Standby Battery Calculation Charts: Fire Applications

The PC5020 control panel provides regulated current for the panel, auxiliary, PGM outputs and Keybus connected modules. The bell circuit on the main panel is not used for fire alarm notification appliances which means that alarm current is not a part of the main panel battery calculation.

All components that draw power from the main panel must be considered in the standby battery calculation. This includes any 2-wire smoke detectors connected to the PGM2. Consult the smoke detector manufacturer's installation documents for current draw.

To calculate the minimum size of standby battery required for your system:

1. Calculate the Keybus load using chart 2. Transfer the total to chart 1.
2. Complete the rest of chart 1.
3. Total the current draw in chart 1 and write the total in box 1 of the calculation below the chart.

NOTE: *Total current draw must not exceed 480mA.*

4. Complete the calculation steps below chart 1. The answer in box 5 is the minimum standby battery size.
5. If the standby battery size calculated exceeds 14Ah (2 - 7Ah batteries fit in the cabinet) then either
   - reduce the current loading on the main panel, or
   - install the PS5350 external battery charger, which can take batteries up to 60Ah in size.

NOTE: *When entering values in the charts below, please use the maximum specified ratings of the devices (ex. each 2-wire smoke detector -maximum current rating).*

Chart # 1 - Panel overall calculation

Outputs or components drawing current from the panel	Current (mA)	Notes
PC5020 panel {65mA}	65mA	fixed
PC5700 {150mA} **or T-Link {150mA} (required)**	150mA	fixed
PGM 1 output {50mA max.}		see Note 2, 3
PGM 2 output {300mA max.}		see Note 2, 3
PGM 3 output {50mA max.} (PC5020(CF) only)		see Note 2, 3
PGM 4 output {50mA max.} (PC5020(CF) only)		see Note 2, 3
Aux output on the main panel {420mA max.}		see Note 2
Keybus load {420mA max.} **1 LCD5500Z keypad required**		from Chart 2
Alarm Current {700mA}		

NOTE 1: For 60 hour standby time*, at a maximum current of 480mA the battery size must be 35Ah or greater.* ***For 24 hour standby time,*** *at a maximum current of 480mA, the battery size must be 14Ah or greater. Under no circumstances can the maximum current in line 1 exceed 480mA.*

Total current from the main control panel {See Note 1} ..... 1 [ ] **mA**

Standby time {24 or 60 hours} ..... 2 [ ] **Hours**

Total Alarm Current ..... 3 [**A**]

Signaling Alarm Time (5 minutes or 0.0833 hours) ..... 700mA x 0.0833 hours = [**58.3***]

* This value of 58.3mAh is to be implemented in the battery calculation only if Bell Output is used. For Burglary Application only.

Multiply total standby current in mA (1) and alarm current (3) by the standby time in hours (2). Write total in box 4 ..... (1 x 2) = 4 [**A+58.3**]

Derating factor & conversion to Amp-Hours ..... 5 [**0.0012**]

Multiply (4) by the derating factor (5) ..... (4 x 5) = 6 [ ] **Amp-Hour**

This is the minimum size battery required to maintain the main panel for the standby time selected

NOTE 2: *Aux+ is shared between Aux+, Keybus, (Red, Blk, Yel, Grn) & all PGM outputs. Minimum system required: LCD5500Z keypad (85mA), PC5700 (150mA), available current for Aux+, Keybus and PGM outputs should total 180mA.*

DSC PowerSeries™

PC5O2O(CF) v3.X

Chart #2 - Keybus Loading

Item	Current (mA)	x	Quantity	Total (mA)
LCD5500(Z) series	85	x	1	85mA
LCD5501Z	85	x		
PC5100 + AML devices*	40	x		
PC5108	35	x		
PC5200	20	x		
PC5400	65	x		
PC5204	20	x		

Total for chart 2 (current on the Keybus).....
Transfer to Chart 1.

***Refer to Addressable Loop Current Calculation Chart (from PC5100 Installation Instructions) for total current (PC5100 + Addressable Devices).**

NOTE 3: *PGM1, PGM2, PGM3 and PGM4 can be used as standard PGM outputs. Each PGM output can sink up to 50mA maximum (PGM2 can sink up to 300mA).*

©2002 Digital Security Controls Ltd.
Toronto, Canada • **www.dsc.com**
Technical Support: 1-800-387-3630
Printed in Canada 29005057 R002

Direct all comments concerning this publication to **pubs@dscltd.com**