Setup details
Unistat® 910w & Buchi Glas Uster reactor

Temperature range:	-90...250 °C
Cooling power:	5.2 kW @ 250...-20 °C 4.7 kW @ -40 °C
Heating power:	6.0 kW
Hoses:	2x1.5 m; M38x1.5 (#6656)
HTF:	DW-Therm (#6479)
Reactor:	20-litre jacketed glass reactor
Reactor content:	15 litre M90.055.03 (#6259)
Stirrer speed:	70 rpm
Control:	process

Unistat® 910w

Controlling exothermic reactions in a Buchi Glas Uster 20-litre glass reactor

Requirement
This case study looks at how well a Unistat 910w controls a simulated 600 W (516 kcal / hr) exothermic reaction in a Buchi Glas Uster 20-litre glass reactor.

Method
The Unistat and reactor are connected using two 1.5-metre insulated metal hoses. The reactor is filled with 15 litre of "M90.055.03", a Huber supplied silicon based HTF. The exothermic reactions are simulated using a controlled electric immersion heater.

Result
The response of the Unistat 910w to a sudden increase in temperature caused by the heat from the simulated exothermic is rapid as the jacket is cooled to -49 °C from 0 °C in around 7 minutes. The process temperature is pulled back to its set-point exactly and held stable.
Once the heater is turned off the Unistat 910w again responds to return the falling process temperature to its set-point by ramping through 56 K (-39 °C to 17 °C) in 7 minutes.