

ST2^{XM}

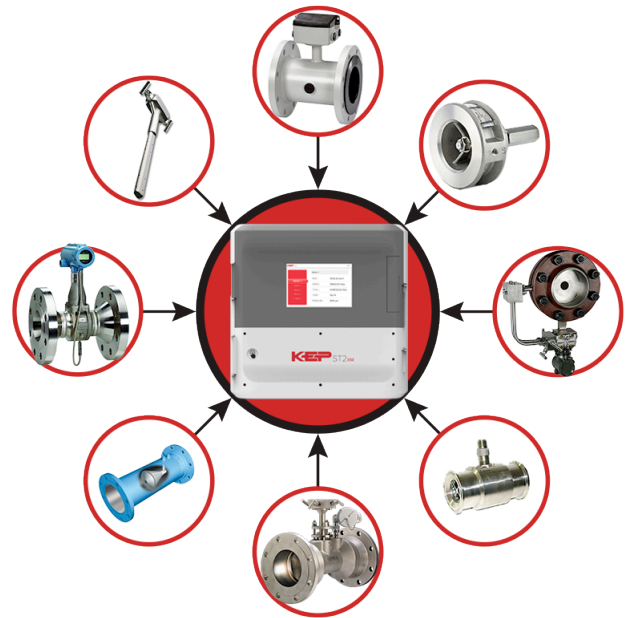


EXTREME

Multi-Channel Flow Computer

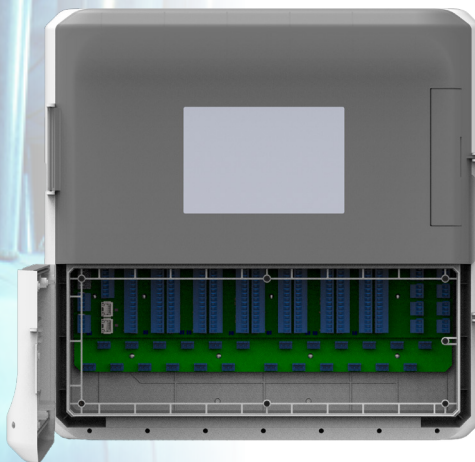


Compatibility



Compatible with All
Popular Flowmeters

KEP has been a world leader in flow metering for decades. Our years of flow measurement experience and our knowledge of applications for custody transfer, fuel loading, district energy and many more make our flow computers the right choice. The new ST2xm flow computer expands on our popular ST2 series with a new design for advanced functionality and features. It offers multiple inputs and outputs via an expansion card rack, enhanced metering capabilities, improved security and auditing with a high capacity data logger.



- NEMA 12 Enclosure
- Hinged Transparent Door With Easy Access to Touchscreen
- Hinged Wiring Compartment With Full Access To Terminals
- 12 Bottom ½" Conduit Entries (0.875" hole punch-outs)

Preliminary: Specifications subject to change without notice



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I/O Expansion Cards For Extreme Functionality & Adaptability

In the ST2xm there are provisions for multiple I/O cards. These I/O cards allow the ST2mx to expand the functionality of its inputs and outputs accordingly. The I/O cards available are listed below.

COMBO I/O CARD

- 5 - Pulse Inputs for Flow Input
- 8 - Analog (4-20mA) Inputs for Flow, Temperature or Pressure
- 3 - +24 VDC (100 mA) Excitation for Pulse Inputs
- 4 - +24 VDC (100 mA) Excitation for Analog Inputs
- 1 - HART Communication
- 4 - Isolated Pulse Outputs
- 4 - Isolated Analog Outputs (4-20mA)

RELAY CARD

- 8 - Form C Relays (N.O., COM., N.C.)
- 4 - +24 VDC (100 mA) Excitation Outputs
- 4 - Common Connections
- 8 - Status Inputs

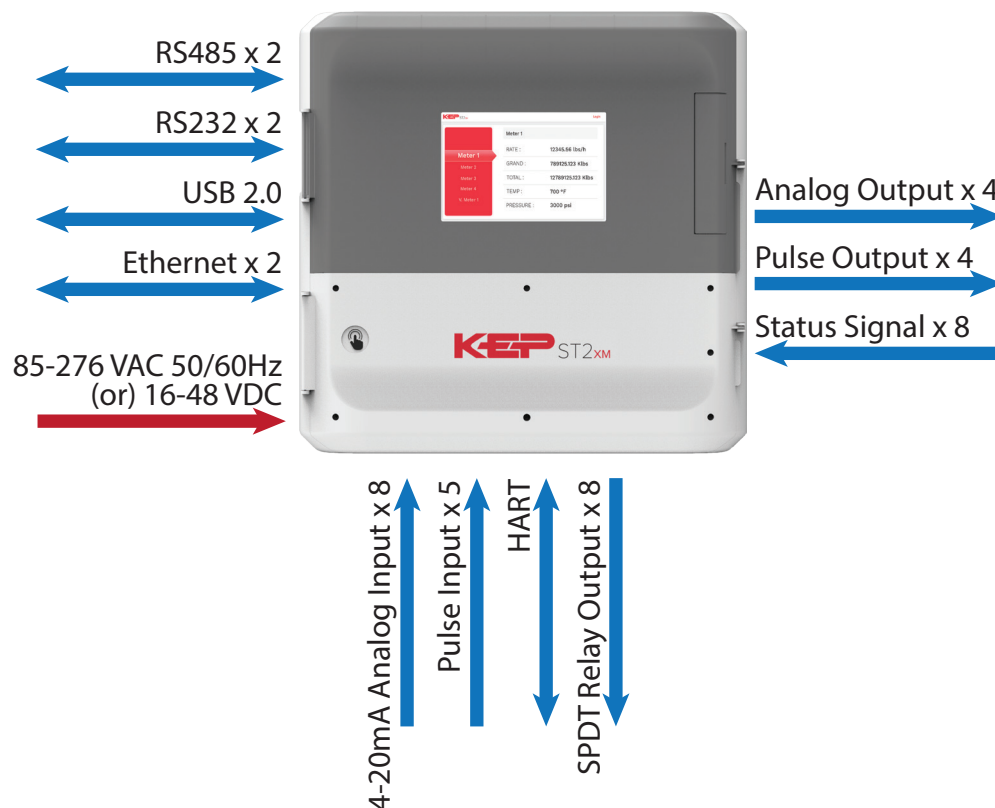
RTD CARD (coming soon)

- 8 - RTD Inputs
- Type - 100 Ohm DIN RTD (DIN 43-760, BS 1904)
- Lead Compensated

COMMUNICATION CARD

- 2 - RS-232 Ports
- 2 - RS-485 Ports
- 2 - RJ45 Ethernet Ports

Extreme I/O For Control & Communication

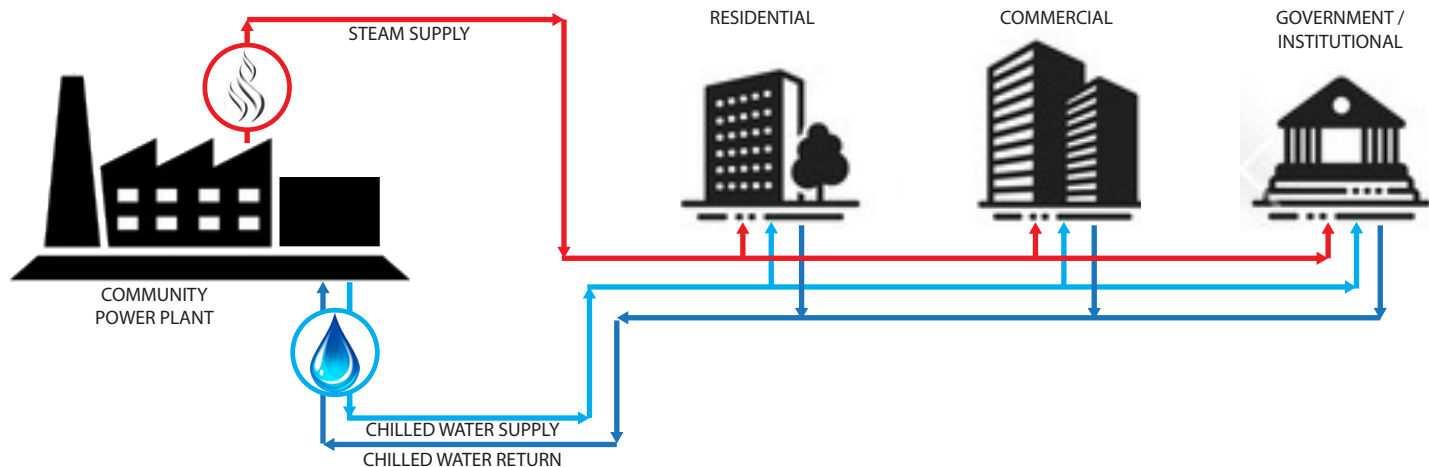


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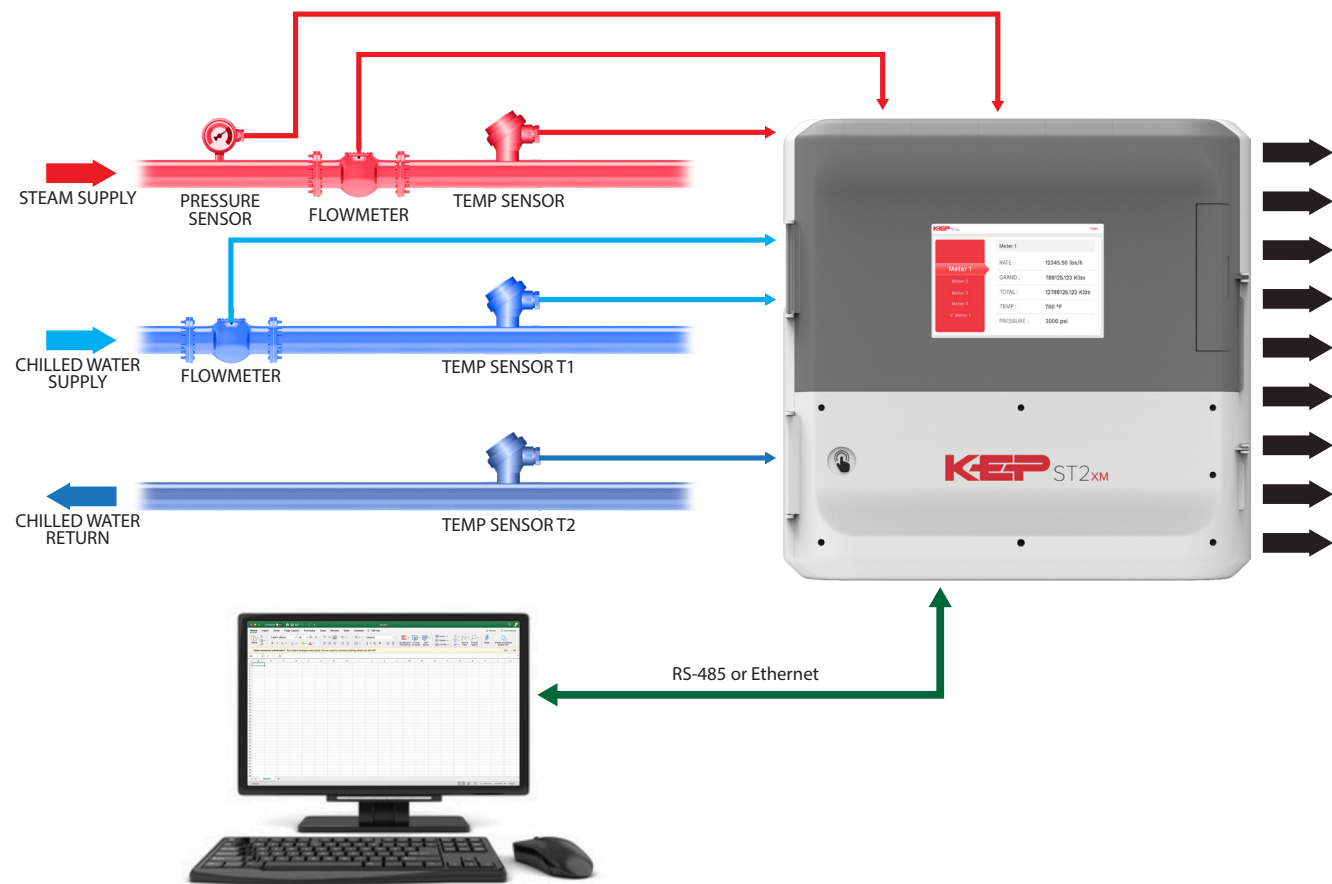


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District Energy Application



Sub-Metering Diagram



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Specifications

Environmental

Operating Temperature	0° to +50° C
Storage Temperature	-40° to +85° C
Humidity	0-95% Non-condensing
Materials	UL, CSA, VDE Listed

Approvals

CE Compliant Light Industrial, UL/CSA Pending, LVD, EMC, MID

Display & Interface

Display Type	7" TFT Display
Interface	Touchscreen Interface on Display

Enclosure

Mounting	Wall Mount
Materials	Plastic, UL94V-0, Flame Retardant, Textured Matte Finish
Equipment Labels	Model, Safety, User Wiring

Power Input

The factory equipped power options are internally fused. An internal line to line filter capacitor is provided for added transient suppression. MOV protection for surge transient is also supported

Universal VAC Power Option

Voltage Range	85 to 276 Vrms, 50/60 Hz
Fuse	Time Delay Fuse, 250V, 500mA
Protection	Over voltage and Surge protection

24 VDC Power Option

Voltage Range	16 to 48 VDC
Fuse	Time Delay Fuse, 250V, 1.5A
Transient Suppression	1000 V
Protection	Over voltage, Surge protection, Over current protection

Excitation Voltage

24 VDC @ 500 mA over current protected
Multiple excitation voltage terminals available on each I/O card

Flow Inputs (applies to all 5 channels)

Flowmeter Types Supported

Linear	Vortex, Turbine, Positive Displacement, Magnetic, GilFlo, GilFlo 16 point, ILVA 16 Point, Mass Flow and others
Square Law	Orifice, Venturi, Nozzle, V-Cone, Wedge, Averaging Pitot, Target, Verabar, Accelabar and others
Multi-Point Linearization	May be used with all flowmeter types. Including: 16 point, UVC and dynamic compensation

Virtual Meter Run

Can be used to represent the sum of a combination of meter runs 1-5

Analog Inputs

Number of Inputs	8 per COMBO I/O Card. Expandable with additional I/O cards
Input Range	4-20mA, 0-20mA, 1-5VDC, 0-5VDC, 1-10VDC
Basic Measurement Resolution	16
Sampling Rate	10 Updates/sec
Accuracy	0.02% FS
Automatic Fault Protection	Over Current Under Current Current Loop Broken
Calibration	Operator Assisted learn mode. Learn Zero and Full Scale of each range
Fault Protection	Fast Transient: 1000V Protection (capacitive clamp) Reverse Polarity: No ill effects Over Voltage Limit: 50VDC Over Current Protection: Internal current limited protection to 24 VDC

Pulse Inputs

Number of Inputs	5 per COMBO I/O Card. Expandable with additional I/O cards
Input Impedance	10kΩ nominal
Trigger Level (menu selectable)	High Level Input Logic On: 3 to 30VDC Logic Off: 0 to 2VD Low Level Input (mag. pickup) Selectable Sensitivity: 10mV and 100mV Min. Count Speed: 0.01 Hz Max. Count Speed (selectable): 0 to 40 kHz Fast Transient: 1000V Protection (capacitive clamp)

Datalogger

Size	High Capacity
Initiate	Key, Interval or Time of Day
Items Included	Selectable List
Data Format	Printer or CSV Access via RS-232

Stored Information (ROM)

Steam Tables (saturated & superheated), Properties of Water, (Properties of Air, Natural Gas and Fluids, coming soon)

User Entered Stored Information (EEPROM / NV RAM)

Transmitter Ranges, Signal Types, Fluid Properties, Units Selections (English/Metric)

Data Storage

Size	16GB internal storage
Additional Storage	Additional data storage is also available using a USB thumb drive
Cloud Storage Option	Cloud storage of all data (coming soon)

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Specifications (continued)

RS-232

Number of Ports	2 per COM I/O Card.
Uses	Printing, Setup, External Modem, Data Logging
Baud Rates	300, 1200, 2400, 9600
Parity	None, Odd, Even
Device ID	0 to 99
Protocol	Proprietary (Contact Factory for More Information)
Connector Style	Terminal Block Connector
Power Output	8V (150 mA max.) provided to Modem
Protocols	KEP Protocol, Printer ASCII

RS-485

Number of Ports	2 per COM I/O Card. Expandable with additional I/O cards
Uses	Network Communication
Baud Rates	300, 600, 1200, 2400, 4800, 9600, 19200
Parity	None, Odd, Even
Device ID	0 to 247
Connector Style	Terminal Block
Protocols	Modbus RTU, (BACnet MS/TP, DNP3; coming soon)

HART Interface

Provides the ST2xm with an interface to HART transmitters.

ETHERNET / WIFI

ETHERNET	RJ45, Modbus IP
WIFI	2.4GHZ/5GHZ (coming soon)
Protocols	HTTP/HTTPS, UDP/TCP, SSH, BACnet IP, DNP3, OPC UA (coming soon)

Relay Outputs

The relay outputs usage is menu assignable to (Individually for each relay) Hi/Lo Flow Rate Alarm, Hi/Lo Temperature Alarm, Hi/Lo Pressure Alarm, Pulse Output (pulse options), Wet Steam or General purpose warning (security), Peak demand and demand last hour

Number of Relays	8 per RELAY I/O Card.
Contact Style	Form C Contacts
Contact Rating	240 V; 5 Amp
Fast Transient Threshold	2000 V

Analog Outputs

The analog output usage is menu assignable to meter run and corresponding to the Heat Rate, Uncompensated Volume Rate, Corrected Volume Rate, Mass Rate, Manifold Rate, Temperature, Density, or Pressure, Peak demand and demand last hour

Number of Outputs	4 per COMBO I/O Card. Expandable with additional I/O cards
Type	Isolated Current Sourcing (shared common)
Isolated I/P/C	500 V
Ranges	0-20 mA, 4-20 mA (menu selectable)
Resolution	16 bit
Accuracy	0.05% FS at 20° C
Update Rate	Consult Factory
Temperature Drift	Less than 200 ppm/°C
Max. Load	1000 Ω
Compliance Effect	Less than 0.05% span
60 Hz Rejection	40 dB minimum
Calibration	Operator Assisted learn mode.
Averaging	User entry of DSP averaging constant to provide smooth control action

Isolated Pulse Outputs

The isolated pulse output is menu assignable to meter run and corresponding to Uncompensated Volume Total, Compensated Volume Total, Heat Total, Mass Total Manifold Total or Generated Total

Number of Outputs	4 per COMBO I/O Card. Expandable with additional I/O cards
Isolated I/P/C	500 V
Pulse Output Form (menu selectable)	Open Collector NPN or 24 VDC voltage pulse
Nominal On Voltage	24 VDC
Maximum Sink Current	25 mA
Maximum Source Current	25 mA
Maximum Off Voltage	30 VDC
Saturation Voltage	0.4 VDC
Pulse Duration	User selectable
Pulse output buffer	8 bit

Real Time Clock

The Flow Computer is equipped with non-volatile real time clock with display of time and date.

Format	24 Hr. for Time Day, Month, Year for Date
Daylight Savings Time	Optional