

Automating the Plexor® HY System

By Sarah Shultz and Benjamin Krenke
Promega Corporation

What is automated Plexor® HY System setup?

Automated Plexor® HY System^(d-i) setup is a simple robotic protocol that prepares 96-well PCR plates for DNA quantitation of up to 80 unknown DNA samples per plate.

How does the automated setup differ from the manual Plexor® HY System protocol?

The automated Plexor® HY setup method is basically identical to the manual system; however, the robot prepares and dispenses the reagents. You simply thaw and vortex the required reagents and place them on the deck of the robot for processing. Automating the Plexor® HY setup process helps to improve reproducibility and provides time savings to analysts performing DNA quantitation.

How does the automated Plexor® HY System setup work?

The automated Plexor® HY System setup method begins by asking you how many unknown DNA samples you would like to process for quantitation (1–80 samples) and what volume of DNA sample (2–9 µl) will be used. The robotic method then prepares the Plexor® HY reaction mix and creates a serial dilution of the Plexor® HY Male Genomic DNA Standard. The robot

transfers the Plexor® HY reaction mix to the amplification plate. Next, the robot dilutes the DNA standard and dispenses “unknown” DNA samples and standards, including no-template control reactions, to the amplification plate. The total reaction volume per well is 20 µl. The amplification plate is sealed, centrifuged and subjected to thermal cycling. Quantification results will be used to normalize unknown DNA samples for STR amplification and analysis.

Approximately how long does the automated Plexor® HY System setup method take?

The automated method requires approximately 30 minutes per run for 80 unknown samples. Manual setup requires approximately 40 minutes with a multichannel pipette and 1–1.5 hours with a single-channel pipette.

Which robotic platforms are supported for use with automated Plexor® HY System setup?

Automated Plexor® HY System setup methods are available for the Beckman Coulter Biomek® 2000 and Biomek® 3000 Laboratory Automation Workstations and Tecan Freedom EVO® platform. The automated Plexor® HY System setup protocols #EP033, EP034 and EP035 describe this process so that you can develop protocols for other automated liquid-handling robots.

How does the automated Plexor® HY protocol integrate with existing Promega technologies or laboratory workflow?

The automated Plexor® HY System setup method integrates smoothly into the complete line of Promega differential extraction, nucleic acid isolation, quantification, STR amplification and analysis technologies. DNA is first purified using the DNA IQ™ System or, for differential extractions, the Automated Differex™ and DNA IQ™ Systems. The automated Plexor® HY setup method is used to quantify unknown DNA samples. Samples then are normalized using the Promega Normalization Wizard software tool to calculate and dispense appropriate template volumes (Biomek® 2000 method is currently available; Biomek® 3000 and Freedom EVO® support is in development) and amplified using the PowerPlex® Systems. Capillary electrophoresis results for each sample then are analyzed using the FSS-i3™ Expert Systems Software.

How do I get started with the automated Plexor® HY System setup?

Contact your local Promega representative to take the next steps to implement this system on your robotic platform. Also, refer to the automated Plexor® HY System setup protocols for details on workstation-specific items required to perform this method.