

# Bettis XTE Electric Actuator – RDM Quick Start Guide



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# Section 1: XTE3000 with Remote Display Module (RDM) Overview

RDM module allows actuator to be remote controls, local control and monitors the status of actuator through RS485 communication up to 4000 ft (1200) distance from XTE3000 electrical actuator.

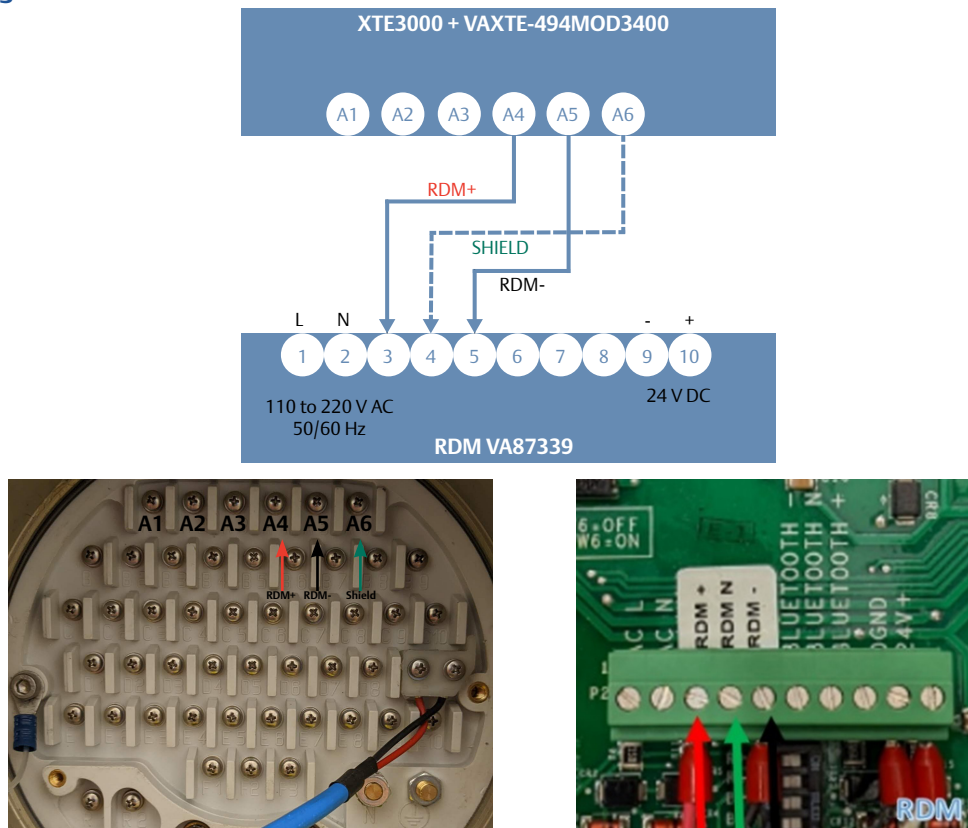
Figure 1.



## Section 2: XTE3000 – RDM Wiring Connection

Bettis electrical actuator XTE3000 with RDM card VAXTE-494MOD3400 provides one channel of MODBUS at A1, A2, A3 terminal and one channel of RDM port at A4, A5, A6. The wiring connection between XTE3000 to RDM module shows in Figure 2 and RDM module has two options to be powered.

Figure 2.



**a) RDM power by external single phase 110 V to 220 V AC, 50/60 Hz**

- AC Line connect to pin 1 on P2 connector
- AC Neutral connect to pin 2 on P2 connector
- Connect RS485(+) from A4 to pin 3 (RDM+)
- Connect RS485(-) from A5 to pin 5 (RDM-)
- Connect Shield from STC24 to pin 4 (RDM)

**b) RDM power by external 24 V DC**

- 24 V DC(+) connects to pin 10 on P2 connector
- 24 V DC(-) Ground connects to pin 9 on P2 connector
- Connect RS485(+) from A4 to pin 3 (RDM+)
- Connect RS485(-) from A5 to pin 5 (RDM-)
- Connect Shield from STC24 to pin 4 (RDM)

## Section 3: XTE3000 – RDM Power Requirement

RDM can be power by external power 24 V DC (+/-10%) or single phase 110 V to 220 V AC (+/-10%) 50/60 Hz and the nominal power consumption of RDM is 10 Watts and maximum is 14 Watts.



# Section 4: XTE3000 – RDM Communication Cable Requirement

With the best performance, A4, A5, A6 communication cable requires using Belden® 9841 (or equivalent) for RS485 communication.

## Section 5: XTE3000 – RDM Parts List and Option Kits

XTE3000 with RDM is option item from Standard XTE3000 unit.

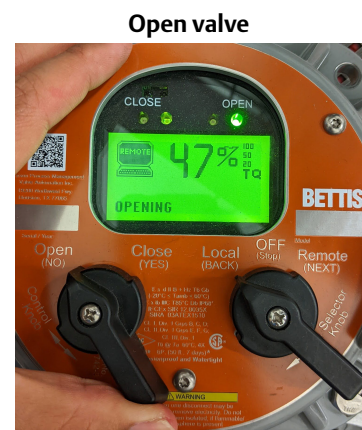
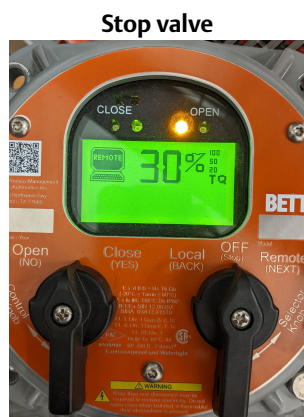
Option: XTE RDM upgrade kits is also available, “480KAMOD45” for XTE 10/20/30 size, “480KAMOD46” for XTE 40/50 size.

# Section 6: XTE3000 – RDM Operation Method

## a) RDM controls XTE3000

1. XTE3000 display and RDM display will both show as “REMOTE” when XTE3000 change selector knob in “REMOTE” position to have controlled by RDM.
2. XTE3000 display push button will have no function.
3. Open valve from RDM: Place RDM selector knob in “LOCAL” and move control knob toward “OPEN”.
4. Close valve from RDM: Place RDM selector knob in “LOCAL” and move control knob toward “CLOSE”.
5. Stop valve from RDM: Place RDM selector knob in “STOP”.

Figure 3.



**b) XTE3000 display controls XTE3000**

1. XTE3000 display and RDM display will both show as “LOCAL” when XTE3000 change selector knob in “LOCAL” position to have controlled by XTE3000 front display.
2. RDM selector knob and control knob will have no function and shows “LOCAL”.
3. Open valve: Push OPEN button from XTE3000.
4. Close valve: Push CLOSE button from XTE3000.
5. Stop valve: Push STOP button from XTE3000.

**Figure 4.**



c) **XTE3000 in OFF mode**

1. XTE3000 display and RDM display will both show as “OFF” and “STOP” when XTE3000 change selector knob in “OFF” position to have controlled by XTE3000 front display.
2. RDM selector knob and control knob will have no function and shows “STOP”.

Figure 5.



## Section 7: XTE3000 – RDM Functional Table

XTE3000 could be controlled by multiple different control sources, RDM (Remote Display Module), Bus (Modbus, Hart and etc.), 4 to 20 mA Analog, Discrete Hardwire and Local Display Control. Table 1 shows the priority of combination of each control methods.

Table 1.

Restricted Param. "Positioner Request From"	Actuator Local Selector Position	HW Remote Mode (Terminal C8)	RDM Selector Position	DCS Communication Status	4 to 20 mA control enabled	Actuator executes commands received by
Bus	LOCAL	-	-	-	-	LOCAL CONTROL PANEL
Bus	OFF	-	-	-	-	No commands executed
Bus	REMOTE	ENERGIZED	-	-	-	HW REMOTE (Terminals C5, C6, C7)
Bus	REMOTE	NOT ENERGIZED	LOCAL	-	-	RDM
Bus	REMOTE	NOT ENERGIZED	OFF	-	-	No commands executed
Bus	REMOTE	NOT ENERGIZED	REMOTE/ERROR	ACTIVE	-	DCS
Bus	REMOTE	NOT ENERGIZED	REMOTE/ERROR	NOT ACTIVE	-	No commands executed
4 to 20 mA	LOCAL	-	-	-	-	LOCAL CONTROL PANEL
4 to 20 mA	OFF	-	-	-	-	No commands executed
4 to 20 mA	REMOTE	ENERGIZED	-	-	-	HW REMOTE (Terminals C5, C6, C7)
4 to 20 mA	REMOTE	NOT ENERGIZED	LOCAL	-	-	RDM
4 to 20 mA	REMOTE	NOT ENERGIZED	OFF	-	NO	No commands executed
4 to 20 mA	REMOTE	NOT ENERGIZED	REMOTE/ERROR	-	ENABLED	The 4 to 20 mA has the control of the actuator

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