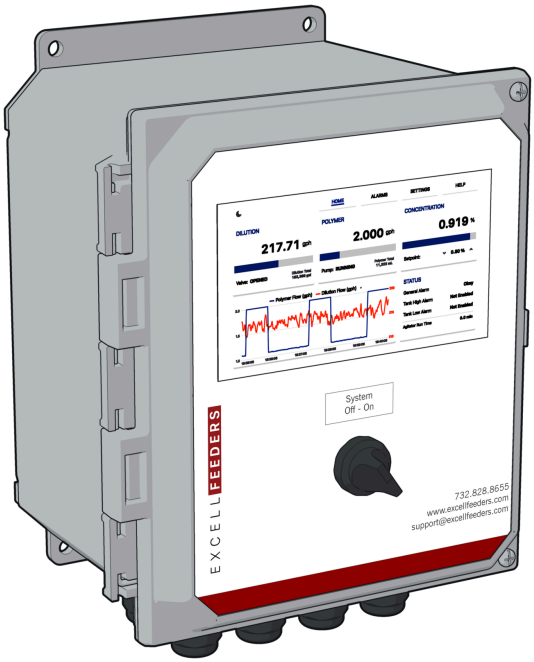
EXCELL FEEDERS

Data Sheet

Cortex 7

Programmable feeder controller



A real-time controller and a 7 in touchscreen in one NEMA 4X enclosure, running Excell Feeders' polymer and dry feeders.

- Two processors: a real-time controller runs the machine, and the touchscreen panel shows it. The machine keeps running if the panel restarts.
- 6 relays, 4 analog inputs, 2 isolated analog outputs, 6 digital inputs and 2 motor drives.
- 24 VDC on every field terminal, so switches and 2- or 3-wire transmitters need no separate supply.
- Alarms, trends, daily totals and batch records, on the touchscreen and in a browser.
- Modbus TCP, EtherNet/IP, MQTT and LTE options, each turned on by an activation key.
- Signed software updates that roll themselves back if a new version fails.

7 in	6	4	2	6	2
touchscreen	relays, 10 A	analog inputs	analog outputs	digital inputs	motor drives

APPLICATIONS

6PSevo
Polymer feeder, 400 and 1200 gph models. Flow-paced polymer dosing, dilution water control and concentration.

6PCevo
Polymer feeder with its own application on the same controller.

Dry feeder
Single-tank dry polymer feeder.

The application sets what the controller does and what the screens show. Applications, the controller firmware and the Cortex OS are released separately and installed from the touchscreen or a browser.

Excell Feeders, Inc.
111 Import Road, Pittston, PA 18640

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ENGINEERING SPECIFICATIONS

Supply	100–240 VAC, 50/60 Hz, single phase
Field power	24 VDC on every field terminal, for switches and transmitters
Controller	32-bit ARM Cortex-M4 (STM32F4) real-time controller; FRAM settings memory; battery-backed clock
Panel	Raspberry Pi Compute Module 4, 8 GB eMMC
Display	7 in color touchscreen, 1024 × 600
Digital inputs	DI1–DI2: dry contact or NPN to 0 V; pulse counting to 5 kHz (flowmeters)
Shared I/O	DIO3–DIO6: each a digital input or a transistor output, 24 VDC, 0.75 A current limited
Relay outputs	DO1–DO6: normally open contacts, 10 A at 277 VAC or 30 VDC
Analog inputs	AI1–AI4: 4–20 mA, 16-bit; 24 VDC loop power at each input for 2- or 3-wire transmitters, or externally powered; out-of-range signals flagged
Analog outputs	AO1–AO2: 4–20 mA, 12-bit, isolated; internal or external loop power, set by DIP switch
Motor drives	Motor 1: enable, direction and PWM speed with HLFB feedback (Teknic ClearPath MC). Motor 2: step and direction, 1 to 160,000 steps/s (ClearPath SD, Corda 30 pump)
Ethernet	10/100 Mbps; web HMI and Cortex Console over HTTP and HTTPS
Options	Modbus TCP, EtherNet/IP adapter, IIoT MQTT and LTE (USB modem). Each turned on by an activation key for one panel; keys do not expire
USB	2 × USB-A
Enclosure	NEMA 4X, hinged cover, 8 cable glands in the bottom wall; wall mount, 4 holes
Environment	41 to 104 °F (5 to 40 °C)

SOFTWARE

- Alarm history of alarms, events and setting changes, with CSV export.
- Trends kept 90 days: 1 s samples for the last 7 days, 10 s before that.
- Daily usage and batch records.
- Analog input and output calibration on the panel.
- Cortex Console in a browser: trends, logs, settings backups and remote support (off by default).
- Named accounts and a service PIN.
- Updates signed by Excell Feeders; the panel rolls back on its own if one fails.
- Settings backups, kept automatically before every change.

DIMENSIONS

Dimensions in inches [mm]

