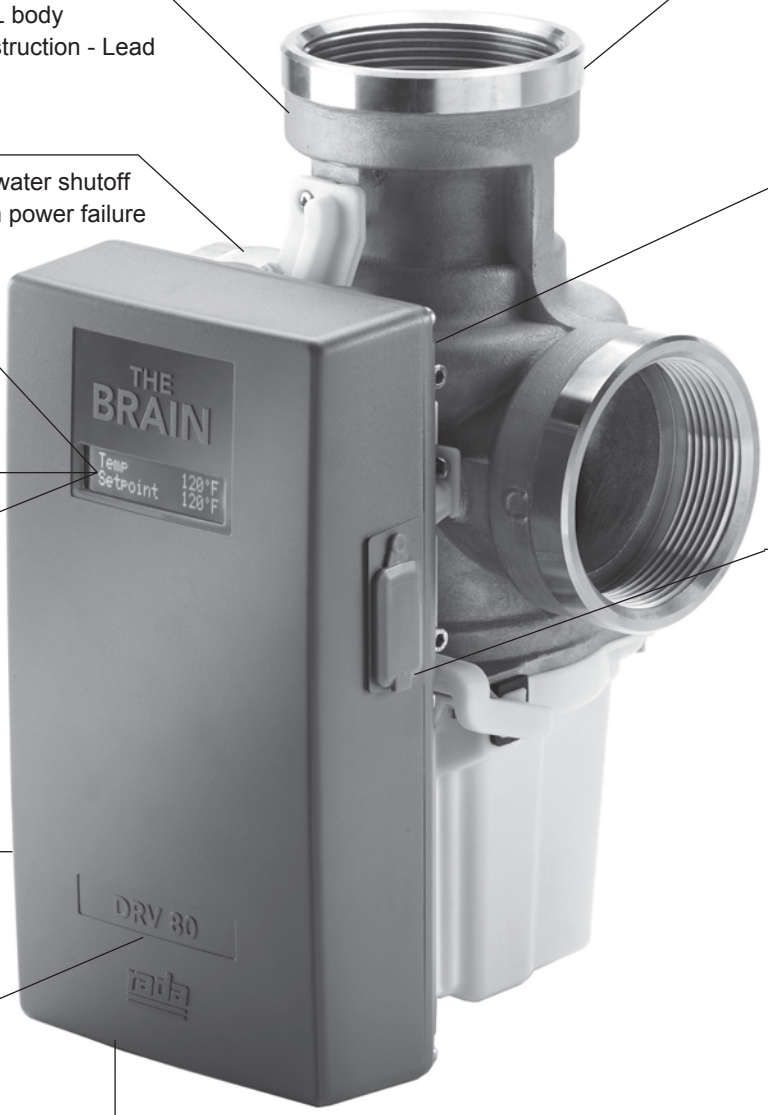
Recirculating Valve (DRV40 & DRV80)



+/-2°F/1°C water temperature control

316L body construction - Lead Free

Hot water shutoff upon power failure

Output display:
- Set point
- Operating temperature
- Over/under temperature alert

LCD display

Error message display
- Over temperature error
- PCB error
- Thermister error
- Motor error/emergency mode
- Battery error

SPCO relay contacts
- Integral relay for auxiliary device (alarm, solenoid)

ASSE 1017
CSA B125
CE
UL

RS485 port:
- Integral Modbus
- Serial port to connect BrainScan® for Bacnet™, LonWorks™, and web access

DB9 Programming port for valve programming (USB to DB9 programming cord supplied):
- Set point
- Two level temperature alert
- Thermal disinfection
- Default settings

Battery back-up for emergency shutdown and programmed settings retention upon power failure

*last updated 11/15

Digital

Water Temperature Control - Digital features Digital Recirculating Valves (DRV) and Digital Mixing Centers (DMC) specifically designed for use in a continuously pumped recirculating hot water system.

Options

The Brain® - Digital Recirculating Valve

Model DRV40 is a Digital Recirculating Valve (DRV) designed for systems which experience diverse draw-off between 0 - 41 GPM* and is provided with 1.5” NPT connections.

Model DRV50 is a Digital Recirculating Valve (DRV) designed for systems which experience diverse draw-off between 0 - 73 GPM*. DRV50 is a model DRV80 provided with bushed down 2” NPT connections.

Model DRV80 is a Digital Recirculating Valve (DRV) designed for systems which experience diverse draw-off between 0 - 165 GPM* and is provided with 3” NPT connections.

The Brain® - Digital Recirculating Valve with prepiped recirculation manifold

Model DRV40R – As above with integral recirculation system return manifold assembly with 1.5” NPT connections.

Model DRV50R – As above with integral recirculation system return manifold assembly with 2” NPT connections.

Model DRV80R – As above with integral recirculation system return manifold assembly with 3” NPT connections.

The Brain® - Digital Mixing Centers (DMC)

Model DMC40 is a pre-piped Digital Mixing Center supplied with all requisite installation components. DMC40 is designed for systems which experience diverse draw-off between 0 - 41 GPM* and is provided with 1.5” union connections.

Model DMC40-40 is a pre-piped Digital Mixing Center supplied with all requisite installation components. DMC40-40 includes two DRV40 and is designed for systems which experience diverse draw-off between 0 - 115 GPM* or require DRV redundancy. DRV40-40 is provided with 2.5” union connections.

Model DMC50 is a pre-piped Digital Mixing Center supplied with all requisite installation components. DMC50 is designed for systems which experience diverse draw-off between 0 - 73 GPM* and is provided with 2” union connections.

Model DMC80 is a pre-piped Digital Mixing Center supplied with all requisite installation components. DMC80 is designed for systems which experience diverse draw- off between 0 - 165 GPM* and is provided with 3” flanged connections.

Model DMC80-80 is a pre-piped Digital Mixing Center including two DRV80 supplied with all requisite installation components. DMC80-80 is designed for systems which experience diverse draw-off between 0 - 294 GPM* and is provided with 4” flanged connections.

Model DMC80-80-80 is a pre-piped Digital Mixing Center including three DRV80 supplied with all requisite installation components. DMC80-80-80 is designed for systems which experience diverse draw-off between 0 - 459 GPM* or require DRV redundancy and is provided with 5” flanged connections.

Connectivity

The Brain® – Digital Recirculating Valve (DRV) and all derivative assemblies are provided as standard with the following communication capabilities:

SPCO Relay Outputs – Relay which is energized during operation and switches from a normally open position upon the presentation of an error code. Can also be configured to activate upon a temperature alert condition. Relay may be used to connect to a remote alarm or solenoid valve.

LCD Display – Provides information on set point, delivered temperature with an option for °C or °F and displays all error codes and alert conditions.

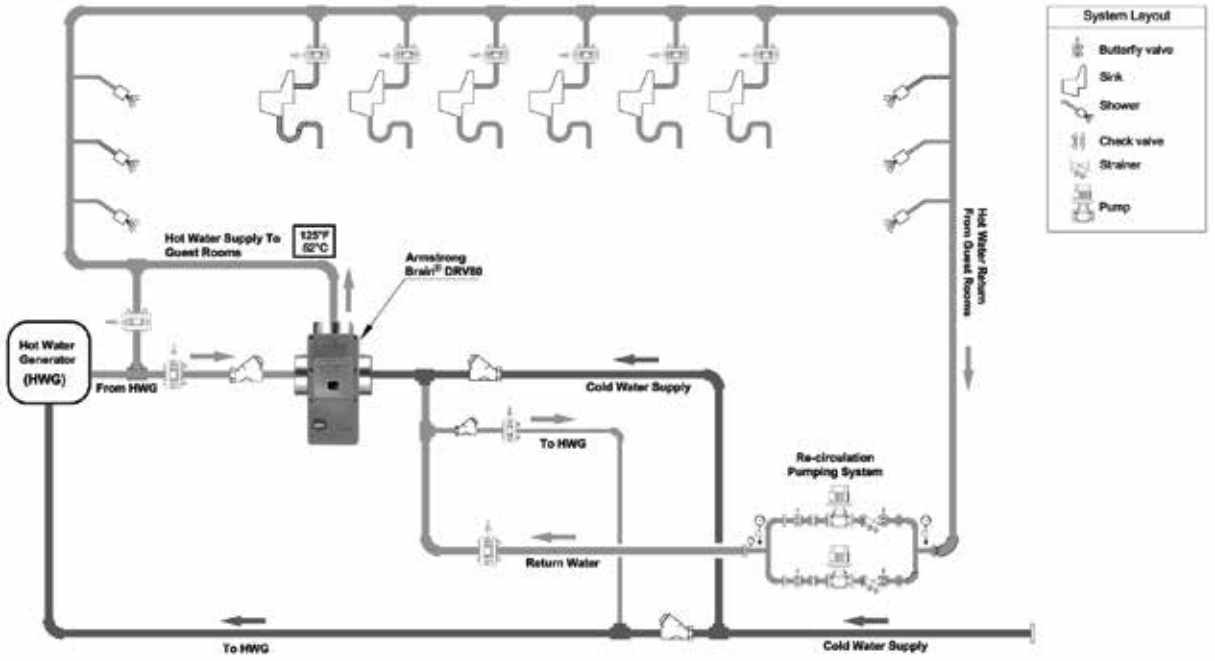
RS485 Serial Port – Connects the DRV to either a Building Automation System Module (BS) or directly to Modbus RTU.

Further information on DRV Connectivity is available on page 36.

* Note: Flow capacities indicated at 7.5 ft/sec pipeline velocity.

*last updated 11/15

Digital



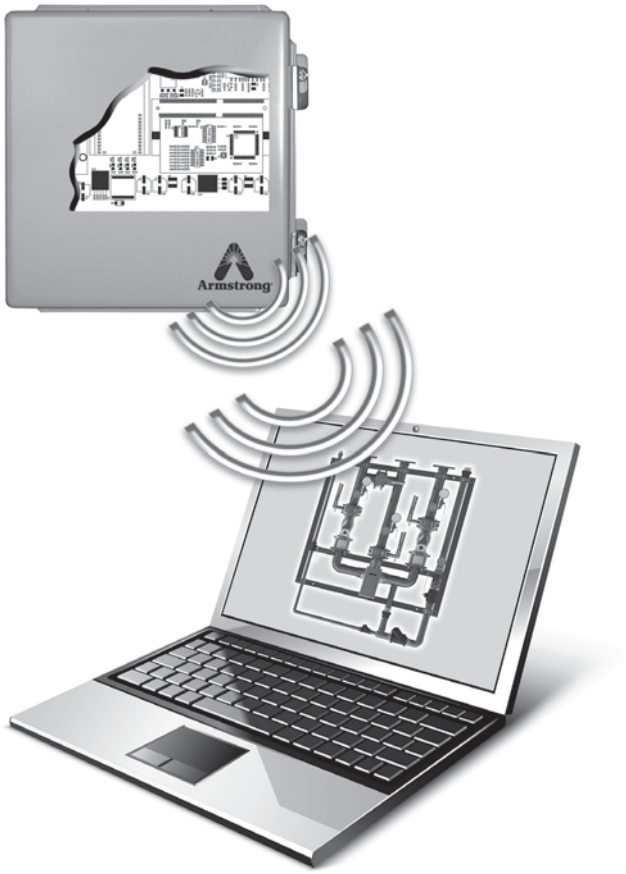
Recirculation Systems - Digital (GPM and PSI)							
Model (GPM)	Pressure Drop (PSI)				Minimum System Draw-Off	Maximum Flow @7.5 ft/sec.	C_v
	5	10	15	20			
DRV40/R	48	70	85	98	0	41	22
DMC40	48	70	85	98	0	41	22
DMC40-40	96	140	170	196	0	115	44
DRV50/R	94	133	163	188	0	73	42
DMC50	94	133	163	188	0	73	42
DRV80/R	94	133	163	188	0	165	42
DMC80	94	133	163	188	0	165	42
DMC80-80	188	266	326	376	0	294	84
DMC80-80-80	282	399	489	564	0	459	126

Recirculation Systems - Digital (LPM and BAR)							
Model (LPM)	Pressure Drop (BAR)				Minimum System Draw-Off	Maximum Flow @7.5 ft/sec.	C_v
	0.3	0.7	1.0	1.4			
DRV40/R	171.7	265.0	321.8	371.0	0	155	22
DMC40	171.7	265.0	321.8	371.0	0	155	22
DMC40-40	363.4	530.0	643.5	741.9	0	435	44
DRV50/R	355.8	503.5	617.0	711.7	0	276	42
DMC50	355.8	503.5	617.0	711.7	0	276	42
DRV80/R	355.8	503.5	617.0	711.7	0	625	42
DMC80	355.8	503.5	617.0	711.7	0	625	42
DMC80-80	711.7	1006.9	1234.0	1423.3	0	1113	84
DMC80-80-80	1067.5	1510.4	1851.1	2135.0	0	1738	126

*last updated 11/15

Connectivity

The integral RS 485 Serial Port on The Brain® Digital Recirculating Valve (DRV) can be used to connect the DRV directly to a Building Automation System (BAS) using Modbus RTU or to an optionally selected Control Module (BS) which enables interface with a BAS operating on Modbus, BACnet™ or LonWorks™ protocols.



Modbus RTU

When configured for Modbus the DRV becomes a Remote Terminal Unit (RTU). The BAS will need to be using a Modbus RTU format. When connected directly to a BAS using Modbus, the DRV can be assigned a unique network address which is programmed via the integral DB9 external port.

RS485 Port

The integral RS485 Serial Port provides an ability to remotely program the DRV and update the firmware via BS control module or Modbus.

The integral RS485 Serial Port can receive the following outputs from the DRV and communicate them via BS control module or Modbus.

- Set Point
- Inlet/Outlet Temperature
- Over Temperature Alert
- Inlet Hot Below Set Point

The integral RS485 Serial Port can receive the following selfdiagnostic error messages from the DRV and communicate them via BS control module or Modbus.

- Over Temperature Error
- PCB Error
- Thermistor Error
- Motor Error/Emergency Mode
- Battery Error

*last updated 11/15