



 Carlson
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CRT Robotic Total Station

www.carlsonsw.com



Carlson CRT

Robotic Total Station

Technical Features - General





CRT - EDM

ANGLE MEASUREMENT

| | |
|-----------------------|----|
| Accuracy ¹ | 1" |
|-----------------------|----|

DISTANCE MEASUREMENT RANGE²

| | |
|---------------------|---------------------|
| Standard prism mode | 6000 m ³ |
|---------------------|---------------------|

| | |
|----------------------------|---------------------|
| Reflectorless ⁵ | 1000 m ⁴ |
|----------------------------|---------------------|

DISTANCE MEASUREMENT ACCURACY⁶

| | |
|---------------------|--------------|
| Standard prism mode | 1 mm + 1 ppm |
|---------------------|--------------|

| | |
|---------------|--------------|
| Reflectorless | 2 mm + 2 ppm |
|---------------|--------------|

¹ Standard deviation based on ISO 17123-3

² Good condition: no haze, visibility about 40km, no heat shimmer, breeze

³ Class 1

⁴ Class 3R

⁵ Under optimal conditions on good surface

⁶ Standard deviations based on ISO 17123-4

⁷ Battery duration depends also on display brightness



CRT - HW

PHYSICAL SPECIFICATION

| | |
|---------------------------------------|--------------------|
| Dimensions | 430 x 255 x 235 mm |
| Weight including battery and tribrach | 9.3 Kg |
| Waterproof/Dustproof | IP65 |

POWER

| | |
|-------------------------------|---------------------------------|
| Battery Voltage/Capacity/Type | 14.4 V / 6400 mAh / Li-ion |
| Batteries number | 2 |
| Operating time | 6 hours (each one) ⁷ |
| Battery charger | 100/240 V, charging time 4h |

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³ Class 1

⁴ Class 3R

⁵ Under optimal conditions on good surface

⁶ Standard deviations based on ISO 17123-4

⁷ Battery duration depends also on display brightness



CRT - Other Features

OTHER SPECIFICATION

| | |
|---------------|---|
| Display | Two sides, 6" color LCD 720x1280 pixel touch screen |
| OS | Android |
| Memory | RAM: 3GB, ROM: 32GB |
| Interface | RS-232/Micro USB/ Bluetooth long range/GSM |
| Data transfer | 4G (build-in), Bluetooth, WLAN, Hotspot |
| Camera | Yes |
| Guide Light | Yes |
| Sensor | Temperature/Pressure |

ONBOARD FIELD APPLICATION PROGRAMS

Carlson Layout (under development)

¹ Standard deviation based on ISO 17123-3

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³ Class 1

⁴ Class 3R

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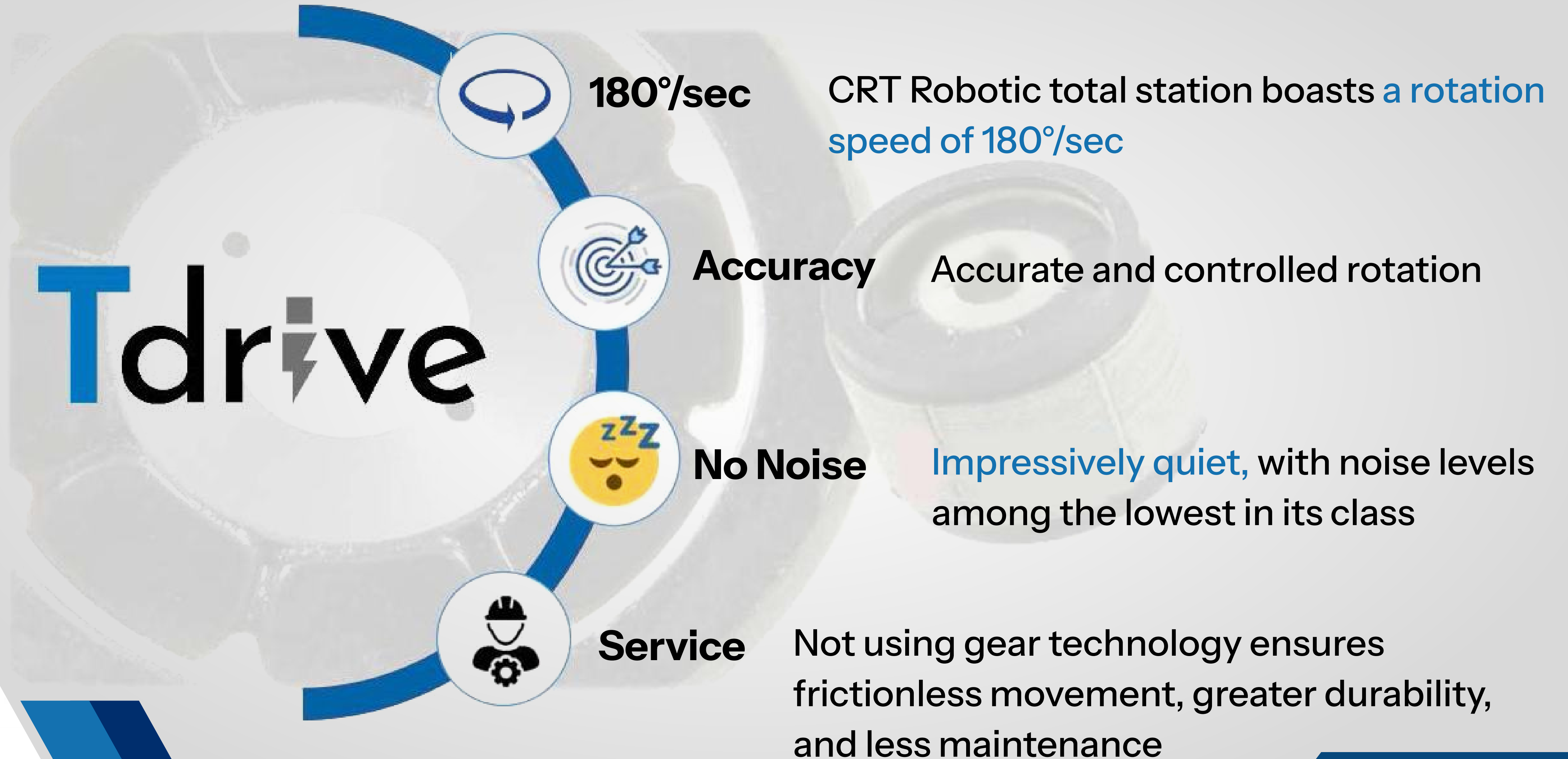
⁷ Battery duration depends also on display brightness

Carlson CRT Robotic Total Station

Technical Features - Motorized TS



CRT - Tdrive Motor



CRT - APC - Automatic Prism Centering



CRT total station is designed with [Automatic Prism Centering](#) technology.



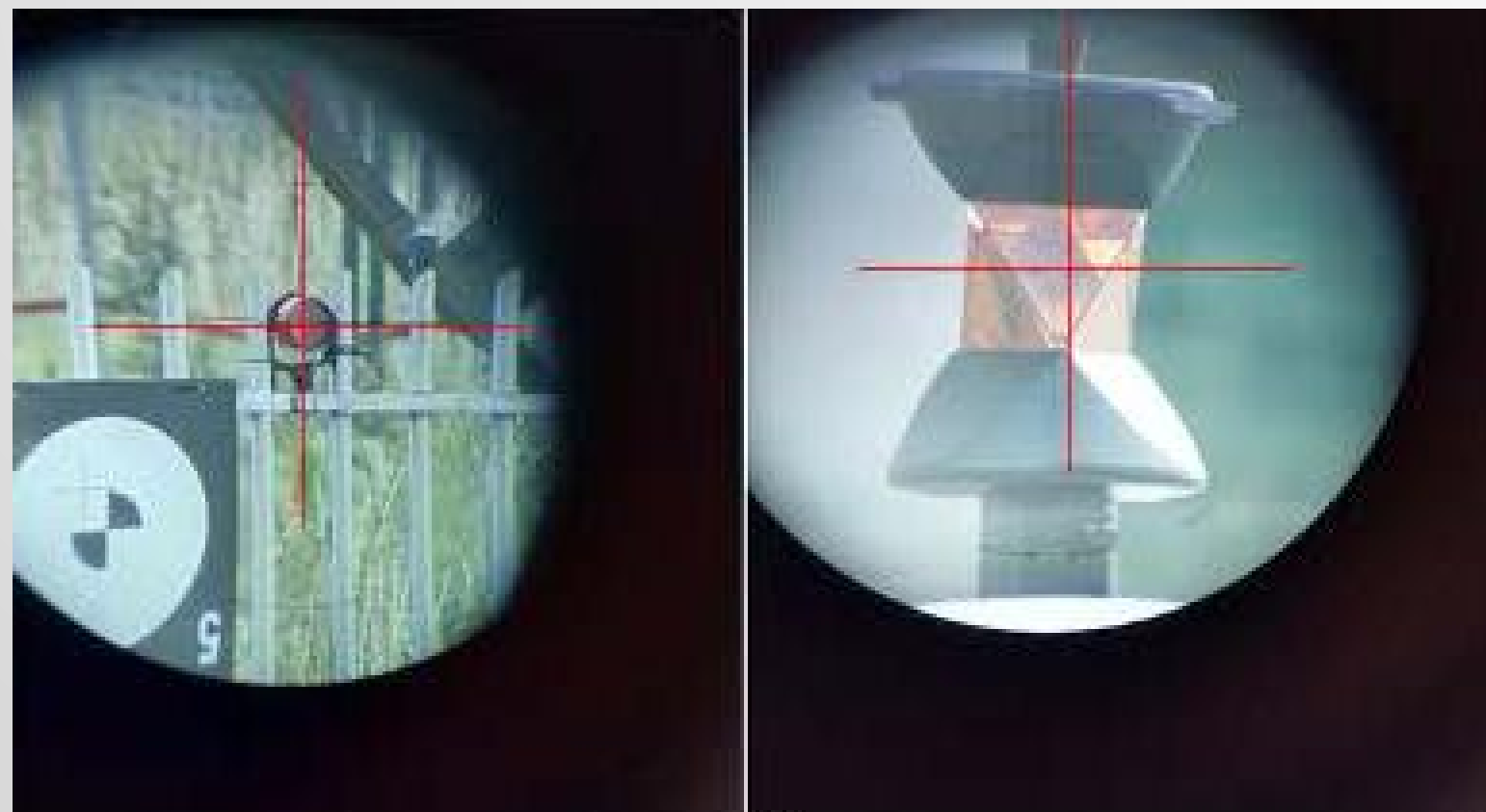
Prism Centering and Search



Signal Analysis



Prism Management



Aiming and centering the prism as accurately as possible, correcting imperfect centering of the instrument with APC

Precisely aim and center the prism up to **800 m.** with the APC

CRT - Prism Search

In CRT Motorized Total Station the user can choose between different methods for [searching the prism](#) in the survey area.



Search the prism in a predefined window with APC



Search the prism quickly and accurately from any angle



CRT - Prism Lock&Track

Carlson CRT is able to Lock&Track the prism from **1 meter to 500-600 meters**.

 Thanks to «Quick Lock» function the lock operation quicker.



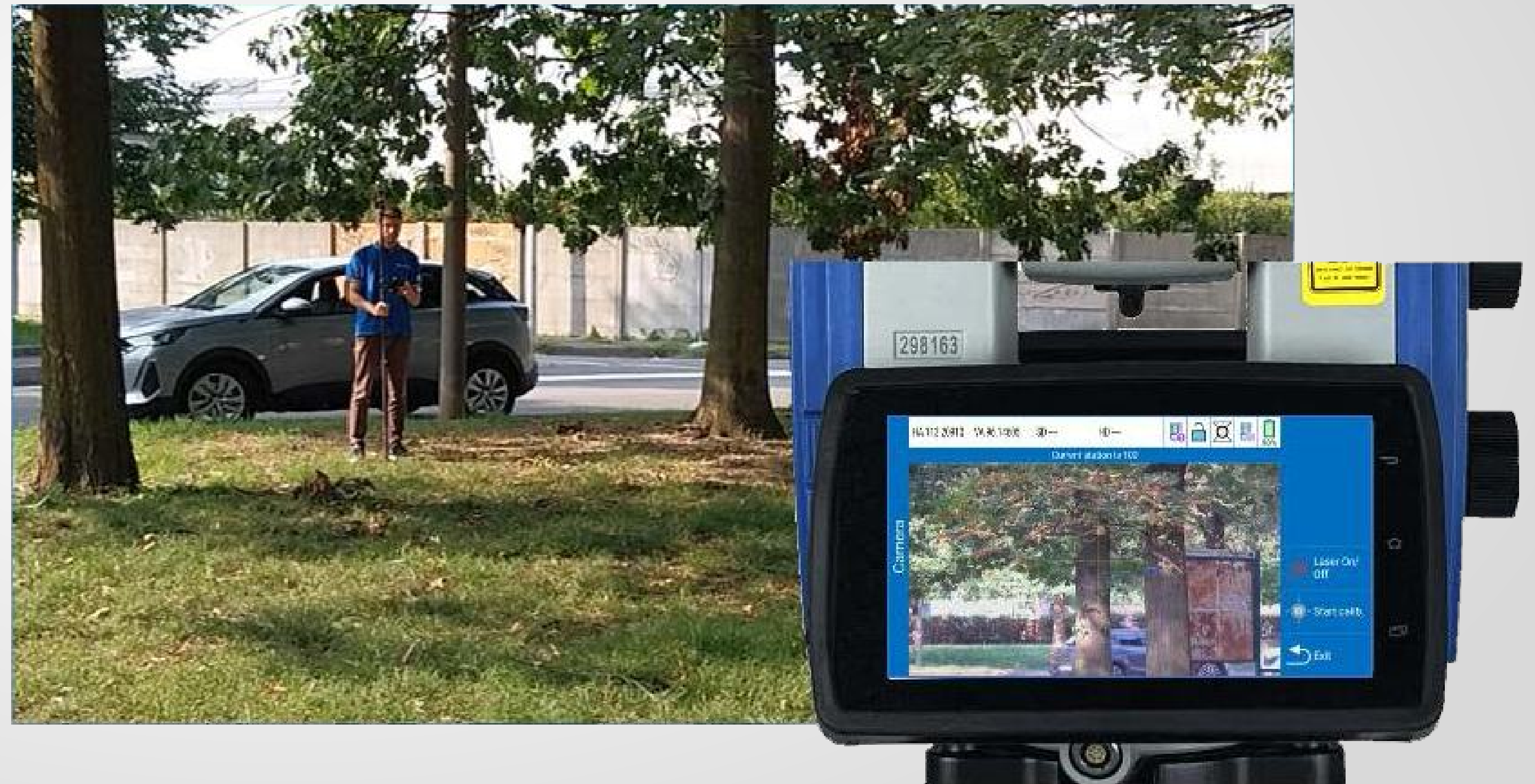
Possibility to configure the behavior after prism lost with predicted position system & commands after predictions to relock the prism easily.

CRT - Prism Lock&Track

Carlson CRT is able to Lock&Track the prism from **1 meter to 500-600 meters**.

Track the prism in difficult survey conditions, thanks to **predicted position system**

Tracking Mode: Angles and distance updates in tracking mode (**about 4-5 counts/seconds**)





**Carlson CRT
Robotic Total Station
Android &
Carlson Layout &
Carlson SurvPC**



CRT - Android



CRT is characterized by **Android Operative System On-Board**



Android Operative System Functions

Screen Illumination, Change Language, Change Font Dimension, Web Internet Connection, Screen Lock...

Android Default Apps -

Settings, Calculator, Clock, File Manager, Google Services...

Android Technical Apps

FW Update, TS Calibration, INST Settings, TS Command Service, TS Connector, Carlson Layout (under development)

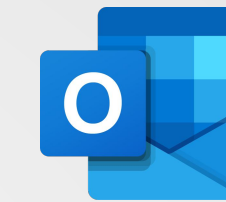
CRT - Android & Google



Google Services onboard → possibility to use the entire Google suits to support user working activity:



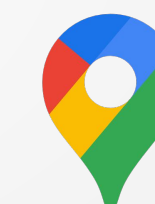
1. E-Mail application



2. Cloud Drive Services



3. Maps



4. Remote Control Application



5. Other Applications



Carlson CRT

GNSS



TS



Hybrid+



GIS





Carlson CRT Robotic Total Station Configurations



CRT - Android

ON-BOARD

Motorized TS

- Work directly on the station



REMOTE

Robotic TS

- Remote Communication Protocol



HYBRID⁺

GNSS & TS

- Same software different sensors
- Mixed Survey



CRT - On-Board Configuration: Carlson CRT

* Work directly with the station



CRT - Remote Configuration: CRT/SurvPC or Layout & RT4+ (or RTk5) /SurvPC

- * No Hardware Modifications needed
- * SurvPC license with a controller
- * BT range connection with RT4+ > 400m



CRT - Hybrid+ Configuration: Carlson CRT Total Station / GNSS / SurvPC + RT4+ (or RTk5)

- * Same software different sensors
- * Mixed survey
- * Easy switch from GNSS to TS via SurvPC

