OPERATING MANUAL

FEEDRkon : CONTROLLER FOR VIBRATORY FEEDERS



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Business Mission

Streamline Controls Private Limited (SCPL) is in the business of providing electronic and computerized automation solutions for different industries to enhance quality and productivity.

Our motto is to provide indigenous, reliable, and proven products that deliver consistent performance. Our concept of value to customers is to supply indigenous control systems designed with latest technology, developed through extensive research and development, manufactured under strict quality control, duly tested, competitively priced, delivered on time, and supported by service teams.

We consider it our responsibility to operate at a reasonable profit, as profit provides opportunity for research and development, growth, and job security. Therefore, we are dedicated to profitable growth - growth as a company and growth as individuals.

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Preface

Thank you for choosing our Vibratory Feeder Controller.

This manual provides the necessary information for the safe installation, operation, setting, and maintenance of the controller. The controller is designed for regulating the output power supplied to electromagnetic vibratory feeders, enabling controlled material flow by adjusting the feeder vibration intensity according to the application requirement.

The product is intended for use in industrial environments and must be installed, commissioned, and serviced only by technically qualified personnel. Before using the controller, please read this manual carefully and follow all safety instructions, wiring guidelines, operating procedures, and parameter setting instructions provided herein.

Correct installation and proper parameter setting are essential for reliable operation, stable feeding performance, and protection of the feeder coil, controller, and connected equipment. The user must ensure that the controller rating, supply voltage, feeder voltage, load current, wiring, earthing, and protection devices are suitable for the intended application.

This manual should be kept safely and made available to all personnel involved in installation, operation, troubleshooting, and maintenance of the equipment.

Failure to follow the instructions in this manual may result in improper operation, equipment damage, electric shock, fire hazard, or personal injury. The manufacturer shall not be responsible for any damage caused by incorrect installation, unauthorized modification, improper use, or operation outside the specified limits.

For best performance and long service life, use the controller only within the specified electrical and environmental ratings. Specifications are subject to change without prior notice.

Contents

1. Product Overview
2. Safety Instructions
3. System Specifications
4. System Components
5. Mechanical Details and Mounting
6. Electrical Installation and Wiring
7. Front Keyboard and Display Operation
8. Keyboard Operating Modes
9. Parameter List
10. Local and Remote Operation
11. Fault Messages and Corrective Action
12. Fault Reset Procedure
13. Commissioning Procedure
14. Notes for Parameter Setting
15. Maintenance and Inspection
16. Appendix: Revision History

1. Product Overview

The Vibratory Feeder Controller is designed to control the vibration level of electromagnetic vibratory feeders by regulating the output supplied to the feeder coil. The controller provides front-panel operation, parameter programming, current monitoring, remote start/stop control, remote amplitude control, soft start/soft stop operation, and fault protection.



2. Safety Instructions

Read and understand this manual before installing or operating the controller. Installation, commissioning, servicing, and troubleshooting must be carried out only by qualified electrical personnel.

• Disconnect the mains supply before wiring, opening the enclosure, replacing fuses, or performing maintenance.

• Ensure that proper earthing is provided before operating the controller.

• Use suitable external protection devices such as fuse/MCB as recommended for the controller rating.

• Do not operate the controller outside the specified supply voltage, current rating, temperature, humidity, or load conditions.

• Emergency stop and machine-level safety interlocks must be provided externally wherever required by the application.

3. System Specifications

Category	Specification	Value / Details
Input	Supply Voltage	230 V AC +/- 10%
Input	Supply Frequency	50 Hz
Output	Output Current Rating	6A
Output	Output Frequency	30 Hz to 140 Hz
Control	Amplitude Control	0 to 100%
Control	Remote Amplitude Input	0 to 10 V DC when remote amplitude mode is enabled
Protection	Current Trip Range	0 to 6 A
Protection	Overvoltage Fault	Nominal 230 V AC + approximately 10%
Environment	Operating Temperature	0 deg C to 55 deg C
Environment	Humidity	5% to 95% RH, non-condensing
Mechanical	Overall Dimensions	147mm (L) x 96mm (W) x 210mm (H)

4. Mechanical Details and Mounting

Install the controller in a suitable panel or enclosure with adequate clearance for wiring, ventilation, and service access. The controller must be mounted securely to prevent vibration-related loosening or mechanical damage.

Wall Mounting through Hall

(Screw: 3 X 30 mm)



5. Electrical Installation and Wiring

Before wiring the controller, verify that the supply voltage, feeder coil rating, current rating, earthing, and protection devices are suitable for the application. All wiring must comply with applicable electrical safety practices.

• Connect the supply input to the designated supply wires.

• Connect the feeder coil to the designated output wires.

• Use proper cable size according to current rating and installation conditions.



Cable Connections

"INPUT 230V AC IN" CABLE

RED	LIVE
BLACK	NEUTRAL
GREEN	EARTHING

"CONTROL" CABLE

GREEN	INPUT : ON
BLUE	INPUT : ERROR RESET
YELLOW	OUTPUT : RUN STATUS
WHITE	OUTPUT : FAULT STATUS
VIOLET	IN : +24V DC
RED	OUT : +V REF
ORANGE	IN : AVI (0-10V)
GRAY	GND
BROWN	NC
BLACK	NC

"OUTPUT to DEVICE" CABLE

RED	LOAD
BLACK	LOAD
GREEN	EARTHING

7. Front Keyboard and Display Operation

The controller is provided with a front-mounted 7-segment display and a 6-key keyboard for local operation, parameter setting, fault indication, and system monitoring. The display allows the operator to view operating values such as amplitude and output current, modify user-level parameters, access protected configuration settings, and identify fault conditions.



7.1 Key Functions

Key	Function
PROGRAM	Switches between View Mode and Program Mode.
ENTER	In View Mode, scrolls through visible parameters. In Program Mode, selects a parameter for editing and confirms the modified value.
INCREMENT	Increases the selected parameter value in Parameter Edit Mode. In View Mode, increases amplitude directly.
DECREMENT	Decreases the selected parameter value in Parameter Edit Mode. In View Mode, decreases amplitude directly.
START	In Local Mode, turns ON the vibration output.
STOP	In Local Mode, turns OFF the vibration output. Also resets faults in Local Mode.

8. Keyboard Operating Modes

8.1 View Mode

View Mode is the normal operating display mode of the controller. In this mode, the operator can view the main operating values. The operator can move between available display values by pressing the ENTER key.

Display Value	Example	Description
Amplitude		Shows the set vibration amplitude in percentage. Here, Amplitude is set to 50.
Output Current		Shows the output current supplied to the feeder coil. Here, the output current is 0.3A
Status		Shows the status of remote inputs, if status display mode is enabled. Press increment/ decrement keys to view status of different inputs. 1: Start Input 2: Stop Input 3. Fault Reset Input Here, input 1 has a state LOW (0).

In View Mode, amplitude can be increased or decreased directly using the INCREMENT or DECREMENT key. Changes made directly in View Mode are temporary operating changes and will not be permanently saved unless the amplitude value is programmed through Program Mode.

Status view can be enabled by simply pressing, PROGRAM + DECREMENT keys together.

8.2 Program Mode

Program Mode is used to view and modify settable parameters. Amplitude and Frequency are available at the user level. Additional configuration parameters are available only when Admin Mode is enabled.

Press the PROGRAM key to enter Program Mode from View Mode. Press PROGRAM again to return to View Mode.

Admin Mode can be accessed by pressing the PROGRAM + INCREMENT keys together. In Admin Mode, protected configuration parameters such as soft start, soft stop, on-delay, off-delay, current trip, and remote operation settings can be programmed.

8.3 Parameter Edit Mode

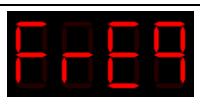
Parameter Edit Mode is used to modify the value of a selected parameter.

1. Enter Program Mode using the PROGRAM key.
2. Select the required parameter.
3. Press ENTER to enter Parameter Edit Mode.
4. Use INCREMENT or DECREMENT to change the value.
5. Press ENTER again to confirm and update the parameter value.

If ENTER is not pressed after modifying the value, the changed value will not be applied to the parameter.

9. Parameter List

The following parameters are available through the display. The display name shown below appears on the 7-segment display.

Parameter	Display Name	Range	Resolution
Amplitude		0 to 100 %	1%
Frequency		30 to 140 Hz	1 Hz
Soft Start		0 to 4 s	0.1 sec
Soft Stop		0 to 4 s	0.1 sec
On Time Delay		0 to 15 s	0.1 sec
Off Time Delay		0 to 15 s	0.1 sec
Current Trip		0 to 10 A	0.1 A
Remote Start/Stop Enable		0 or 1	1
Remote Amplitude Enable		0 or 1	1
Factory setting		0 or 1	1

9.1 Parameter Descriptions

Amplitude (`ANPL`):

Sets the vibration amplitude from 0% to 100%. This parameter controls feeder output level. It can be adjusted in both local and remote operation depending on the selected mode. Amplitude can also be modified directly in View Mode; however, the modified value is not permanently saved unless programmed.

Frequency (`FrEq`):

Sets the operating frequency of the feeder output in Hz. This parameter is modified only through Program Mode. The correct frequency depends on the feeder design and application.

Soft Start (`SStr`):

Sets the ramp-up time in seconds. When the feeder is started, the output increases gradually from zero to the set amplitude over the programmed soft start time. This helps reduce mechanical shock and sudden current surges.

Soft Stop (`SStP`):

Sets the ramp-down time in seconds. When the feeder is stopped, the output decreases gradually from the set amplitude to zero over the programmed soft stop time.

On Time Delay (`ontd`):

Sets the delay before the vibration output turns ON after a valid start command is received. This delay is useful for sequence control applications.

Off Time Delay (`oFtd`):

Sets the delay before the vibration output turns OFF after a valid stop command is received. This delay is useful where controlled stopping or process sequencing is required.

Current Trip (`CtrP`):

Sets the output current trip level in amperes. If feeder current exceeds this programmed value, the controller trips and displays an overcurrent fault. This parameter protects the feeder coil and controller against overload or abnormal current surges.

Remote Start/Stop Enable (`rSEn`):

Selects the start/stop control source.
0 = Local start/stop from front keyboard.
1 = Remote start/stop through external input signals.

Remote Amplitude Enable (`rAEn`):

Selects the amplitude control source.
0 = Local amplitude setting from front keyboard.
1 = Remote amplitude control through 0-10 V input.

Factory Program (`FPrG`):

Sets all the parameters at default value
0 = factory programming disabled.
1 = factory programming enabled. After setting it to 1, it will again set to 0 once all parameters are updated to default value.

10. Local and Remote Operation

10.1 Local Mode

In Local Mode, the controller is operated from the front keyboard. The START and STOP keys directly control the vibration output.

Operation	Key
Start vibration	START
Stop vibration	STOP
Reset fault	STOP
Increase amplitude	INCREMENT
Decrease amplitude	DECREMENT

10.2 Remote Mode

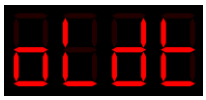
In Remote Mode, vibration output is controlled using external digital inputs. The front keyboard can still be used for display and parameter setting, but start/stop operation is controlled through remote input signals. The status of Remote inputs can be seen in Normal view mode.

Remote Input	Function
Start Input	A HIGH pulse maintained for at least 100 ms turns ON the vibration output.
Stop Input	A HIGH pulse maintained for at least 100 ms turns OFF the vibration output.
Fault Reset Input	A HIGH pulse maintained for at least 100 ms resets the fault status.

For reliable operation, the remote input signal must remain HIGH for a minimum duration of 100 ms.

11. Fault Messages and Corrective Action

The controller continuously monitors important operating conditions such as output current, input voltage, and power device status. If an abnormal condition is detected, the controller stops the vibration output and displays the corresponding fault message.

Fault Display	Fault Name	Possible Cause	Corrective Action	Reset Method
	**Overcurrent Trip**	Output current exceeds the programmed Current Trip value. Possible causes include feeder overload, incorrect current trip setting, coil issue, wiring problem or abnormal surge current.	Check feeder coil, wiring, current trip setting, load condition, and mechanical blockage. Correct the cause before restarting.	Press STOP in Local Mode or apply a 100 ms HIGH pulse to Fault Reset Input in Remote Mode.
	**Overvoltage Fault**	Input supply voltage exceeds allowed limit. For nominal 230 V AC supply, fault occurs if input voltage exceeds specified limit by approximately 10%.	Measure input supply voltage and ensure it is within specified range. Check supply source and wiring.	Press STOP in Local Mode or apply a 100 ms HIGH pulse to Fault Reset Input in Remote Mode.
	**Short Circuit Fault**	Short-circuit condition detected in power devices or output power section.	Switch OFF supply and inspect output wiring, feeder coil, and power section. Remove short circuit before reset.	Remove fault cause first. Then press STOP in Local Mode or apply a 100 ms HIGH pulse to Fault Reset Input in Remote Mode.

12. Fault Reset Procedure

Before resetting any fault, the cause of the fault must be identified and corrected.

12.1 Local Mode Fault Reset

1. Check the displayed fault message.
2. Inspect feeder, wiring, supply voltage, and load condition.
3. Correct the cause of the fault.
4. Press STOP to clear the fault.
5. Restart the controller only after confirming safe operating conditions.

12.2 Remote Mode Fault Reset

1. Check the displayed fault message.
2. Correct the cause of the fault.
3. Apply a HIGH pulse of at least 100 ms to the Fault Reset Input.
4. Restart vibration output using the remote Start Input.

If the same fault appears repeatedly after reset, the controller must not be restarted continuously. Wiring, feeder coil, supply voltage, load current, and power section must be checked before further operation.

13. Commissioning Procedure

Use the following procedure during first installation or after major wiring changes:

1. Verify controller rating, feeder coil rating, supply voltage, and recommended protection device.
2. Check all power, output, control, and earth connections.
3. Keep amplitude at a low value before first start.
4. Power ON the controller and verify that no fault is displayed.
5. Set required frequency, amplitude, soft start, soft stop, on-delay, off-delay, and current trip parameters.
6. Start the feeder and gradually increase amplitude to achieve required feeding rate.
7. Monitor output current and ensure it remains below the programmed current trip level.
8. Record final parameter settings for future service reference.

14. Notes for Parameter Setting

1. Parameter values must be selected according to feeder rating, feeder coil current, application requirement and mechanical tuning of the feeder.
2. Current Trip value should be set below the maximum safe current rating of the feeder and controller.
3. Soft Start and Soft Stop should be adjusted to avoid sudden mechanical shock during start and stop operation.
4. On Time Delay and Off Time Delay should be used where the controller is part of a machine sequence or automation system.
5. Remote Start/Stop and Remote Amplitude modes should be enabled only after verifying the external control wiring.
6. After changing any parameter in Parameter Edit Mode, ENTER must be pressed to apply the modified value.

15. Maintenance and Inspection

The controller does not require routine calibration under normal conditions. Periodic inspection is recommended to ensure safe and reliable operation.

- Check terminal tightness and wiring condition periodically.
- Keep the controller clean and free from conductive dust, oil, moisture, and metal particles.
- Ensure ventilation openings are not blocked.
- Inspect the feeder coil and output wiring if repeated current trip or short-circuit faults occur.
- Do not use solvents or water for cleaning the controller. Use a dry cloth or suitable industrial cleaning method after isolating supply.

16. Appendix: Revision History

Revision	Date	Description	Prepared / Approved By
1.0	[TO BE ADDED]	Initial release	[TO BE ADDED]