Bettis XTE3000
Sleep Mode

BETTIS™

EMERSON™

Revision Details

Revision	Date	Description	Prepared	Checked	Approved
1	February 2022	Migration to new template			

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Section 1: Introduction

SLEEP is a new function available in the XTE3000 electric actuator which reduces power consumption from the electronics when the actuator is not moving.

This function is useful when the actuator is powered via battery and solar panel, and if few valve travel events are expected. In these applications, electrical power is absorbed from the battery when the motor is running and when the motor is off, the solar panels recharge the battery and power the actuator's electronics.

Since the run time of the motor is a small percentage of the total time that the actuator will spend in the field, the energy necessary to power the electronics during the motor's rest phase is a high percentage of the total energy needed. Reducing energy requirements when the motor is OFF allows a smaller solar panel to be used.

Figure 1 demonstrates the utility of the SLEEP function.

Figure 1
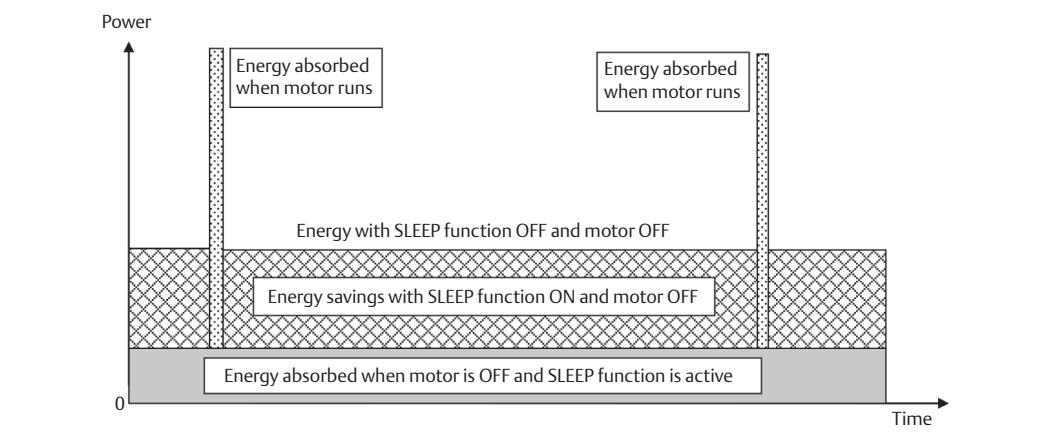
Section 2: Conditions to Activate SLEEP Function

The SLEEP function is activated by the following conditions:

- Parameter SLEEP in the "Actuator Setup" menu, "Restricted" section: ENABLED
- Firmware releases of microprocessors of BASE card:
  — >= 9.00 for H8S
  — >= 7.00 for PIC
- Firmware release of microprocessors of TERMINAL BOARD card:
  — >= 6.0 for PIC
- Parameter SW TYPE in the "Actuator Setup" menu, "Restricted" section: XTE
- Parameter POSITIONER in the "Actuator Setup" menu, "Restricted" section: DISABLED
- Parameter HW CONFIG in the "Actuator Setup" menu, "Restricted" section: BASE
- Parameter BACKLIGHT in the "Actuator Setup" menu, "Restricted" section: AUTO
- Parameter POWER TYPE in the "Nameplate" menu, "Power Supply" section: DC

Section 3: Conditions to Switch to SLEEP Mode

The XTE3000 electronics switch to SLEEP status when:

- 30 seconds after the end of the last command (OPEN, CLOSE, ESD) via remote control
- 2 minutes after the last operation on the local interface of the actuator (local selector and push buttons)
- 30 seconds after closure of Bluetooth or RS232 communication channel (if present)
- 255 seconds after closure of IrDA communication channel (if enabled)

Section 4: Conditions to Exit from SLEEP Mode

The XTE3000 electronics exit from SLEEP status when:

- Command via remote control OPEN, CLOSE, ESD (duration of command: > 0.7 second)

- By operating the actuator local interface (local push buttons or selector) (duration of command: >1 second)

- Change of position > 5% via manual operation (handwheel)

When the XTE3000 exits from SLEEP mode, all functions are restored and the actuator is available for normal operation.

Section 5: SLEEP Mode Status

In SLEEP mode:

- The alphanumeric display of actuator shows the message "SLEEP"
- Auxiliary relays AS1, AS7 do not change
- Auxiliary relay AS8 is de-energized
- Monitor Relay:
    — de-energized if parameter "MR in SLEEP" in "Actuator Setup" menu, "Restricted" section is "OFF" (with local selector in REMOTE)
    — energized if parameter "MR in SLEEP" in "Actuator Setup" menu, "Restricted" section is "ON" (with local selector in REMOTE)
- Any internal heater on the electronic cards are OFF

Section 6: Current Consumption

Minimum current consumption is obtained via the following configuration:

- Actuator without 4 - 20 mA position re-transmission card
- Parameter "MR in SLEEP" in "Actuator Setup" menu, "Restricted" section in "OFF"

In the above condition, the current consumption measured by a multimeter (on average on an XTE3000 supplied at 24 V DC) is 58 mA, corresponding to 1.4 W (at 24 V DC).

If the actuator is equipped with a 4 - 20 mA position transmitter module, the current consumption is 78 mA.

If the parameter "MR in SLEEP" in "Actuator Setup" menu, "Restricted" section is in "ON", the current consumption is 98 mA (2.4 W at 24 V DC).

When actuator exits from SLEEP mode, all XTE3000 functions are restored to normal operation and the current consumption returns to normal.

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