# Requirements

## PACING\_REF\_PWM Duty Cycle

|  |  |
| --- | --- |
| Monitored Variables | p\_mode |
| Controlled Variables | PACING\_REF\_PWM duty cycle |

|  |  |
| --- | --- |
| p\_mode | PACING\_REF\_PWM duty cycle |
| AAI or AOO |  |
| VVI or VOO |  |

**Future Changes**

* For dual pacing modes, the PWM duty cycle will have to switch between atrium and ventricle paces to accommodate differing amplitudes

## Pacing-related hardware pins

|  |  |
| --- | --- |
| Monitored Variables | pulse\_state, p\_mode |
| Controlled Variables | Hardware Pins: PACE\_CHARGE\_CTRL, ATR\_PACE\_CTRL, VENT\_PACE\_CTRL, ATR\_GND\_CTRL, VENT\_GND\_CTRL, PACE\_GND\_CTRL, Z\_ATR\_CTRL, Z\_VENT\_CTRL |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pulse\_state | p\_mode | PACE CHARGE CTRL | ATR PACE CTRL | VENT PACE CTRL | ATR GND CTRL | VENT GND CTRL | PACE GND CTRL | Z ATR CTRL | Z VENT CTRL |
| discharging C22/charging C21 | AXX | LOW | HIGH | LOW | LOW | LOW | HIGH | LOW | LOW |
| VXX | LOW | HIGH |
| charging C22/discharging C21 | AXX | HIGH | LOW | LOW | HIGH | LOW |
| VXX | LOW | HIGH |

**Future Changes**

This requirement is unlikely to change

## ATR\_CMP\_REF\_PWM Duty Cycle

|  |  |
| --- | --- |
| Monitored Variables | p\_atr\_sensitivity, p\_mode |
| Controlled Variables | ATR\_CMP\_REF\_PWM Duty Cycle |

|  |  |
| --- | --- |
| p\_mode | ATR\_CMP\_REF\_PWM duty cycle |
| AAI |  |
| not AAI | 0 |

## VENT\_CMP\_REF\_PWM Duty Cycle

|  |  |
| --- | --- |
| Monitored Variables | p\_vent\_sensitivity, p\_mode |
| Controlled Variables | VENT\_CMP\_REF\_PWM Duty Cycle |

|  |  |
| --- | --- |
| p\_mode | ATR\_CMP\_REF\_PWM duty cycle |
| VVI |  |
| not VVI | 0 |

## AOO

|  |  |
| --- | --- |
| Monitored Variables | t: time since last pulse (paced)  Programmable Parameters: p\_lower\_rate\_limit (LRL), p\_upper\_rate\_limit, p\_atr\_pulse\_width |
| Controlled Variables | pulse\_state |

|  |  |
| --- | --- |
| time since last pulse | pulse\_state |
|  | charging C22/discharging C21 |
|  | discharging C22/charging C21 |

**Future Changes**

This requirement is unlikely to change

## VOO

|  |  |
| --- | --- |
| Monitored Variables | t: time since last pulse (paced)  Programmable Parameters: p\_lower\_rate\_limit (LRL), p\_upper\_rate\_limit, p\_vent\_pulse\_width, h\_pulse\_detected |
| Controlled Variables | pulse\_state |

|  |  |
| --- | --- |
| time since last pulse | pulse\_state |
|  | charging C22/discharging C21 |
|  | discharging C22/charging C21 |

**Future Changes**

This requirement is unlikely to change

## AAI

|  |  |
| --- | --- |
| Monitored Variables | t: time since last pulse (sensed or paced)  Programmable Parameters: p\_lower\_rate\_limit (LRL), p\_upper\_rate\_limit, p\_atr\_pulse\_width, p\_arp, p\_pvarp, p\_hysteresis\_enable, p\_hysteresis\_rate\_limit, p\_rate\_smoothing\_enable, p\_rate\_smoothing\_percent |
| Controlled Variables | pulse\_state |