Write a 61131-3 structured text program to implement an interlock to open a pressure relieve valve in a vessel upon overpressure.

In this example, we will create a simple structured text program using the IEC 61131-3 standard to implement an interlock system that opens a pressure relief valve in a vessel when overpressure occurs. We will use a PLC as the controller.

Assumptions:

1. Pressure transmitter (PT) sends an analog input signal to the PLC's input channel (IW0).
2. Pressure relief valve (PRV) is controlled by a digital output from the PLC (Q0.0).
3. The overpressure setpoint is 1200 units.

The code will be written using Structured Text (ST) language as per IEC 61131-3 standard:

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```
PROGRAM OverpressureInterlock
VAR
    PressureValue : INT := 0; // Pressure value from PT, assume 16-bit inte
    PressureSetpoint : INT := 1200; // Overpressure setpoint
    PressureReliefValve : BOOL := FALSE; // Pressure relief valve state
END_VAR
```

First, we declare variables for the pressure value, overpressure setpoint, and pressure relief valve state.

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```
METHOD CheckOverpressure : BOOL
VAR_INPUT
    Pressure : INT;
    Setpoint : INT;
END_VAR

IF Pressure > Setpoint THEN
    CheckOverpressure := TRUE;
ELSE
    CheckOverpressure := FALSE;
END_IF;
END_METHOD
```

Next, we create a method called "CheckOverpressure" that takes the pressure value and setpoint as input, checks if the pressure is above the setpoint, and returns a boolean value accordingly.

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```
METHOD SetPressureReliefValve : BOOL
VAR_INPUT
    ValveState : BOOL;
END_VAR

PressureReliefValve := ValveState;
SetPressureReliefValve := PressureReliefValve;
END_METHOD
```

We then create a method called "SetPressureReliefValve" that sets the pressure relief valve state and returns the new valve state.

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```
MAIN
    // Read pressure value from input channel IW0
    PressureValue := IW0;

    // Check if overpressure occurs
    IF CheckOverpressure(Pressure := PressureValue, Setpoint := PressureSet
        // Open pressure relief valve
        SetPressureReliefValve(ValveState := TRUE);
    ELSE
        // Close pressure relief valve
        SetPressureReliefValve(ValveState := FALSE);
    END_IF;

    // Write pressure relief valve state to output channel Q0.0
    Q0.0 := PressureReliefValve;
END_MAIN
```

Finally, in the MAIN section, we read the pressure value from the input channel, check for overpressure, and then open or close the pressure relief valve accordingly. The pressure relief valve state is then written to the output channel.

Save the program as "OverpressureInterlock.st" and compile it for your specific PLC. Then, upload the compiled program to the PLC and start the program execution. The PLC will now control the pressure relief valve based on the overpressure condition.