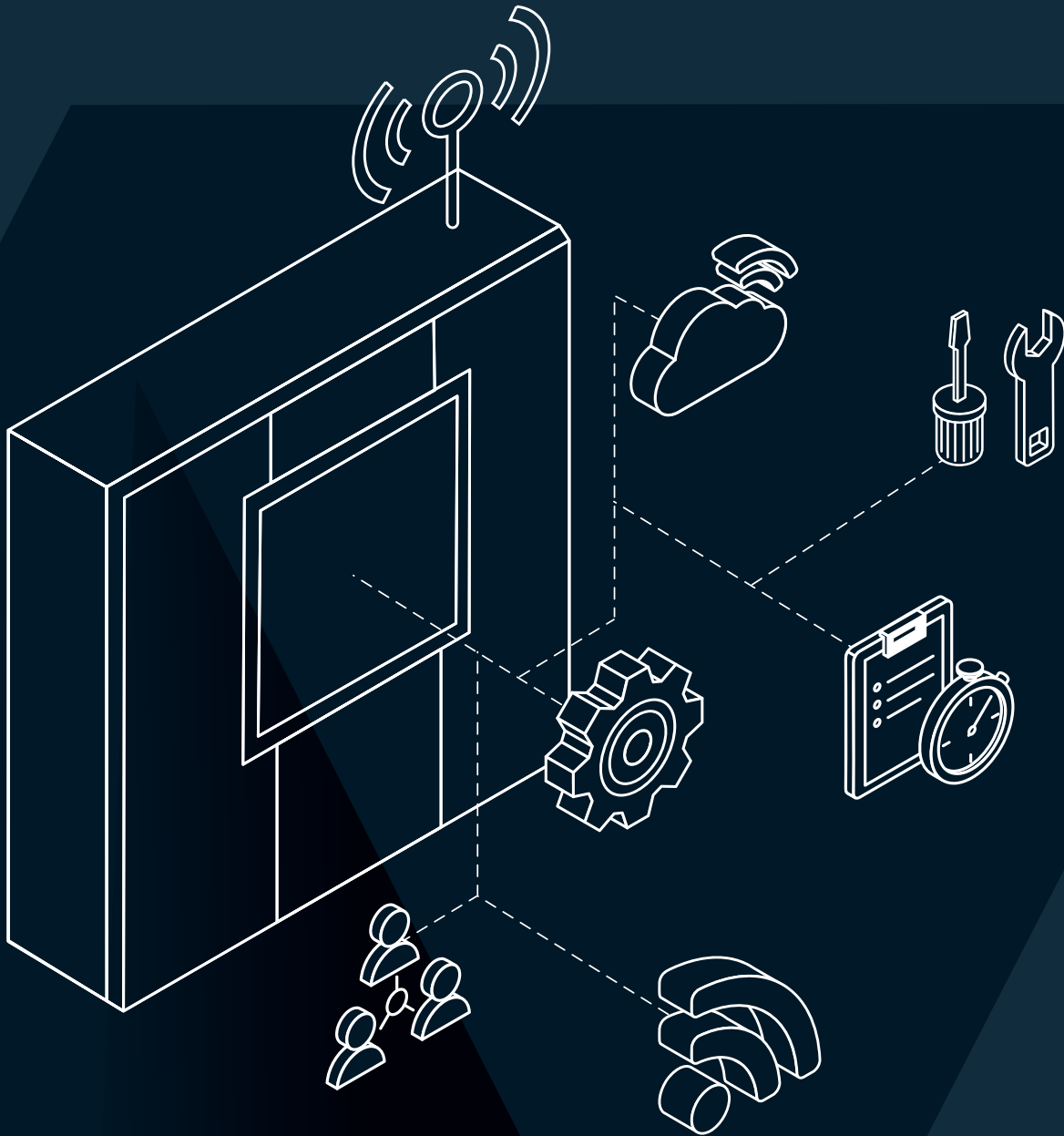ENVELOPE™

By Armstrong Fluid Technology®

# Meet the ultimate pump control multi-tasker.

## Systems Envelope | SE-F

SE-F

Flow optimization

# The world's most adaptable pump control module

**Systems Envelope SE-F can instantly unify and optimize any heating or cooling system.**

## Controls multiple system types

- Variable primary only
- Variable secondary pumping systems
- Steam/ water systems

# Multi-Pump Control
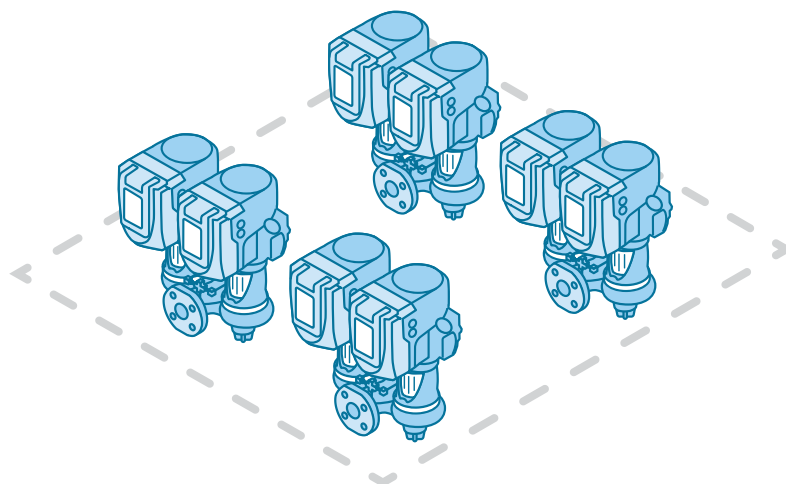**Lower energy costs.**

**8** Control and optimize up to 8 pumps

Demand-based control and best-efficiency staging

Patented technology modulates flow and pressure

Instantly increase pumping efficiency by up to 30%

# Multi-Zone Operation
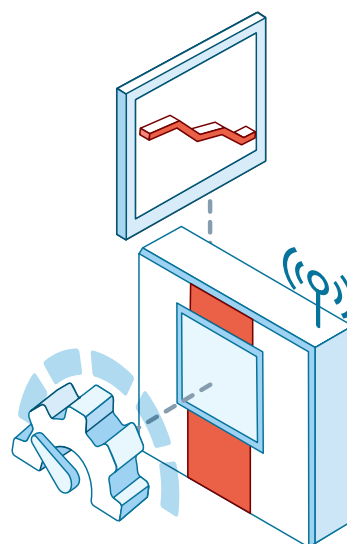**More comfort and control.**

Precise pressure and flow levels to serve up to 16 zones

Maintain the perfect temperatures for your people, inventory and equipment

No more energy wasted delivering flow where it isn't needed

# Multi-Talented

**Connects and controls all
your pumps and valves.**

Systems Envelope SE-F can optimize any
pump system. Any mix of components.
Any mix of manufacturers. No custom
coding required. It's the easiest, fastest
way to improve overall performance.

- BAS systems
- Controls and drives
- Steam valves and by-pass valves
- Any and all pumps

# Multi-function control

**Water and steam valve control of
multiple systems.**

- Minimum flow bypass valve control in variable primary systems.
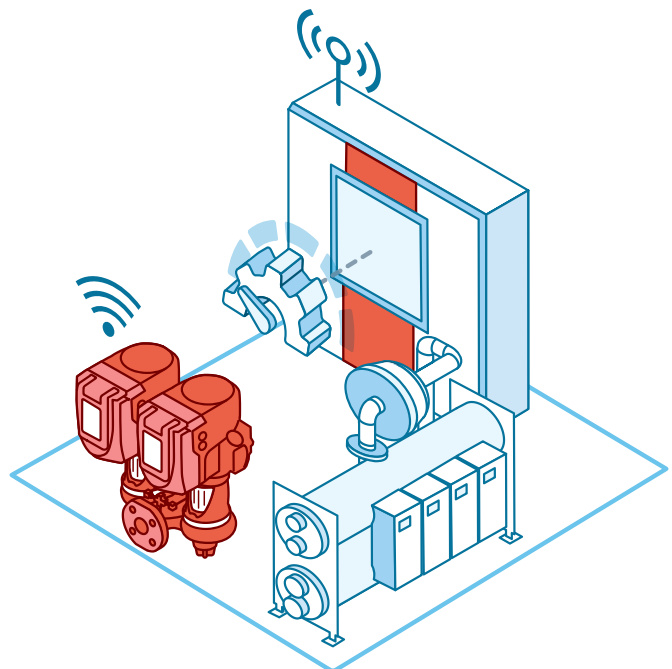
- Modulates ⅓ and ⅔ steam valves to deliver water temperature set-point

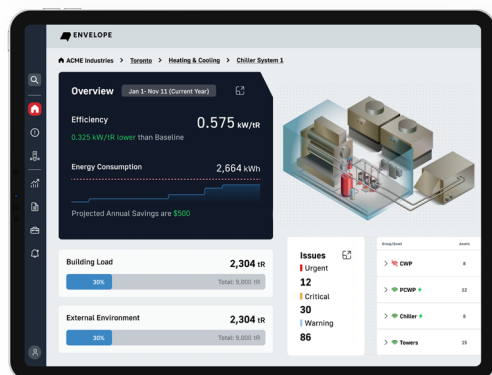- Manages hydronic two-port valve on primary side of heat exchanger

- Directs hydronic three-port mixing valve for precise temperature blending

# Multi-Screen

**Access your building performance. Anywhere. Anytime.**

Cloud analytics service stays in constant contact with your system and sends you the most important insights.

Constantly compares performance against efficiency targets

Issues are detected before they become performance-stealing problems

Clean, intuitive user interface

Performance data and trends are reviewed by Armstrong experts, quarterly

# Multi-Mapping

**Intelligent controller delivers industry-leading efficiency.**

System Envelope automatically uses the performance maps of intelligent pumps to save energy and reduce strain on system components. It's a win-win.

Harnesses the full value of duty rotation

Minimize maintenance and repair costs

Auto-flow dynamically adjusts the scheduled operating head to match actual system head

Automatically syncs primary flow to secondary demand in variable systems

# Multi-Operational
**Any building. Any requirement.**

Fastest and easiest way to boost your HVAC efficiency in all these applications.

- Minimizes energy and water use
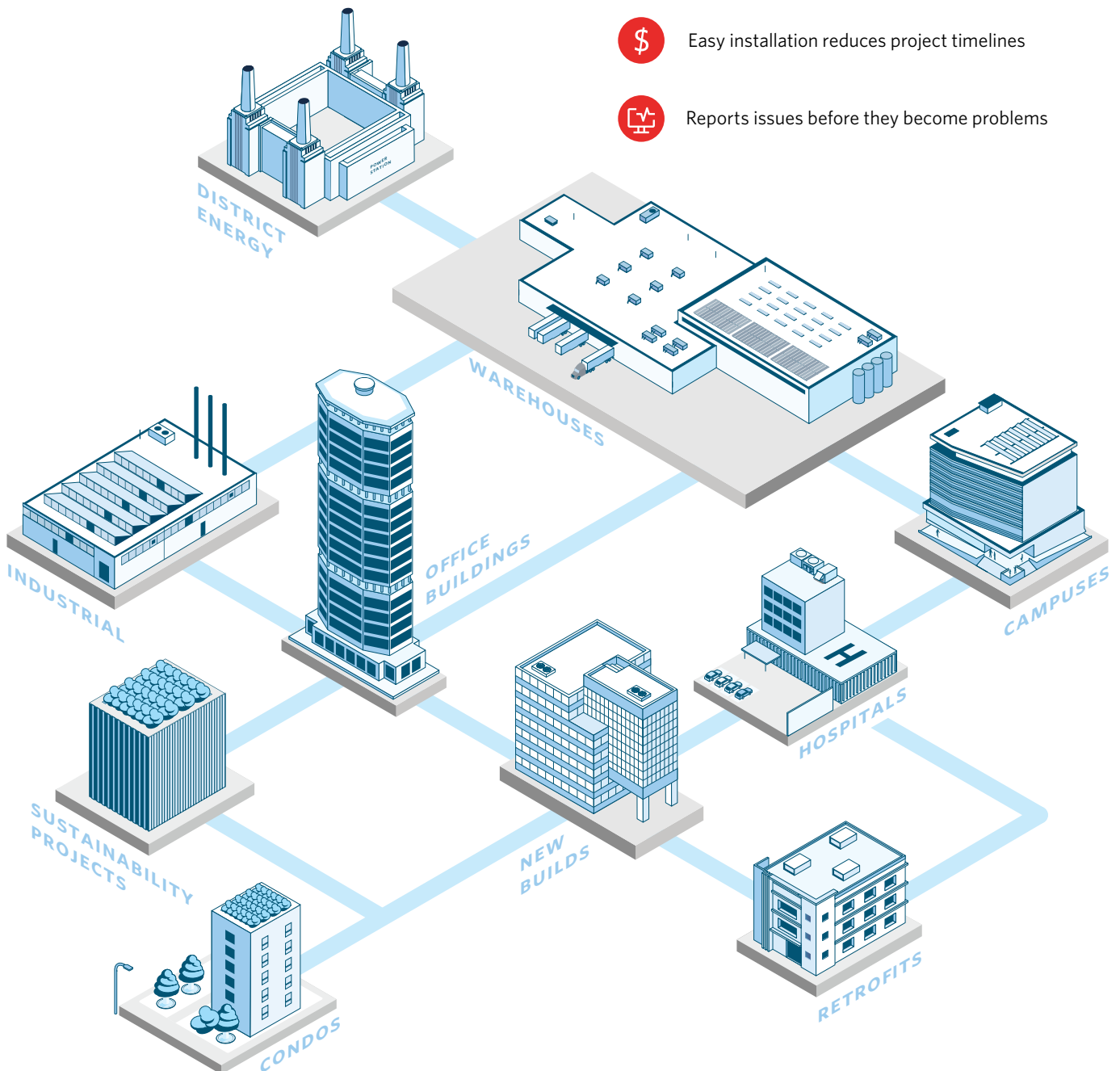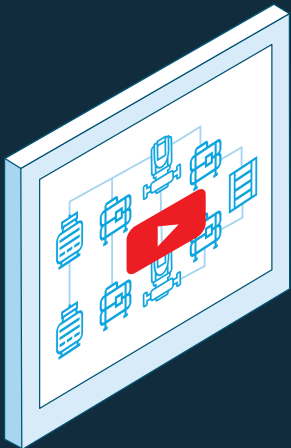- Zero downtime
- Easy installation reduces project timelines
- Reports issues before they become problems



DISTRICT ENERGY

WAREHOUSES

INDUSTRIAL

OFFICE BUILDINGS

CAMPUSES

SUSTAINABILITY PROJECTS

HOSPITALS

NEW BUILDS

RETROFITS

CONDOS

# Systems Envelope
## SE-F10 & SE-F20

| Product Type | System Envelope SE-F10 & SE-F20 |
|---|---|
| **BACNET CONFORMANCE** | Conforms to the BACnet Building Controller (B-BC) Standard Device profile, as defined in BACnet 135-2012 Annex J, Protocol Revision 14 |
| **BACNET OBJECTS** | Maximum number of BACnet objects: 7168 |
| **3RD PARTY INTEGRATION** | Supports up to 7168 total BACnet and/or 65535 Modbus integration points |
| **POWER** | 24 Vac (+10/-15)%, 50-60 hZ, 45 VA | 28 to 36 Vdc (-20/+10%), 30W |
| | **COMMUNICATION** |
| **SERIAL PORT 1** | For communication with the following:<br>HMI, Modbus RTU, 19200 bps |
| **SERIAL PORT 2** | For communication with the following:<br>BACnet/MSTP serial network at 9,600 to 115.200 bps<br>Modbus RTU serial network at 9,600 to 115.200 bps |
| **SERIAL PORT 3** | For communication with the following:<br>Pumps VFD: Armstrong DEPC, Danfoss FC-101/102. ABB ACH550/580 using Modbus RTU Protocol |
| **SERIAL PORT 4** | For communication with Envelope:<br>Armstrong Cloud |
| **USB PORT** | USB type A connector (Troubleshooting and software download) |
| **HMI** | Carel PGDX (4.3", 7", or 10") widescreen resistive Touch Panel with LCD TFT display.<br>Software: Carel |
| **PLC** | Carel c.pCO, microprocessor-based, programmable electronic controller, featuring a multitasking operating system, compatible with the Carel c.pCO Sistema family of devices, which includes programmable controllers, user terminals, gateways, communication devices and remote management devices. Five serial communication ports, two ethernet ports, and two USB ports |
| **MICROPROCESSOR** | 32 bit, 100MHz |
| **MEMORY** | Non-volatile memory (Flash) 128 Mbyte of which 90Mbyte available as File storage<br>Data memory (RAM) 16 Mbytes<br>Retain memory 31744 bytes |
| **REAL TIME CLOCK** | Yes with battery |
| **ENVIRONMENTAL RANGE** | (-20 to 60°C (-4 to 140°F)) |
| **PHYSICAL** | SE-F10-1 & SE-F20-1:   NEMA: 20" × 20" × 8"    IEC: 600 × 500 × 200    UK: 600 × 400 × 300<br>SE-F10-2 & SE-F20-2:   NEMA: 24" × 24" × 8"    IEC: 600 × 600 × 200    UK: 500 × 600 × 300<br>SE-F20-3:   NEMA: 24" × 30" × 8"    IEC: 600 × 750 × 200    UK: 600 × 600 × 300<br>SE-F20-4:   NEMA: 24" × 30" × 8"    IEC: 650 × 800 × 200    UK: 800 × 600 × 300 |
| **PROTECTION** | Category of immunity to voltage surges (EN 61000-4-5): Category III |
| **COMPLIANCE** | UL 916 CE EN 61326-1 FCC Part 15 Subpart B, Class B FCC Part 15 Subpart C C-UL listed to Canadian Standards Association (CSA) C22.2 No. 205-M1983 "Signal Equipment" 1999/5/EC R&TTE Directive CCC SRRC RSS ROHS |
| | **ENVIRONMENTAL SPECIFICATIONS** |
| **ENCLOSURE** | IP54 / NEMA 4 panel rating |
| **PLASTIC RATING** | Fire retardant plastic ABS UL94-5VA |
| **MOUNTING** | Base: Plastic, DIN rail or screw mount options. Cover: Plastic |

For more information, contact your
Armstrong representative or visit us at:
**ArmstrongFluidTechnology.com/ContactUs**

**ARMSTRONG FLUID TECHNOLOGY**®

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