

# SmartConnex Controls

Coperion K-Tron's machine controllers and operator interfaces deliver full functional flexibility and the connectivity you need. Coperion K-Tron's SmartConnex control environment provides comprehensive control capability with maximum flexibility and connectivity for systems up to 24 weigh belt feeders, loss-in-weight feeders, volumetric feeders, batchers, flow meters, Bulk Solids Pump (BSP) feeders or PID controlled devices as well as pneumatic refill systems.

Each SmartConnex control unit comprises a combination of the following control components:

**A** = Operator Interface/Display    **B** = Feeder Control Board & Motor Drive Board



KSU-II Single Unit Interface **A**



K-Vision Line Controller **A**



KCM-III with LCD display and keypad **A B**



KCM-III with status display **B**

## SmartConnex Operator Interfaces:

SmartConnex offers a choice of two operator interfaces: KSU-II Single Unit Display and K-Vision Line Controller for up to two lines. These display and data entry units can be employed individually or in combination as required by the application.

- **KSU-II Single Unit Interface** - The KSU-II is an economical user interface for single feeders with KCM-III. It can also be used as a portable display for maintenance or configuration in larger systems where the feeder's primary display point is a higher level unit. The KSU-II can be dedicated to a single feeder or it can network to multiple KCM-III units. The KSU-II will only view one feeder at a time, but the user can switch between feeders.
- **K-Vision Line Controller** - The K-Vision™ HMI simultaneously controls up to 24 devices such as feeders, in one or two lines. The operator interface uses a 12.1 inch color LCD with a touchscreen. K-Vision provides recipe entry and a detailed overview of the process line with extensive real-time monitoring of feeder status and performance. This user friendly HMI offers a wide range of easily configured charting and trending capabilities.

## Control and Motor Drive:

The Coperion K-Tron Control Module (KCM-III) combines feeder control and motor drive modules into a compact new housing, offering more flexibility and excellent performance. Each feeder has its own KCM, generally mounted directly on the feeder, which is available in various configurations depending on the application:

- KCM/DC for screw feeders, weigh belt feeders, flow meters and PID devices
- KCM/VIB for vibratory feeders
- KCM/Stepper for BSP feeders and the Microfeeder
- KCM/VFD with integrated frequency inverter for servo motors, vector-duty AC motors, etc.
- KCM/IB for interfacing with external motor drives such as third party frequency inverters
- KCM/VOL for volumetric applications with servo motors

Control and motor drive modules are combined into one component and may be mounted at the feeder or remotely. Each KCM comes with all the software needed for continuous or batch applications. Connection between feeders and operator interface is via a network. The KCM can also connect directly to the plant's automation network (see other side for available factory automation protocols).

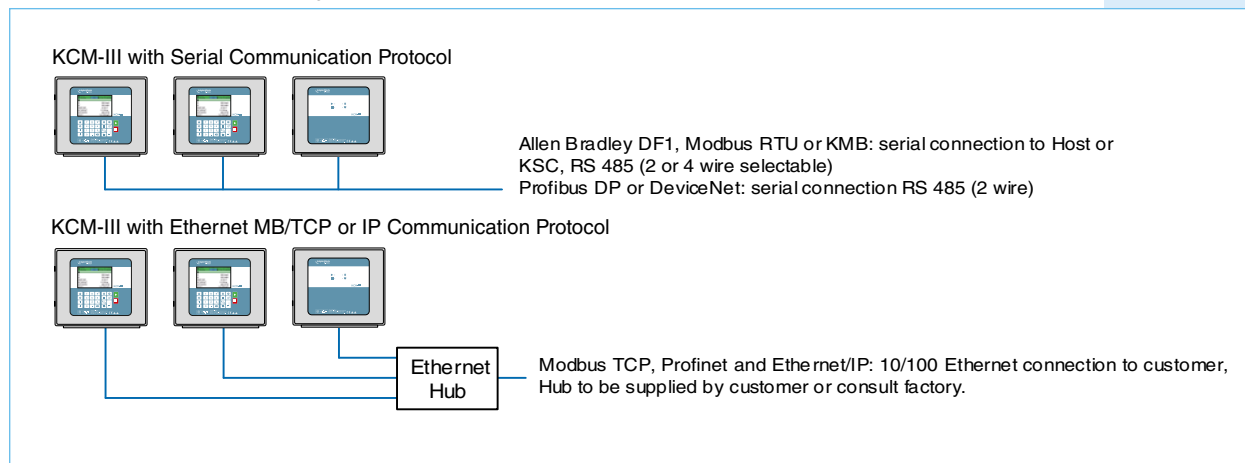
The loss-in-weight feeder control software incorporates Screw Speed Modulation, an exclusive algorithm that can improve the short-term feeder accuracy on single screw feeders by up to a factor of two at low feed rates (screw speeds below 60 RPM) by predicting the periodic pulsation and modulating the screw speed to reduce the error. Spiral and full flight single screw feeders exhibit this pulsation more commonly than other screw configurations.

All KCM feeder controllers include integrated refill control for Coperion K-Tron self-contained vacuum loaders or single central receivers. Refill control can be handled through the feeder operator interface.

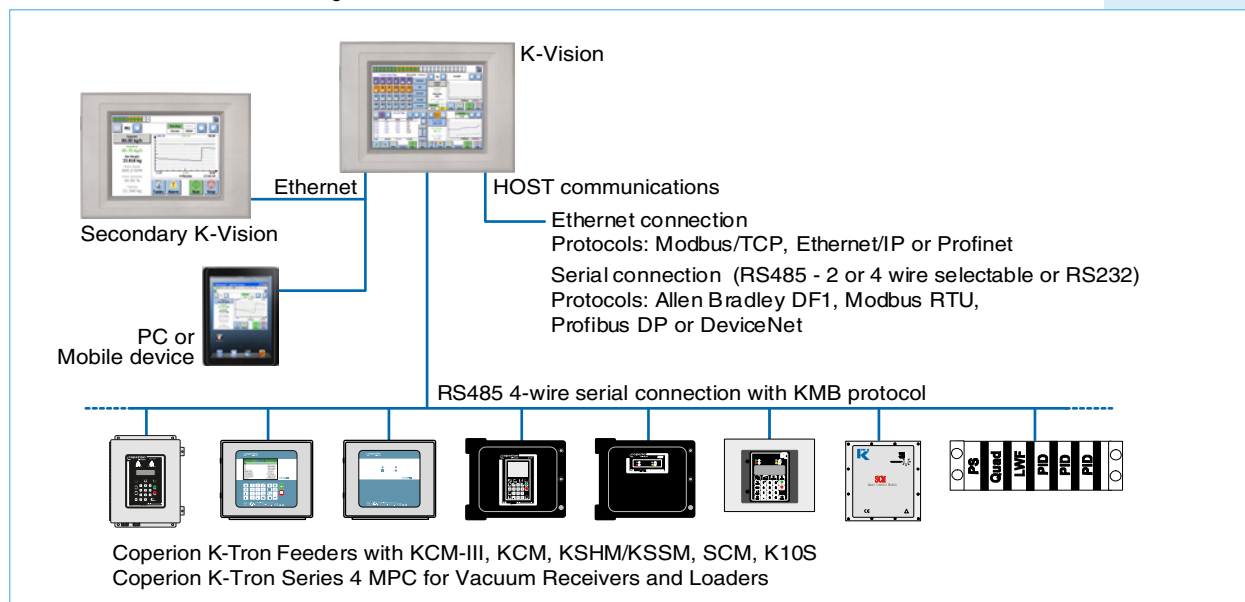


# SmartConnex Connectivity

## KCM-III Connectivity



## K-Vision Connectivity



## Auxiliary Products

Coperion K-Tron also offers a variety of auxiliary PC tools for enhanced SmartConnex functionality.

- **DataRecorder** – Tool used to save process data from one or more feeders to a CSV file when installed on a Windows PC connected to the Feeder control network via Ethernet or Serial connection (free demo version records one hour)
- **K-Sampler** – Tool used to calibrate/qualify feeder scale systems and/or validate feeding accuracy using independent sample scales
- **SmartConfig** – Free tool for configuring custom data exchange mapping for supported automation networks, such as Profibus, Profinet, DeviceNet, Ethernet/IP, ModbusTCP, etc.
- **K-Viewer** – Free tool for examining K-Vision event logs via a graphical interface