

AmpXpress™

- **Ultra fast thermal cycler**
- **Superior temperature control**

AmpXpress™ is an extremely rapid thermal cycler. SuperConvection™ technology makes the instrument significantly faster than conventional thermal cyclers.

- 40 cycle PCR in 20 minutes
- 24 samples per run
- 20 - 100 µl range



Features & benefits

Speed

- *Saves time and enables more runs per day.*
- *Rapid and precise temperature homogenization increases specificity.*

In-tube temperature measurement

- *No need to call for calibration or use special calibration discs.*

Temperature uniformity

- *No 'well-to-well' variation.*

Run 50-100 µl reactions for improved sensitivity

- *Important when only a few target molecules are present.*
- *Dilutes the effect of inhibitors.*

Fast PCR

AmpXpress overcomes the problem of poor heat transfer that hampers conventional thermal cyclers and prevents them from running fast PCR.

AmpXpress utilizes high-speed centrifugation and 'direct transfer' of infrared energy to enable fast temperature ramping without over or undershooting sample temperatures. The increased g-force, resulting from centrifugation, induces rapid thermal homogenization (mixing) of the reaction volume through a process called SuperConvection. This enables the samples to reach set temperatures much faster than previously possible, in volumes ranging from 20 to 100 µl.

Accurate temperature control

AmpXpress features a sophisticated control system for in-tube temperature measurements of the reaction temperature. This allows for accurate monitoring of reaction temperature, including the degree of thermal homogenization, in real time - which is a prerequisite for truly fast PCR.

The instrument

The centrifuge operates at 7000 rpm and is encircled by an infrared heater (Figure 1). The infrared energy enables very fast temperature ramping. Samples are then efficiently cooled by the powerful 'wind-chill' effect that is generated by the high-speed centrifugation. Sample temperature is mo-

nitored in real time, using the in-tube temperature measurement system, to prevent over and under-shooting of temperature.



Figure 1. The rotating samples are heated using a circular high-energy IR source.

To secure uniform and reproducible performance AlphaHelix has developed 0.2 ml sample tubes. These are specially manufactured to withstand the elevated g-forces, ensuring trouble-free operation in AmpXpress.

Software

AmpXpress is controlled via a user interface on the front panel, or, optionally, using an external netbook and the 'AmpX' software. The AmpX software is used to easily define run parameters and transfer them to the instrument.

Technical specifications

General data

Dimensions: 19 x 35 x 15.5 cm (WxDxH)

Weight: 7 kg

Power consumption: <600 W

Ambient operating temp: 15° C to 25° C

Centrifugation: 7000 rpm (approx. 3100xg)

Sample capacity

Number of samples per run: 24

Sample volumes: 20 µl, 50 µl and 100 µl.

Thermal performance

Typical cycle times

3-step cycle: 95° C for 0 s; 58° C for 3 s; 72° C for 3 s; and back to 95° C.

@ 20 µl: 25 s

@ 50 µl: 35 s

@ 100 µl: 45 s

A 40 cycle run according to the 3-step protocol takes ≤20 minutes @ 20 µl.

AmpXpress, AmpX and SuperConvection are trademarks of AlphaHelix.

Specifications are subject to change without further notice.

Ordering Information	
Item	Product Code
AmpXpress (Gold)	60-1001
AmpXpress (Dark blue)	60-1002
AmpXpress (Blue)	60-1003
AmpXpress (Red)	60-1004
Item, accessories	
0.2 ml tubes with lid, 1000/pkg	61-0001
24-tube 0.2 ml rotor	60-1005
20 µl temperature probe	60-1006
50 µl temperature probe	60-1007
100 µl temperature probe	60-1008



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