

- Ext. communication to Host System
- A Feeder
- B Weighing System
- C Control module
- D Operator Interface

Each Coperion K-Tron weigh feeder consists of the components A, B, C and D.

Component C is specified here.

Description

With the SmartConnex™ control system, the control and motor drive modules of a feeder are combined into one component and are integrated directly into the feeder. Instead of a central control panel, each feeder has its own Coperion K-Tron Control Module (KCM-III). Connection between feeders, operator interface and smart I/O is via an industrial network. All motor setup, diagnostics and operator interface functions are controlled via a choice of user interfaces.

With its tight integration into the feeder, the KCM can be pre-wired and pre-tested in Coperion K-Tron's manufacturing plant. The KCM comes with all the software your feeder will need for either batch or continuous applications. It supports all types of Coperion K-Tron feeders using any of the following motors/drives: DC, AC, stepper and servo motors as well as vibratory drives. The KCM also supports weigh belt feeders and Smart Flow Meters as well as PID and batching applications (LIW, GIW). A KCM with an interface board is also available if a third-party drive is desired.

The Coperion K-Tron KCM drive boards use closed loop speed control for higher turndown, higher accuracy, higher reliability, and enhanced diagnostics but they can also run open loop in case of a speed sensor failure.

The Coperion K-Tron KCM includes the following advanced features:

- **Screw speed modulation:** patented algorithm that improves the short-term feeder accuracy on single screw feeders at low feed rates (below 60 screw rpm) by predicting the periodic pulsation and modulating the screw speed to reduce the error.
- **Integrated refill control** for self-contained vacuum loaders or single central receivers.
- **Integrated motor torque measurement** improves reliability and enhances diagnostics.
- **Material Flow Aids:** the KCM works together with the patented Actiflow™ bulk solid activator for fully optimized intelligent control, and can also control impactors, vibrators, air pads, and the vertical agitator for optimal material flow with minimal control disturbance.
- **Electronic Pressure Compensation (EPC):** the KCM works together with the unique EPC package to optimize pressure compensation automatically, with no costly engineering required.
- **Software Version Management:** all software for the feeding system components such as load cells, motor drives, ActiFlow, etc. is included in the KCM software. Once a new software version is uploaded to the KCM it automatically manages any updates to the other components.

Communication with the host system

Connection to the plant's own host system can take place directly from the Coperion K-Tron Control Module. Optional protocols currently available for the KCM-III include: Modbus RTU, Modbus/TCP, Allen Bradley DF1, DeviceNet, Ethernet/IP, Profibus DP, Profinet I/O (see Smart K-Link specification sheet I-070302).



*KCM-III-KD
with user interface*



*KCM-III-SD
with status display only*

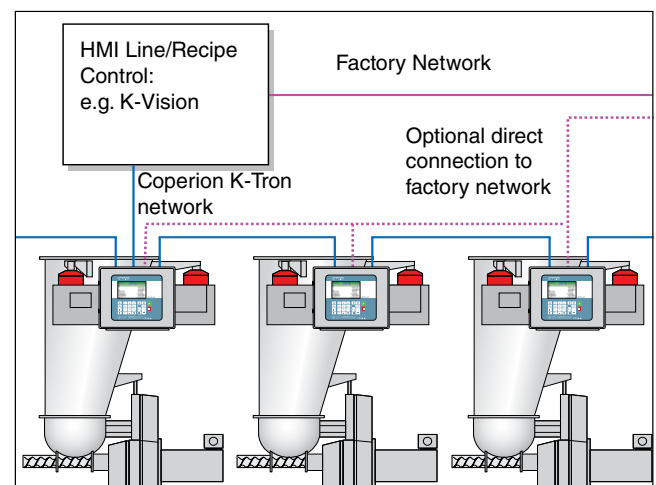
Communication directly at the KCM

The KCM-III has several modern communication ports built in, including Ethernet, USB Host (for flash thumb drives), USB Device (for cable connections to a PC), a removable microSD memory card and reliable high-speed RS485 communication ports for connections to external HMIs, expanded I/Os, etc.

The KCM-III has two built-in Ethernet RJ45 jacks and optional Wi-Fi capability. Using a web browser, these Ethernet channels (either wired or wireless) provide access to a fully functional user interface, in the operator's selected language, as well as access to security setup files, event and history log files, trace files, etc.

The KCM-III also includes a USB Host jack allows the use of a USB flash drive for file transfer and a USB Device jack that allows connection to a PC via USB cable for PC tools.











Connectivity to host systems is provided via Anybus M40 port. Interface cards are available in the widely used Profinet and Ethernet/IP protocols as well as many others.






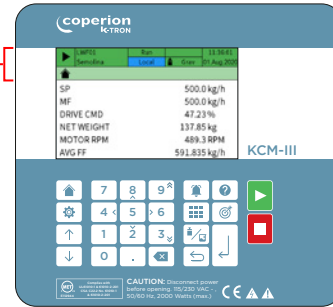
Operation

Function keys are marked with easily recognized symbols. From the Home Page, the operator can view the feeder's operational status and process parameters. Pressing the arrow keys scrolls up or down one line.

Symbol Keys

-  Home
-  Settings
-  Up
-  Down
-  Alarm view / acknowledge
-  Menu tiles (customizable)
-  GRAV/VOL operation shift
-  Back
-  Help
-  Enter setpoint

-  Enter
-  Run
-  Stop



1. Operation symbol / status (Run, Stop, Wait, etc)
2. Feeder symbol and number
3. Bulk material
4. Input mode (Local, Direct, etc)
5. Event information (Pert, Refill, Load, etc)
6. Operation mode (Grav, Vol)
7. Time & date
8. Page symbol (and name)

Technical Data

Power supply

Supply Voltage:	115 or 230 VAC*, 50-60 Hz
Max. power consumption:	450 W DC Drive 500 W
	1.6 kW DC Drive* 1.7 kW
	2HP AC VFD Drive* 1.7 kW
	Stepper Drive 110 W
	Vibratory Drive 150 W
	3rd Party Motor Interface 50 W

(kVA details are in the KCM electrical manual)

* The 1.6 kW DC and 2HP AC VFD drive boards both require 230 VAC supply voltage (single phase or US split phase).

Output specifications

Output power:	450 W DC Drive 450 W
	1.6 kW DC Drive 1.6 kW
	2 HP AC VFD Drive** 1.6 kW
	Stepper Drive 50 W
	Vibratory Drive 120 W
	3rd Party Motor Interface n/a

** The AC VFD drive board allows max. cable length 50 m [164 ft]; up to 100 m [328 ft] with external EMC filter on AC mains.

Speed turndown:	100:1 (not all AC motors)
Digital Outputs:	3 Relays plus 4 open collectors
Analog Output:	0-20 mA, 4-20 mA, or 0-10 V (shunt ≤ 500 Ω, Max 10 VDC)
Digital Inputs:	4 x 5 V CMOS plus 2 x 24 V inputs
Analog Input:	0-20 mA, 4-20 mA, 0-5 V or 0-10 V
Frequency Input:	0-20 kHz (Max 12 VDC)

Electrical standards

Electromagnetic emissions:	EN 61000-6-4
Electromagnetic immunity:	EN 61000-6-2
Electrical safety:	EN 61010-1

Conformity

CE, UL 61010-1, NRTL listed (USA & Canada), IECEx SEV 21.0003X
WiFi option certified for FCC and ETSI member countries

Display

Languages

5" color LCD display
EN, DE, FR, ES, IT, DK, PL, TR, PT, CN, JP, RU, KR

Material

Stainless steel DIN 1.4301 [AISI 304]

Environmental conditions

Ex classifications:

ATEX 3D, IECEx EPL Dc, NEC Class II Div 2, Gr. F&G CCC Certificate (China)

Ambient temperature range:

0...50°C [32...122°F]

Storage temperature range:

-25...80°C [-13...176°F]

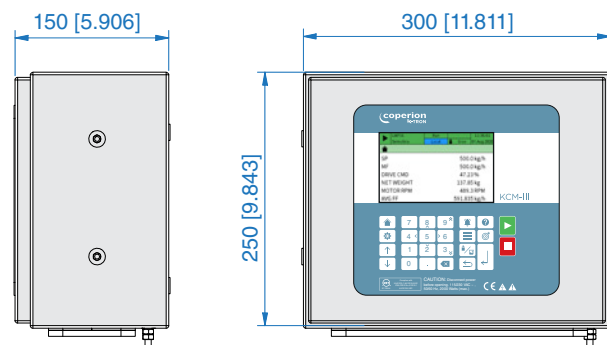
Max. humidity:

95% at 35°C [95°F] non-condensing

Ingress protection:

IP65

Dimensions mm [in]



Available cable glands sizes: 8x M16 and 4x M20

Caution: these measurements are for general reference only. Please consult dimensional drawing for exact measurements