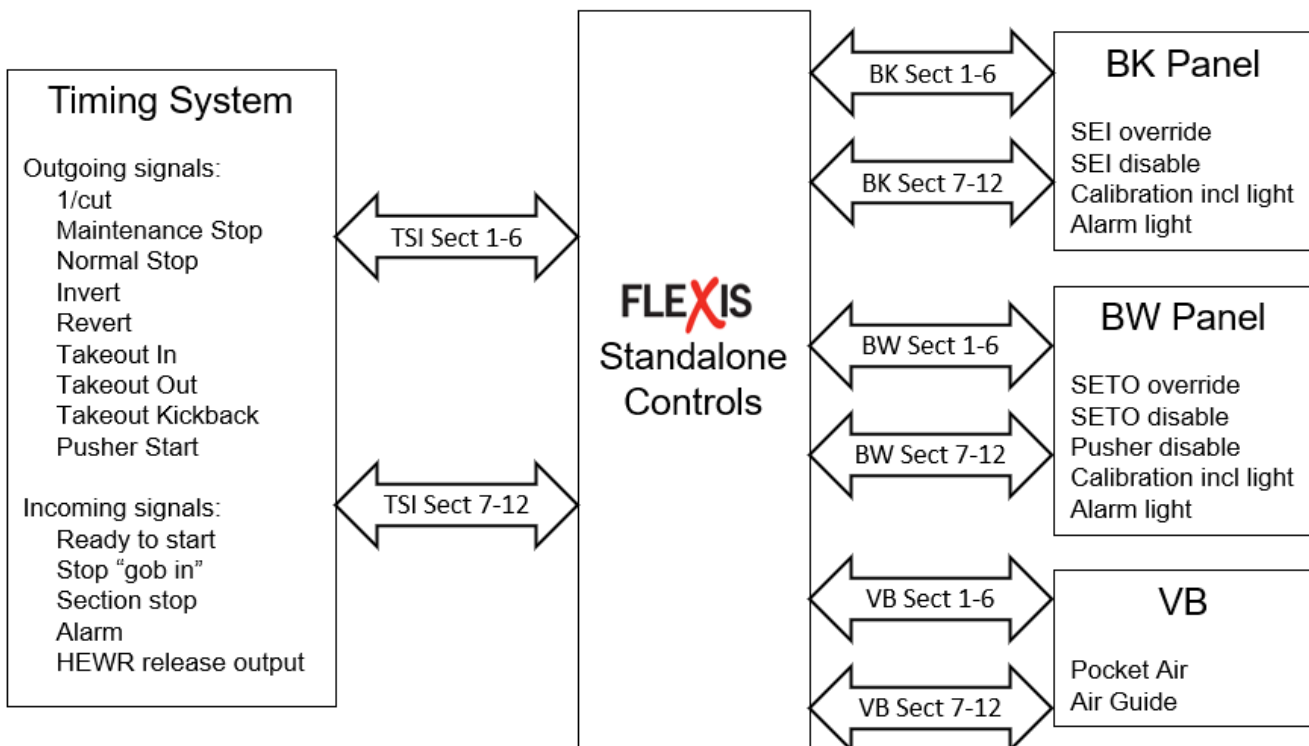
These switches can be integrated in the existing BlankSide (BK) panel or can be mounted in a separate panel.

Blowside face plate

Additional control switches for SETO and FlexPusher, per section:

- FlexPusher disable switch
- SETO Disable switch
- SETO Override switch

These switches can be integrated into the existing BlowSide (BW) panel or can be mounted in a separate panel.

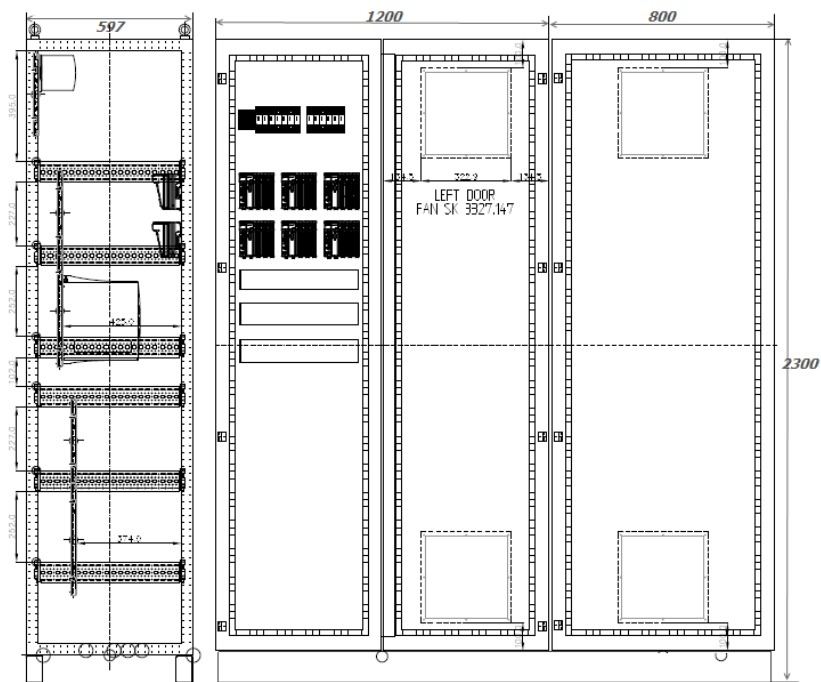


Reference numbers:

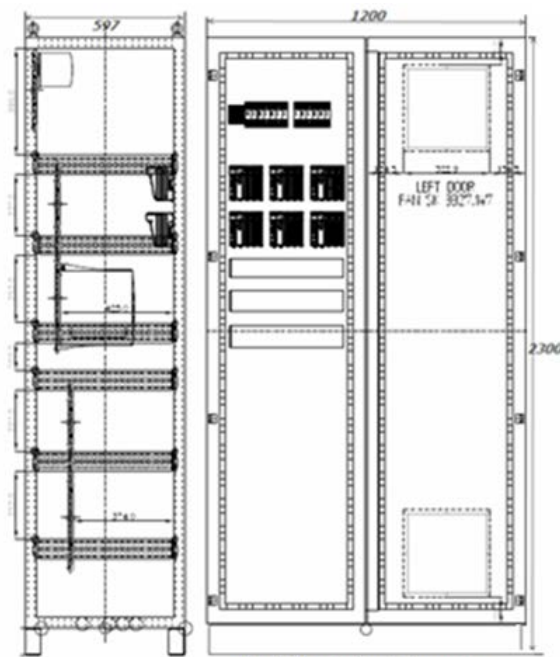
601-5-00	Master list
601-10-47	Standalone Control System S4.0 – Electrical schematic
HE11012	Instruction notice

Cable	BEG part number
SEI Motor Power (2.5 mm ²)	1x 601-241-xx per section
SEI Resolver	1x 601-243-xx per section
SETO Motor Power (1.5 mm ²)	1x 601-239-xx per section
SETO Resolver	1x 601-243-xx per section
FlexPusher Motor Power (1.5 mm ²)	2x 601-239-xx per section
FlexPusher Resolver	2x 601-243-xx per section
TSI	1x 601-224-xx per 6 sections
BK	1x 601-221-xx per 6 sections
BW	1x 601-222-xx per 6 sections
VB (Pusher valves)	1x 601-223-xx per 6 sections

Cabinet Dimensions



Full configuration: 2000 mm x 600 mm x 2300 mm (Width x Depth x Height)



Standalone Cabinet Dimensions

Pusher-only configuration: 1200 mm x 600 mm x 2300 mm (Width x Depth x Height)

Installation Requirement

User Console

Dimension (w x d x h)	600 x 600 x 1800 mm
Line Supply	1 x 230VAC -10% /+10%

Control Cabinet

Reference drawing:	601-20010
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Ambient Condition

Temperature	0 to 40°C
Humidity	10% to 80% (non condensing)
Protection Class	IP 23

Main Supply

Line Supply	3 x 400VAC, -10% /+15%
Line Frequency	48 to 62 Hz
Line Fuse (to be provided by customer)	40 A

Power Consumption

12 Sections all axis	15 kVA
10 Sections all axis	13 kVA
8 Sections all axis	10 kVA
6 Sections all axis	8 kVA

Typical heat dissipation

12 Sections all axis	2400 Watt
10 Sections all axis	2000 Watt
8 Sections all axis	1600 Watt
6 Sections all axis	1200 Watt

Features

Available for machine upgrade

Hardware replacement with automatic configuration

UC support multi-language

Benefits

Same parts as FlexIS 3

Extend timing system with servo mechanisms
