

**HAPPY**  
**SURVEY**

**HAPPY**  
**SATURN**

Real-Time-Robotic Total Station



**World's first cloud based remote control**

Integrated 4G-Network for cloud based remote control by Internet. No distance limitation for data transfer. Direct data transfer Field-Office by HAPPY HELIOS portal. All Data are synchronized in real-time between all devices like RTR, GNSS-RTK, Remote-Control device and Office Portal HAPPY HELIOS.

**High-speed ultrasonic motors**

HAPPY SATURN, the ultrasonic robotic total station, meets all the requirements of the future from wide-angle camera to internal T+P sensors for automatic ppm correction.

**100% Swiss developed**

HAPPY RTR Android application is 100% developed by HAPPY SURVEY in Switzerland. Easy to use and future-oriented for all needs of surveyors.

**HAPPY UNIVERSALL**

HAPPY SATURN is part of HAPPY UNIVERSALL, the unique concept from HAPPY SURVEY that unifies all different kind of works, from monitoring to survey on a cloud platform.



<b>Physical</b>	<b>Battery</b> 6400 mAh LI-ION	<b>Working time</b> 6 hours	<b>Voltage</b> 14.4 V
	<b>Dimension</b> 430x255x235 mm	<b>Weight</b> 9.5 kg	
<b>Angle measurement</b>	<b>Measurement method</b> Absolute Encoding Disk	<b>Encoding disk diameter</b> 79mm	<b>Accuracy</b> 1"
	<b>Detection method</b> Hz and V: quadruple	<b>Minimum Resolution</b> 0.1"	
<b>Distance measurement</b>	<b>Range (triple prism)</b> 6000m	<b>Accuracy (prism)</b> $\pm(1\pm 1 \times 10^{-6} \cdot D)$ mm	<b>Speed (prism)</b> Repeat (<0.7s) Tracking (<0.3s) Single (<0.7s)
	<b>Range (non-prism*1)</b> 1000m	<b>Accuracy (non-prism)</b> <300m $(3\pm 3 \times 10^{-6} \cdot D)$ mm <600m $(5\pm 2 \times 10^{-6} \cdot D)$ mm >600m $(10\pm 2 \times 10^{-6} \cdot D)$ mm	<b>Speed (non-prism)</b> Single <600m 0.5-3s Repeat >600m max.10s Tracking <500m 0.25-0.3s >500m max. 10s
<b>Telescope</b>	<b>Image</b> Erect	<b>Minimum Focus</b> 1.5m	<b>Resolution</b> 3"
	<b>Field of View</b> 1°30'	<b>Tube Length</b> 164.5mm	<b>Effective Aperture</b> 45mm (DTM: 47mm)
	<b>Magnification</b> 30X		
<b>Automatic Search*2</b>	<b>Target Aiming Range</b> 1.5-300m	<b>Angle</b> Hz: 360°; V: 20°	<b>Custom Search</b> Support
	<b>Measurement Time</b> Typically < 15 s		
<b>Automatic Prism Following*2</b>	<b>Target Aiming Range</b> 1.5-300m	<b>Measurement Time</b> Typically < 15 s	<b>Field of View</b> 1.2°
	<b>Custom Search</b> Support		
<b>Sensors</b>	<b>Camera Resolution</b> 5Mpx	<b>Compensator</b> Dual-axis Liquid-electric sensor, Range: $\pm 3'$ , Accuracy: 1"	<b>Guide light</b> Yes
	<b>Adjustable Camera</b> Yes		
<b>Display</b>	<b>Type</b> LCD - Touch Screen	<b>Display Size</b> 6.0 Inches	
<b>General</b>	<b>Motor Rotation Speed</b> 180° per sec	<b>Display Reading</b> Max $9 \times 10^7$ m; min 0.1mm	<b>Data Transfer</b> 4G/3G/2G, Bluetooth, WLAN, Hotspot, Micro USB, RS232
	<b>T-P Sensor</b> Automatic correction	<b>Operating System</b> Android 9.0	
	<b>Prism Constant</b> Automatic correction	<b>Processor</b> MSM8953	
	<b>Circular Vial</b> 8/2mm	<b>Data Storage</b> RAM: 3GB; ROM: 32GB	

\*1: White objects with high reflectivity (KGC 90%)

\*2: Standard Prism under good conditions (good visibility over 40km)