

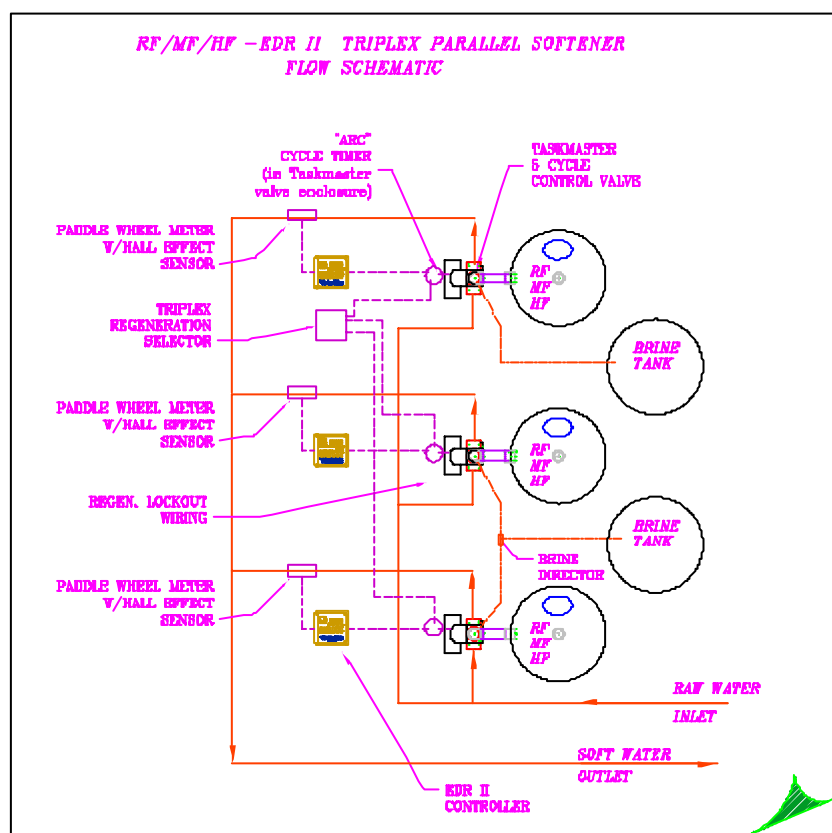
# Triplex Softener (-TX) Controls

**Definition.** A triplex system has three demand regenerated mineral vessels with separate meters and controllers. Each unit regenerates when its demand set point is reached and returns to service immediately after regeneration. Two vessels are always in service providing a continuous stream of softened water.

Triplex systems are often economical since a common sizing philosophy is  $n+1$  sparing. This means that  $n$  equipment units carry the full flow or load and one additional unit is provided ( $+1$ ) to afford redundancy. For example, if a softener application calls for 1200 Kgr capacity,  $n+1$  sparing would require a twin alternating system with two 1200 Kgr giving a total capacity of 2400 Kgr. An alternative would be three softeners with 600 Kgr each giving a total capacity of 800 Kgr. The triplex requires additional controls, valves, and complexity as compared to a twin system which may yield capital or O & M cost savings.

**Control Scheme.** All -TX systems are demand regenerated. Each tank is controlled independently by a separate controller (EDR II or ED520). For each mineral vessel, the separate controllers determine if the resin in the mineral tank is exhausted based on the volume of water treated (or totalized flow) and then signals the cycle timer to regenerate that particular vessel. The vessels operate independently except during regeneration. The Water King triplex regeneration controller prevents simultaneous regeneration.

**Systems.** All of the Water King softeners can be configured in a triplex mode. The diagram below shows an example of a triplex parallel system using the Taskmaster valve and EDR II.



**NOTES ON DIAGRAM.** The diagram shows a configuration for a Triplex Parallel system using Taskmaster valves with external injectors which includes all RF and MF systems and HF systems up to HF 750.

**NUMBER OF BRINE TANKS.** Systems with internal brine ejectors have two brine tanks. Those with external ejectors require only one brine tank.

## CAT403.2

COMPONENTS OF TRIPLEX PARALLEL (-TX) CONTROL SYSTEM					
	RF, MF, HF	RF, MF, HF Superflow	RF, MF, HF Superflow	VN	VN
Pipe Size	1 ½", 2" & 2½"	2 ½" & 3"	4" & 6"	up to 3"	4" & up
Controller (Three)	EDRII	EDRII	ED520	EDRII	ED520
Meter (Three)	PW075, PW150 or PW300 OR TM100 or TM200	PW150 or PW300 OR TM200	PW400S & PW600S Saddle Mounted Meters	PW075, PW150 or PW300 OR TM100 or TM200	PWXXXS Series Saddle Mounted Meters
Cycle Timer (Three)	ARC	ARC	ARC	ARC	ARC
Valves	Taskmaster (One per tank)	Taskmaster (One per tank)	Taskmaster (One per tank)	DM or DP Series Diaphragm (Six per tank)	DM or DP Series Diaphragm (Six per tank)
Stager	NA	NA	NA	Series 48 Stager (Three)	Series 48 Stager (Three)
Auxiliary Valves	SOK (One per tank)	2 ½" or 3" SFK (One per tank)	4" or 6" Flanged or Gruvloc SFK (One per tank)	NA	NA
Triplex Regeneration Selector	Required on all - TX systems.				

### Notes:

SOK – Shut off kit to prevent hard water bypass during regeneration.

SFK – Super flow kit to allow service flow to bypass Taskmaster also prevents hard water bypass during regeneration.

### ADVANTAGES OF EDRII PARALLEL CONTROL

#### PROVEN, EXPANDABLE, EFFICIENT, ROBUST, ECONOMICAL

**PROVEN.** The EDRII has been in production since the mid 80's. There are thousands of successful installations.

**EXPANDABLE.** The EDRII parallel control system allows easy conversion from TA to TP or easy expansion of a simplex to a twin or a twin to a triplex. No new controllers, very little new wiring, and no new technology to learn.

**EFFICIENT.** The twin and triplex parallel systems allow maximum utilization of capacity. All tanks are on line unless they are in regeneration. Demand regeneration is the best balance of reliability and efficiency of operation. By optimizing the water treated between regenerations, the salt usage can be minimized and hardness breakthrough can be eliminated.

**ROBUST.** A separate flow meter is provided for each unit. For this means you can read the flow through each unit without touching the controls.

**ECONOMICAL.** The EDRII is the most economical controller on the market. Coupled with its other advantages and a top quality Water King system, the EDRII minimizes capital expenditures and O & M costs.

102 Charbonnet Road ♦ Duson, Louisiana 70529 ♦ 337 988 2360 ♦ Fax 337 981 7922

[wkinginfo@waterking.com](mailto:wkinginfo@waterking.com) ♦ Revised 07/24/06

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