INPLAY INC

IN100 and I2C Sensor One Shot Mode

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Abstract

Revision History

Revision	Description	Prepared By	Date
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1 I2C Sensor one-shot mode

Many I2C sensors have a one-shot mode where before the IN100 device reading the measurement, they need the IN100 device to send a conversion command. Between the conversion command and the read command, usually they require a delay (conversion time). The conversion command is an I2C write command, and the reading measurement is an I2C read command.

Figure 1 (a) shows a typical sequence of I2C operations and IN100 sleep/wakeups where upon cold boot or every warm boot, the IN100 device first issues a write command (request the I2C sensor to do a measurement conversion), then there is delay followed by a read command (read the measurement). The delay (conversion time) is dependent on the sensor, and customers should specify the delay in the ConfigTool according to the sensor's datasheet.

When the conversion time is too big, it can cause significant power consumption as the IN100 device spends more time in active state and less time in sleep, as shown in Figure 1 (b). One solution is to let the sleep duration serves the conversion time, as shown in Figure 1 (c). If customers don't care the I2C data presented in the first advertising payload, customers can use the sequence in Figure 1 (d).

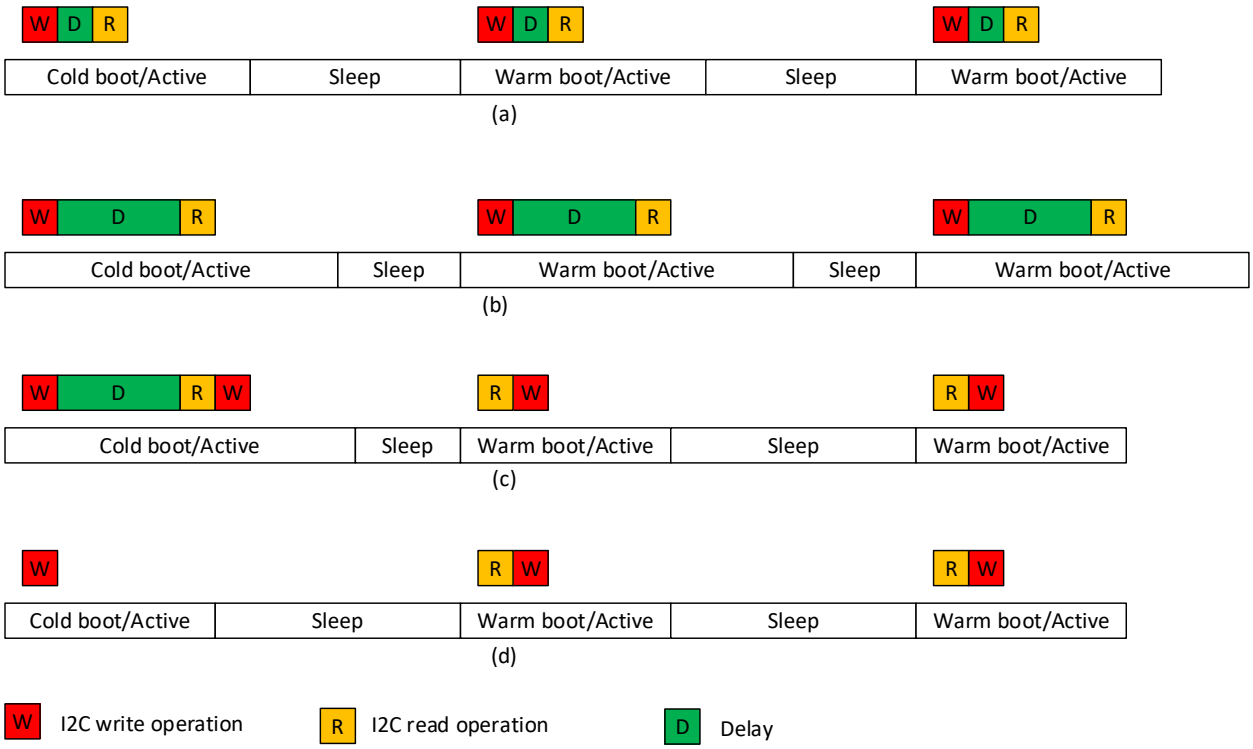

Figure 1. One shot mode and IN100 sleep wakeup

The sequences in Figure 1 (c) and Figure 1 (d) can be used for applications where only one advertising set is needed, and the advertising interval is large than the conversion time by at least milliseconds.