Our customer supplies hot water from a heat exchanger to other users and charges them for kilowatt hours (kW·h) used. The customer supplied calculation to compile the Smart App was:

The difference between water temperature out and water temperature returned x a factor x flow in liters per second.

For flow rate in liters/min

   -> kW - Flowrate (1/m) / 60 x dT (C) x 4.190
   -> kW - Flowrate (1/m) / x dT (C) x 0.06983333

This application uses a Tiger 320 Series DI-60AT controller with an ITTE RTD/Frequency/RTD input module installed and Texmate's Boiler Energy Calculation Smart App, Version 1.3, running.

APPLICATION FUNCTIONS
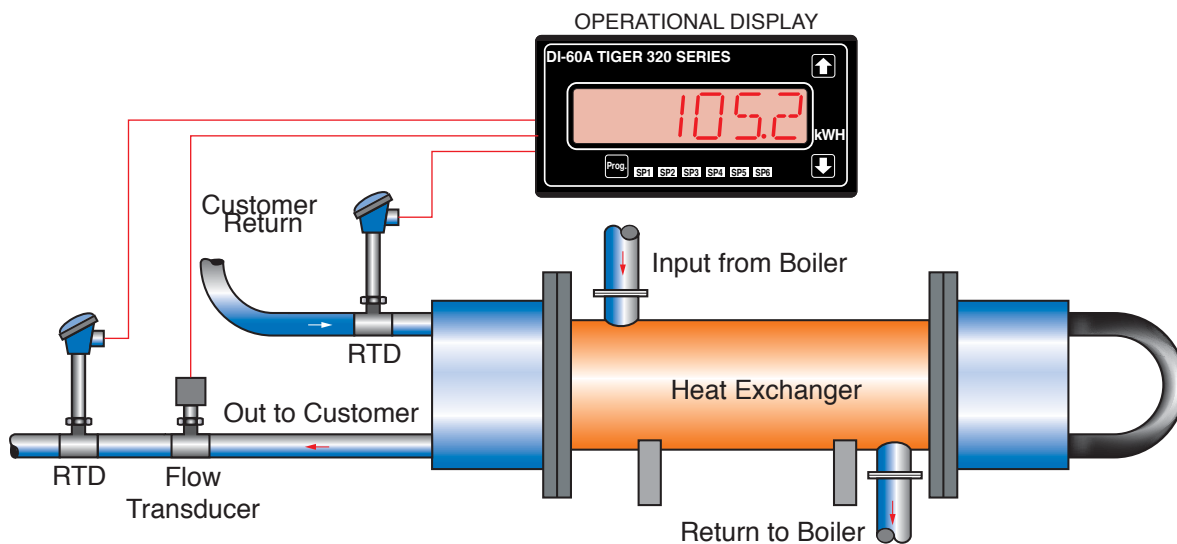
BOILER ENERGY SMART APP

BOILER ENERGY CALCULATION MACRO


```
5  REG &OUT_TEMP = &CH1           // RTD input in deg C
6
7  REG &RETURNED_TEMP = &CH3      // RTD input in deg C
8  REG &FLOW = &CH2               // Freq input in liters per minute
9  REG &KW = &CH4                 // result in kW
10 CONST FACTOR =  0.06983333
11
12
13 Customer_ID_Macro:
14 WRITE "___Boiler Energy Calculation Macro V1.3____ "
15 END
16
17
18 Main_Macro:
19
20 &KW = &FLOW * (&OUT_TEMP - &RETURNED_TEMP) * FACTOR
21 END
```

TOTALIZERS

CALCULATIONS

OPERATIONAL DISPLAY

DI-60A TIGER 320 SERIES

105.2 kWH

Prog SP1 SP2 SP3 SP4 SP5 SP6

INPUTS

Customer Return

Input from Boiler

RTD

Heat Exchanger

Out to Customer

RTD　Flow Transducer

Return to Boiler

PROCESS 4 / 20 mA 1 / 5 V

APPLICATION VARIATIONS

· View kW.
· View flow rate.
· Use a Tiger 320 Series DI-503 and view three parameters simultaneously.

Suggested Ordering Code Options for This Application

Basic Order Codes	Comments
DI-60AT-DR-PS1-ITTE	Triple RTD/RTD/Frequency input. Calculate kW/H by Smart App
Note: Custom Smart App required. Charges vary depending on application. Contact Texmate.	

TEMPERATURE DUAL RTD