

Application

The LSR (Loader, **S**ingle **R**eceiver) Controller consolidates several applications into one system, allowing the LSR to control a Coperion K-Tron vacuum conveyor for pneumatically conveying a wide variety of bulk materials. The LSR operates with either a self contained loader or single central receiver with separate blower. This economical controller provides precise, reliable control for a variety of applications – filling by time or level – and various discharge configurations, including gravity or powered gate.

Features

- Simple operation
- Robust
- Cost effective

Design

The controller is locally mounted with all 24 VDC sensors and actuators pre-wired. An auto-switching power supply accepts either 115 or 230 VAC. The front panel of the controller includes an on/off switch, a potentiometer to set draw times and multicolored LEDs to indicate: power/alarm, loading status and dump status. The standard enclosure is made of durable polycarbonate. A stainless steel version is available for use in pharmaceutical applications or hazardous locations (ATEX). Multicolored LEDs not available for ATEX version.

The LSR Controller allows for nine different operating modes selectable with internal rotary switch. In addition, a simple to configure 10-position DIP switch programs the unit's operation such as: pulse cleaning, purge valve operation (line clearing), ratio loading, alarming options, etc.

In feeder refill applications, the LSR can also be networked to the Coperion K-Tron Control Module (KCM). This allows monitoring and control of the LSR via all Coperion K-Tron Human-Machine Interfaces, such as the KSU-II (Coperion K-Tron Single Unit Display) or K-Vision Line Controller.

Modes of Operation

- 1 Self Contained Loader, Gravity Gate Discharge, Fill by Time:** A call for material is established when the gravity gate swings closed. The LSR powers the self-contained vacuum motor and the loader fills by time. An alarm is generated if material reaches an optional high level sensor. After filling the loader dumps immediately via gravity discharge gate.
- 2 Self Contained Loader, Gravity Gate Discharge, Fill to Level:** A call for material is established when the gravity gate swings closed. The LSR powers the self-contained vacuum motor and the loader fills to the high level sensor. An alarm is generated if material does not reach the high level sensor within the maximum fill time. After filling the loader dumps immediately via gravity discharge gate.
- 3 Single Central Receiver, Gravity Gate Discharge, Fill by Time:** A call for material is established when the gravity gate swings closed. The LSR controls the fill valve, vacuum breaker valve, and vacuum pump motor starter; the receiver fills by time. An alarm is generated if material reaches an optional high level sensor. After filling the receiver dumps immediately via gravity discharge gate.
- 4 Single Central Receiver, Gravity Gate Discharge, Fill to Level:** A call for material is established when the gravity gate swings closed. The LSR controls the fill valve, vacuum breaker valve, and vacuum pump motor starter; the receiver fills to the high level sensor. An alarm is generated if material does not reach the high level sensor within the maximum fill time. After filling the receiver dumps immediately via gravity discharge gate.



- 5 Self Contained Loader, Powered Gate Discharge, Fill by Time:** A call for material is established when the power gate closes. The LSR powers the self-contained vacuum motor and the loader fills by time. An alarm is generated if material reaches an optional high level sensor. After filling, the loader holds material until a refill request is received from equipment below (e.g. KCM).
- 6 Self Contained Loader, Powered Gate Discharge, Fill to Level:** A call for material is established when the power gate closes. The LSR powers the self-contained vacuum motor and the loader fills to the high level sensor. An alarm is generated if material does not reach the high level sensor within the maximum fill time. After filling, the loader holds material until a refill request is received from equipment below (e.g. KCM).
- 7 Single Central Receiver, Powered Gate Discharge, Fill by Time:** A call for material is established when the power gate closes. The LSR controls the fill valve, vacuum breaker valve, and vacuum pump motor starter; the receiver fills by time. An alarm is generated if material reaches an optional high level sensor. After filling, the receiver holds material until a refill request is received from equipment below (e.g. KCM).
- 8 Single Central Receiver, Powered Gate Discharge, Fill to Level:** A call for material is established when the power gate closes. The LSR controls the fill valve, vacuum breaker valve, and vacuum pump motor starter and the receiver fills to the high level sensor. An alarm is generated if material does not reach the high level sensor within the maximum fill time. After filling, the receiver holds material until a refill request is received from equipment below (e.g. KCM).
- 9 UnLoader (Self Contained or Single Central):** Switches the self-contained vacuum motor or vacuum pump motor starter on and off for predetermined times between 3 and 360 seconds.

Sample Communication Configuration

(single central receiver)

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