



ARNOLD & SON
SINCE 1764

Instrument Collection

DBS

A watch for stargazers and others

With a timepiece that references to John Arnold and his son's watchmaking heritage, Arnold & Son unveils the DBS. The initials stand for the watch's two major complications, "double balance" and "sidereal time". It features the newly developed manufacture A&S1311 calibre. Conceived, designed and manufactured in-house, this superbly engineered wristwatch heralds in the Instrument Collection that combines instrument precision with classical styling.

The Instrument DBS Equation Sidereal is a tribute to two watches (Nos. 1 and 2) made by John Roger Arnold that showed mean solar and sidereal time on two separate subdials. The movements of these two watches, made between 1796 and 1799, featured some of the most famous inventions of father and son, including their fabulous thermo-compensated Z balance, expansion escapement and gold helical spring. It is no exaggeration to say that they represented the state of the art in the micromechanics of their time.



Watches with a sidereal time display were extremely rare at this time. After the Arnolds had paved the way, Breguet followed in their footsteps and produced a few watches with a sidereal time display and a similar dial layout (such as No. 3863, sold in 1824).



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Creating a precise sidereal time display is a tall order. Simply adding a second gear train to a standard movement showing mean solar time is not a viable solution because a mean sidereal day is about 23 hours, 56 minutes, 4.091 seconds, which is not a round fraction of the 24 hours in a mean solar day. This means it is virtually impossible to obtain the correct rotation speed using gears. To guarantee the kind of precision demanded by Arnold & Son, the only choice was to create a movement with the correct rotation speed from the start: in other words a movement specifically for sidereal time. The answer was a totally new movement with a double barrel/gear train and double balance/escapement running at different speeds that enables the watch to display mean solar time and mean sidereal time simultaneously. This technical solution has the additional advantage that neither of the two indications saps energy from the other. Watches with a double balance and escapement are extremely rare and have almost disappeared, so it is with some pride that Arnold & Son have revived the tradition.



John Roger Arnold, mean and sidereal pocket chronometer with
Bimetallic "Z" balance, No.2, London, 1796-1799
© Christies Bridgeman Giraudon

The DBS Equation Sidereal has a perfectly symmetrical arrangement of the bridges, barrels and gear trains. The symmetry is continued on the dial side, where the two adjacent balance cocks create a harmonious circle. Sidereal time is displayed on the left subdial and mean solar time on the right. In addition, a subdial at 12 o'clock indicates the equation of both times on a 24-hour basis, which allows the user to measure the difference between mean solar time and sidereal time and to ascertain whether the time in both zones is a.m. or p.m. The watch has a long central permanent seconds hand (for mean solar time). The two barrels are wound using the crown on the right, but sidereal time and mean solar time are set separately using the crowns on the left and right, respectively. This ensures that neither of the displays is changed or manipulated by accident.



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Sidereal time

Sidereal time is the timekeeping system used by astronomers to track the direction needed to point a telescope at a particular star in the night sky. A mean sidereal day is measured by the rotation of the earth relative to the stars rather than the sun and lasts 23 hours, 56 minutes, 4.091 seconds. It is approximately four minutes shorter than a mean solar day because, owing to the movement of the earth round the sun, the time that elapses before a distant star appears at the same point is slightly less than the time it takes for the sun to be directly over the same point.



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DBS

Main technical characteristics:

Calibre: A&S1311

Exclusive Arnold & Son mechanical movement, hand-wound, 42 jewels, diameter 35 mm, thickness 3.9 mm, power reserve 40 h, 21'600 vibrations/h

Functions: local hours, minutes, and seconds, sidereal hours and minutes, local time 24 h indicator, sidereal time 24 h indicator

Movement decoration: nickel-silver movement, rhodium treated with *Haute Horlogerie* finishing: manually chamfered bridges and polished edges, fine circular graining and *Côtes de Genève*, blued screws

Dial colour: silvery-white and silvery opaline

Case: 18-carat rose gold, diameter 44 mm, cambered sapphire with anti-reflective coating on both sides, case back see-through sapphire, water-resistant to 30 m

Strap: Hand-stitched brown alligator leather

References: 1DSAP.W01A.C120P 18-carat rose gold case

For **high resolution images** or more information, don't hesitate to contact us:

ARNOLD & SON SA

Marketing & Sales

Boulevard des Eplatures 38

CH – 2300 La Chaux-de-Fonds

Switzerland

info@arnoldandson.com

www.arnoldandson.com