Artificial Pancreas Systems (APS) Comparison Fact Sheet

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|  | **MANUFACTURED** | **DO-IT-YOURSELF** | |
| Description | Under warranty with technical support  No customization | Systems are built/maintained by the user  (Loop is undergoing FDA approval for use with multiple pumps) | |
| System | Medtronic 670G | Loop | Open APS |
| Components |  |  | Used with permission |
| Pump | **Medtronic** **670G pump**  (~$8000) | **Older Medtronic pumps, not available from Manufacturer**  **515/715, 522/722, 523/723, 554/754**  Cannot have updated firmware (~$500) | **Older Medtronic pumps, not available from Manufacturer**  **512/712, 515/715, 522/722, 523/723**  Cannot have updated firmware (~$500) |
| Continuous glucose monitor | **Guardian 3**  Transmitter and sensors required ($ varies)  Minimum 3-4 calibrations/day required | **Dexcom**  **Minimed** **Enlight or Guardian**  **Freestyle** **Libre**  Transmitter and sensors required ($ varies)  Receiver optional ($ varies)  Calibration requirement varies by device | **Dexcom**  **MiniMed Revel** or **Enlite**,  **FreeStyle Libre**  Transmitter and sensors required ($ varies)  Receiver optional ($ varies)  Calibration requirement varies by device |
| Communicator | Embedded within thePump and CGM  No Wi-Fi required | Riley link(~$150)  No Wi-Fi or cellular data required | Radio board/stick(~$75)  Wi-Fi or cellular data required |
| HYPERglycemia adjustment | Basal rate algorithm in pump | Basal rate algorithm in phone | Basal rate algorithm in mini-computer  Micro-bolus algorithm in mini-computer |
| HYPOglycemia treatment | Basal suspend algorithm in pump | Basal suspend algorithm in phone | Basal suspend algorithm in mini-computer |
| Set-Up Computer Requirements | No computer required (optional) | Mac required | Either Mac or PC required |
| Controller | Embedded within thePump and CGM | iPhone 5s/iPod touch 6 or later  (Apple watch optional) | Mini-computer (~$75)  iPhone or Android phone to view data |
| Account(s) | No accounts required  CareLink optional to view data | Apple developer account (~$100)  Heroku & Nightscoutoptional | Heroku & Nightscout required |
| Other |  | Reverts to standard pump settings in case of loss of Bluetooth or phone connectivity | Reverts to standard pump settings in case of loss of Wifi or Bluetooth connectivity |

Helpful Links for further information

MEDTRONIC 670G

More information about **Medtronic 670G** components, testimonials, and operation

<https://www.medtronicdiabetes.com/products/minimed-670g-insulin-pump-system>

Video by manufacturer

<https://www.medtronicdiabetes.com/products/minimed-670g-insulin-pump-system>

LOOP

More information about **Loop**, including purchasing hardware, accounts, setup, and operation

<https://loopkit.github.io/loopdocs/>

Setup overview by Loop user (YouTube video)

<https://www.youtube.com/watch?v=WbRASKfTrwA>

OPEN APS

More information about **Open APS,** including purchasing hardware, accounts, setup, and operation

<https://openaps.readthedocs.io/en/latest/index.html>

Overview by Open APS user (YouTube video)

<https://www.youtube.com/watch?v=qcmedjz_FpI>

HEROKU

A cloud-based solution for open-source applications, such as Loop

<https://www.heroku.com>

NIGHTSCOUT

Both a foundation and an application providing cloud-based CGM alternatives

<http://www.nightscoutfoundation.org/nightscoutproj>