UniStrong

R20 600 m 2”

R20 1000 m 1”/2”

STONEX

Paolo Centanni

GNSS/TS/SW Manager

Main Features

R20 - Main Features

Highly accurate and efficient total stations

The R20 range is composed of 3 versions, the R20 1000 m model with 2" angular accuracy, the R20 1000 m model with 1" angular accuracy and the R20 600 m model with 2" angular accuracy.

The three models offer optimum performances up to 5000 m with prism and 1000 m or 600 m reflectorless.

The entire R20 range is equipped with a high-performance, illuminated reticle telescope that provides the best quality of observation, whatever the environmental conditions.

The programs on board of these models of total stations make them suitable for any work in construction, cadastral, mapping and staking, through a user-friendly interface.

Thanks to the presence of Bluetooth connection, it is possible to connect an external controller, giving the possibility to use a customized field software.

R20 - Main Features

LIMITLESS DISTANCE MEASUREMENTS

By using a digital phase laser ranging technology, R20 guarantees high accuracy measurements: 1000 m or 600 m (depending on the model) in reflectorless mode and up to 5000m using a single prism, with millimeter accuracy.

FAST, ACCURATE, RELIABLE

Measuring distances with high angular accuracy make any job extremely cost effective and reliable. The wide range of application software allows to complete the Surveyor's tasks directly in the field.

ONE DAY OF CONTINUOUS FIELD WORK

Thanks to the low power consumption circuit design R20 gives the opportunity to continuously work for more than 22 hours.

TEMPERATURE PRESSURE SENSORS

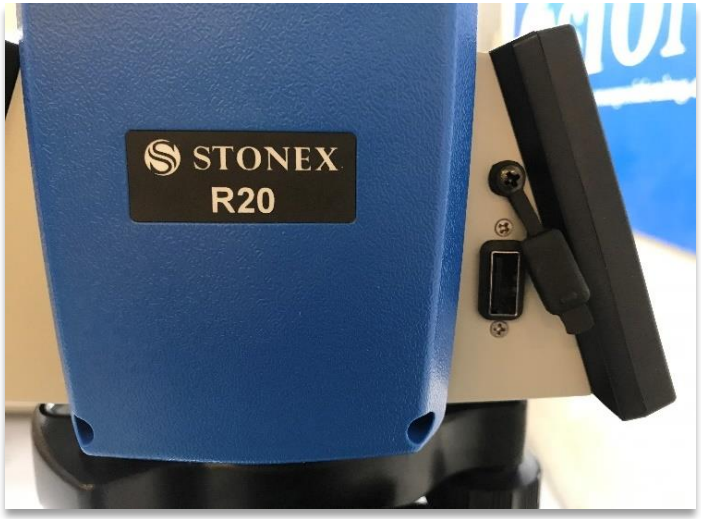
Temperature and pressure changes have a negative impact on the accuracy of distance measurements. R20 monitors the changes and automatically adjusts the distance calculations.

R20 - Key Points

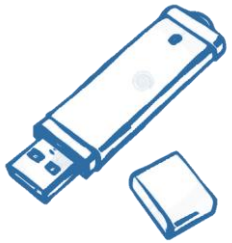
Color Display

Trigger Key

USB Connection



R20 - Data Management



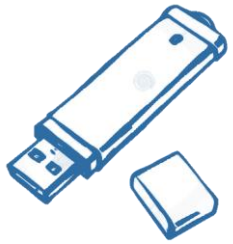
EXPORT

- *.txt
- *.sdr → Third party software
- *.r20 → cube·link, cube·manager

IMPORT

- *.txt with coordinates

R20 - Firmware Upgrade



- The firmware can be updated through an USB dongle
- It is automatically detected by the instrument

- No need of any specific cable
- Final user can do it

- Available languages:
  - English
  - Italian
  - French
  - Spanish
  - Polish
  - Portuguese
  - Turkish
  - Ukrainian
  - *…any you are willing to translate*

Technical Specifications

R20 - Technical Specifications

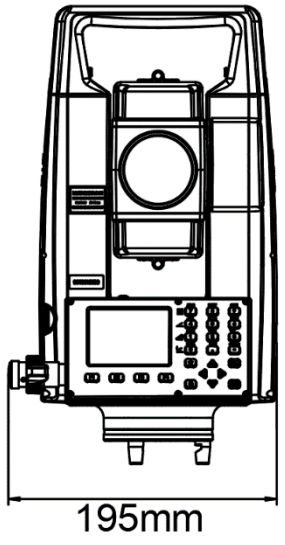
ANGLE AND EDM		R20 600 m	R20 1000 m
ANGLE MEASUREMENT	Accuracy	2"	1” / 2"
	Display resolution	1"	1"
DISTANCE MEASUREMENT	Prism mode	2 mm + 2 ppm	2 mm + 2 ppm
	Reflective sheet (6x6cm)	2 mm + 2 ppm	2 mm + 2 ppm
	Reflectorless	3 mm + 2 ppm	3 mm + 2 ppm
DISTANCE ACCURACY	Prism mode	5.000 m	5.000 m
	Reflective sheet (6x6cm)	800 m	800 m
	Reflectorless	600 m	1000 m
MEASUREMENT TIME	Track	0.3 sec	0.3 sec
	Fast	0.5 sec	0.5 sec
	Standard	0.8 sec	0.8 sec
	Reflectorless	> 0.3 sec	> 0.3 sec

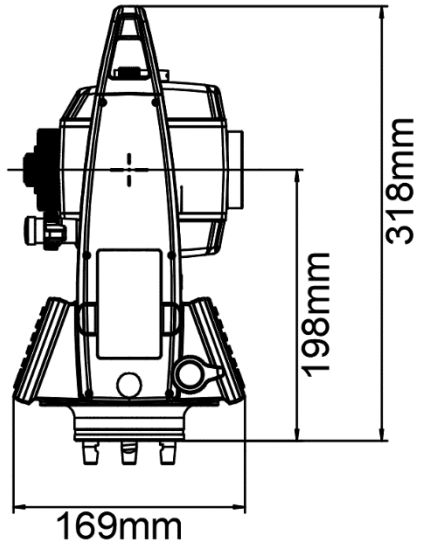
R20 - Technical Specifications

FUNCTIONALITIES		R20 600 m / R20 1000 m
DISPLAY	Resolution (dots)	320 x 240
	Type	LCD Color
KEYBOARD	Type	Alphanumeric
	Quantity	2
INTERFACE	Bluetooth	√
	USB (OTG)	√
POWER	Battery capacity	2600mAh
	Operating time	22 hours (1 battery)
	Battery charger	3 hours
	Nr. battery	2
MEMORY		> 80.000 points
H-V MOVEMENTS		Lock drives
TRIGGER KEY		√
PLUMMET		Laser

R20 - Technical Specifications

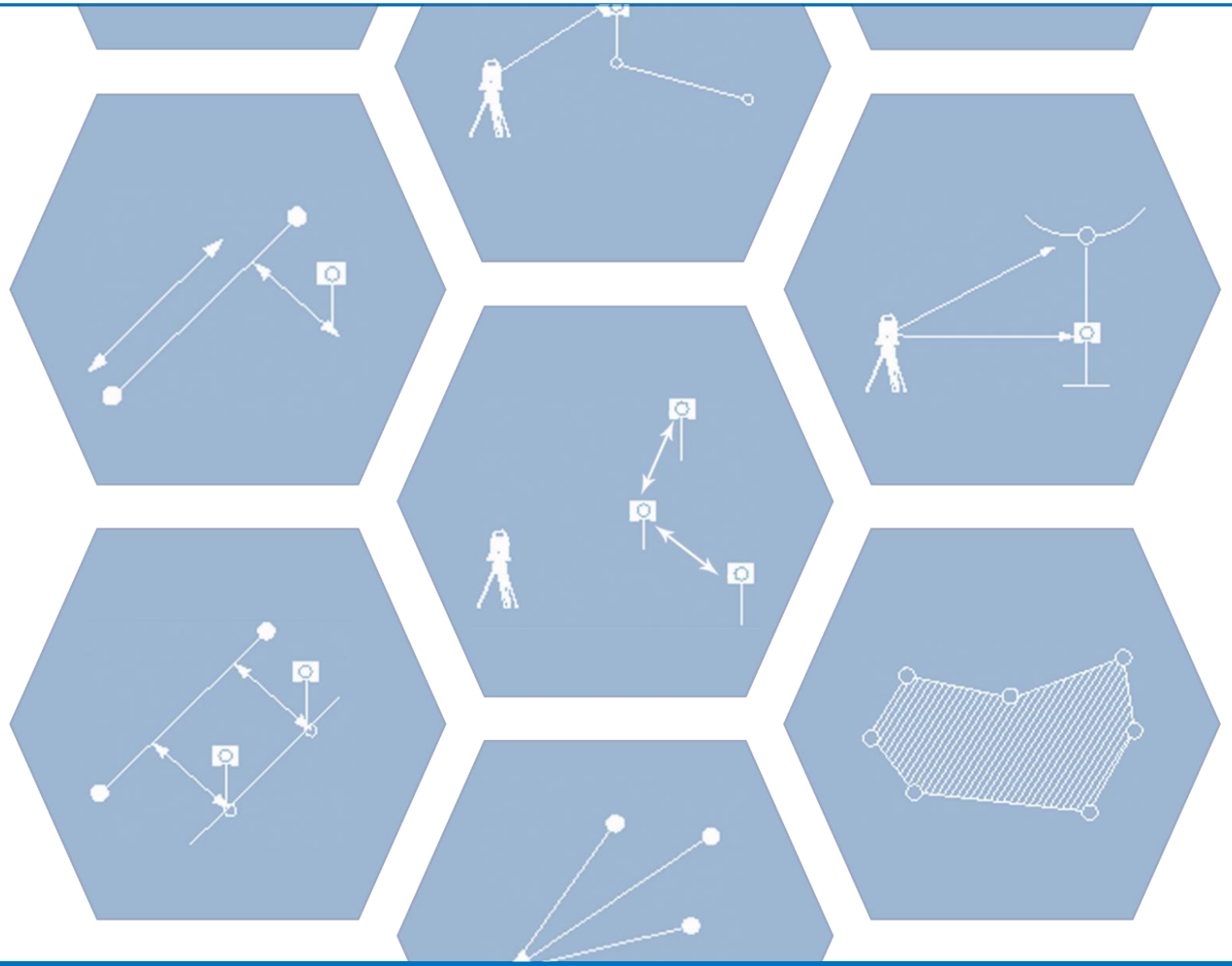
PHYSICAL SPECIFICATION	R20 600 m / R20 1000 m
OPERATING TEMPERATURE	-20° C +50° C
STORAGE TEMPERATURE	-30° C +60° C
DIMENSIONS	365 x 195 x 169 mm
WEIGHT	5.6 Kg
WATERPROOF/DUSTPROOF	IP54





R20 - On board

- Surveying
- Resection (free station)
- Stake out
- Offset
  - ✓ Distance offset
  - ✓ Angle offset
  - ✓ Hidden point
  - ✓ Cylinder offset
- Missing Line Measurement
- Remote height
- Area
- Reference line
  - ✓ Ref-line stake out
  - ✓ Ref-line measure
  - ✓ Point projection
- Inverse
- **Road (under testing)**



Marketing

R20 - Product pictures

R20 - Brochure

R20 TECHNICAL FEATURES

ANGLE MEASUREMENT	
Accuracy[1]	1" / 2"
Reading system	Absolute encoder
Angle Units	DEG 360° / GON 400 MIL 6.400
Display resolution (selectable)	1" / 5" / 10" 0.0001 g / 0.0005 g / 0.001 g 0.01 mil / 0.05 mil / 0.1 mil
TELESCOPE	
Magnification / Field of view	30x / 1°30'
Tube length	160 mm
Minimum focus distance	1.7 m (5.6 ft)
Reticle Illumination	4 levels
Objective aperture	ø 44 mm
Laser pointer	Red light, coaxial
TILT SENSOR	
Type	Optoelectronic, dual axis
Compensation range/accuracy	± 4.0'/3"
DISTANCE MEASUREMENT RANGE[2]	
Prism mode	5.000 m[3]
Reflective sheet (6cm x 6cm)	800 m[3]
Reflectorless	600 m /1000 m[4]
DISTANCE MEASUREMENT ACCURACY[5]	
Prism	2 mm + 2 ppm
Reflectorless	3 mm + 2 ppm
MEASUREMENT TIME	
Prism (Track/Fast/Standard)	0.3 / 0.5 / 0.8 sec
Reflectorless	≥ 0.3 sec
DISTANCE MEASUREMENT	
Distance Units	m / US-ft / INT-ft / ft-in-1/8
Display Resolution	0.001 m / 0.01 ft

LASER PLUMMET	
Carrier wave	635nm
Accuracy	± 1.5 mm @ 1.5 m
Spot	2.5 mm @ 1.5 m
LEVEL VIAL SENSITIVITY	
Plate level	30' / 2 mm
Circular level	8' / 2 mm
ENVIRONMENTAL CONDITIONS	
Operating Temperature	-20°C +50°C
Storage Temperature	- 30°C, +60°C
Waterproof/Dustproof	IP54
PHYSICAL SPECIFICATION	
Dimensions	365 x 195 x 169 mm
Weight including battery and tribrach	5.6 Kg
POWER	
Battery Voltage/Capacity/Type	7.4V / 2600mAh / Li-ion
Operating time (angle measurement)	22 hours
Operating time (angle+dist. meas. every 30 s)	19.5 hours
Battery charger	100 / 240V, charging time 3h
OTHER SPECIFICATIONS	
Display	Two sides, LCD 320 × 240 Dots / Alphanumeric
Memory	> 80.000 points
Interface	USB 2.0 / Bluetooth 5.0
Sensors	Temperature / Pressure

ON BOARD FIELD APPLICATION PROGRAMS

Data recording and management, Stake out, Offset, MLM, Remote height, Area, Resection, Reference line

1 Standard deviation based on ISO 17123-3
2 Good condition: cloudy, no haze, visibility about 40km, no heat shimmer, breeze. Under optimal conditions on Kodak Grey Card (90% reflective)
3 Class 1
4 Class 3R
5 Standard deviation based on ISO 17123-4

Illustrations, descriptions and technical specifications are not binding and may change

STONEX AUTHORIZED DEALER

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UNI EN ISO 9001:2015 - R20 - MARCH 2022 - VER01 - REV01

STONEX

R20 Total Station

Precise, Efficient and Easy

cube suite

R20 Highly accurate and efficient Total Stations

The R20 range is composed of 3 versions, the R20 1000 m model with 2" angular accuracy, the R20 1000 m model with 1" angular accuracy and the R20 600 m model with 2" angular accuracy.
The three models offer optimum performance up to 5000 m with prism and 1000 m or 600 m reflectorless.

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The programs on board of these models of total stations make them suitable for any work in construction, cadastral, mapping and staking, through a user-friendly interface.
Thanks to the presence of Bluetooth connection, it is possible to connect an external controller, giving the possibility to use a customized field software.

STONEX SURVEYING SYSTEMS

LIMITLESS DISTANCE MEASUREMENTS
By using a digital phase laser ranging technology, R20 guarantees high accuracy measurements: 1000 m or 600 m (depending on the model) in reflectorless mode and up to 5000 m using a single prism, with millimeter accuracy.

FAST, ACCURATE, RELIABLE
Measuring distances with high angular accuracy make any job extremely cost effective and reliable. The wide range of application software allows to complete the Surveyor's tasks directly in the field.

ONE DAY OF CONTINUOUS FIELD WORK
Thanks to the low power consumption circuit design R20 gives the opportunity to continuously work for more than 22 hours.

TEMPERATURE PRESSURE SENSORS
Temperature and pressure changes have a negative impact on the accuracy of distance measurements. R20 monitors the changes and automatically adjusts the distance calculations.

R20
An easy and smart solution for your Survey

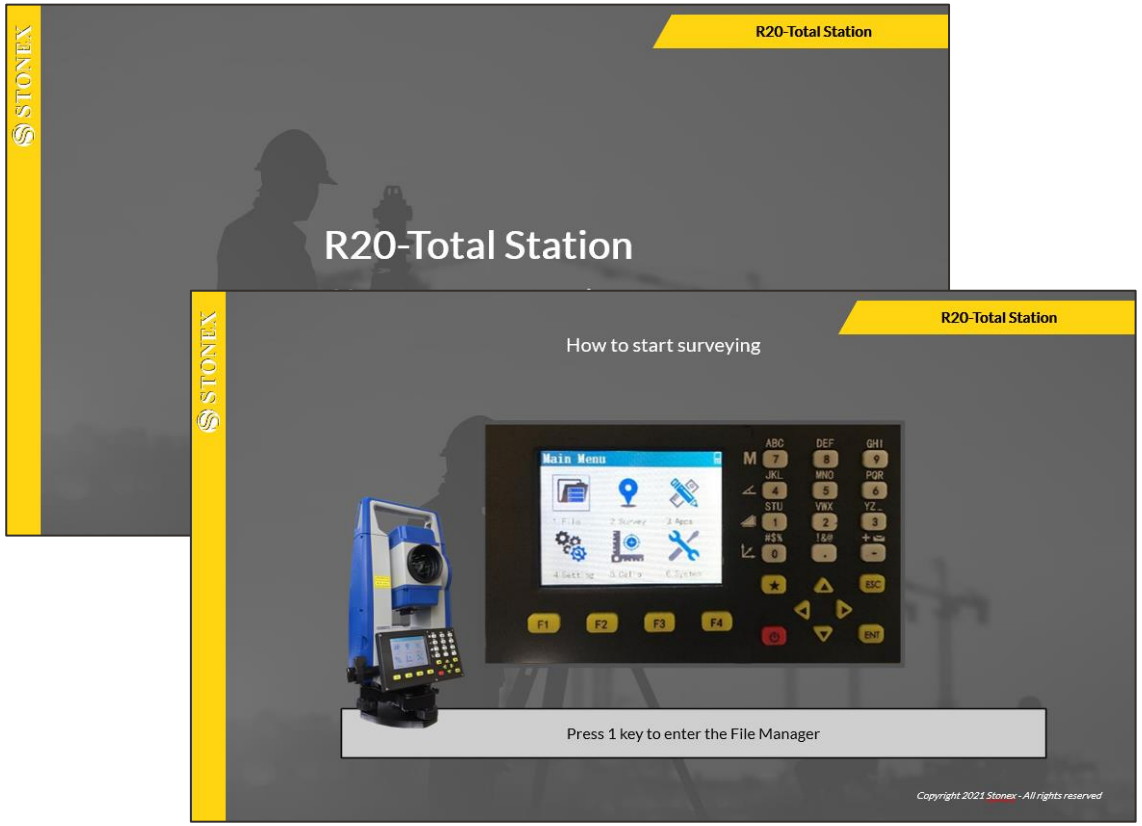
Whether the work is a basic survey or a stake out, R20 will always help you with a friendly interface and its intuitive field applications. The navigation menu drives the Surveyour into simple operations and the results are displayed in a clear way.

LOCK DRIVES & TRIGGER KEY
Ergonomic clamps and knobs to make target collimation fast and accurate using both the hands. Start the measure using the trigger key located on the side of the instrument.

COLOR DISPLAY
R20 si equipped with 320x240 two color displays with well-designed icons which give a clear environment to the surveyor, even under full sun.

EASY CONNECTIVITY
Quick import & export of data through a USB dongle. A Bluetooth connection enables the R20 to comunicate with a handheld device, giving the possibility to use a custom field software, such as Stonex Cube-a.

R20 - Video Tutorials



Configuration

R20 - Accessories

Rotating Bracket for tripod

Rotating Bracket for tripod

The bracket is positioned between the tripod and the total station, and on the side provides the support to install a controller. It is compatible with all the controller supports of the Stonex range (SH5A-UT10/UT12P -UT30/UT32-S70), and thanks to the ball adapter, it is possible to connect any other handheld that has a compatible RAM support available.

The bracket provides full 360-degree rotation to work at any angle.

It is made of black anodized aluminum, the metal adapter for the base of the total station and the RAM compatible ball adapter are included in the package.

PRODUCT CODE	DESCRIPTION
30-350417	Rotating Bracket for tripod

R20 - Accessories

Rotating Bracket for tripod

PRODUCT CODE	DESCRIPTION
30-350388	SH5A Bracket
30-350391	UT10/UT12P Bracket
30-350389	S70G/UT30/UT32 Bracket

R20 600 m 2” - Standard Configuration

PRODUCT CODE	DESCRIPTION
B20-220065	**R20, Total Station, 600m, 2", Bluetooth - Bundle**
	Tribrach
	Battery (LB-001) × 2
	Battery charger (LC-001)
	Cable of the charger
	Objective lens hood
	Tape 3m
	Carrying strap x2
	Rain cover
	Reflective tape/RP30 × 4
	Reflective tape/RP60
	Tools kit
	USB stick (8GB) with user manual & video tutorials
	Silica gel
	Carrying case

R20 1000 m 2” - Standard Configuration

PRODUCT CODE	DESCRIPTION
B20-220066	**R20, Total Station, 1000m, 2", Bluetooth - Bundle**
	Tribrach
	Battery (LB-001) × 2
	Battery charger (LC-001)
	Cable of the charger
	Objective lens hood
	Tape 3m
	Carrying strap x2
	Rain cover
	Reflective tape/RP30 × 4
	Reflective tape/RP60
	Tools kit
	USB stick (8GB) with user manual & video tutorials
	Silica gel
	Carrying case

R20 1000 m 1” - Standard Configuration

PRODUCT CODE	DESCRIPTION
B20-220067	**R20, Total Station, 1000m, 1", Bluetooth - Bundle**
	Tribrach
	Battery (LB-001) × 2
	Battery charger (LC-001)
	Cable of the charger
	Objective lens hood
	Tape 3m
	Carrying strap x2
	Rain cover
	Reflective tape/RP30 × 4
	Reflective tape/RP60
	Tools kit
	USB stick (8GB) with user manual & video tutorials
	Silica gel
	Carrying case

R20 - Accessories

PRODUCT CODE	DESCRIPTION
30-350581	R20 Lithium Battery
30-350583	R20 Charger
30-350584	R20 Power adapter (EU&US)
30-350587	R20, Battery box
30-350582	R20 Carrying Case
30-350585	R20 Strap for Carrying Case
30-350586	R20 Rain Cover
30-350417	Rotating Bracket for tripod

Competitors

R20 600 m 2”- Competitors

MANUAL TOTAL STATION

Update February 2022		STONEX	Leica Geosystems	TOPCON	SOKKIA	Trimble	Nikon	GEOMAX	GEOMAX	SOUTH	PENTAX	e-survey
MODEL		R20	TS03	GM-50	iM-50	C3	XS	Zoom25	Zoom40	N3	R-2800N	E3
ANGLE MEASUREMENT	Accuracy	2"	2" 3" 5"	2" 5"	2" 5"	1" 2" 3" 5"	1" 2" 3" 5"	1" 2" 5"	2" 5"	2"	1" 2" 3" 5"	2"
	Display resolution	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
DISTANCE MEASUREMENT	Prism mode	2mm + 2 ppm	1mm + 1.5 ppm	1.5mm + 2 ppm	1.5mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm
	Reflective sheet (6x6cm)	2mm + 2 ppm				2mm + 2 ppm	2mm + 2 ppm			3mm + 2 ppm	2mm + 2 ppm	3mm + 2 ppm
	Reflectorless	3mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	3mm + 2 ppm	3mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	3mm + 2 ppm	3mm + 2 ppm	3mm + 2 ppm
DISTANCE ACCURACY	Prism mode	5.000m	3.500m	4.000m	4.000m	5.000m	5.000m	3.500m	3.500m	5.000m	3.000m	5.000m
	Reflective sheet (6x6cm)	800m				300m	300m				800m	1.200m
	Reflectorless	600m	500m	500m	500m	800m	800m	500m	500m	1.000m	800m	800m
MEASUREMENT TIME	Track	0.3sec	0.15sec	0.4sec	0.4sec			0.3sec	0.3sec	0.2sec	0.4sec	0.2sec
	Fast	0.5sec	2.0sec	0.6sec	0.6sec	0.3sec	0.3sec	2.0sec	2.0sec		2.0sec	0.6sec
	Standard	0.8sec	2.4sec	0.9sec	0.9sec	0.5sec	0.5sec	2.4sec	2.4sec	1.3sec	3.0sec	1.0sec
	Reflectorless	> 0.3sec	2.4sec			> 0.3sec	> 0.3sec	> 2.0sec	> 2.0sec	>1.3sec	> 0.4sec	
MEMORY		> 80.000 points	2GB	50.000 points	50.000 points	50.000 points	50.000 points	50.000 points	2GB	16.000 points	60.000 points	50.000 points
DISPLAY	Resolution (dots)	320x240	320x240	192x80	192x80	128x64	128x64	260x160	320x240	400x240		240x128
	Type	Color	B/W	B/W	B/W	B/W	B/W	B/W	Color	Color	B/W	B/W
	Touch	NO	NO	NO	NO	NO	NO	NO	V	V	NO	NO
KEYBOARD	Type	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric
	Backlight	NO	NO	V	V	NO	NO	NO	NO	V	NO	NO
	2nd	V	NO	NO	NO	V	V	Optional	Optional	V	V	V
H-V MOVEMENTS		Lock drives	Endless drives	Lock drives	Lock drives	Lock drives	Lock drives	Lock drives	Lock drives	Lock drives	Lock drives	Lock drives
GUIDE LIGHT		NO	NO	NO	NO	NO	NO	NO	NO	V	NO	NO
AUTO-FOCUS		NO	NO	NO	NO	V	V	NO	NO	NO	NO	NO
IMAGE		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
TRIGGER KEY		V	V	NO	NO	NO	NO	NO	NO	V	NO	V
PLUMMET		Laser	Laser	Laser	Laser	Laser	Laser	V	V	Laser	Laser	Laser
INTERFACE	RS232	NO	V	V	V	V	V	V	NO	NO	V	V
	Bluetooth	V	V	Optional	Optional	V	V	V	V	V	V	V
	USB (OTG)	V	V	V	V	V	V	V	V	V	NO	NO
	USB mini	NO		NO	NO	NO	NO	NO	V	NO	V	V
	SD	NO		NO	NO	NO	NO	NO	NO	NO	V	V
POWER	Battery capacity	2600mAh	2800mAh	2430mAh	2430mAh						3350mAh	2600mAh
	Operating time (hours)	22	15	14	14	18	18	16	8	8	8	13
	Nr. battery	2	1	2	2	2	2	2	2	2	2	2
WEIGHT		5.6Kg	4.3Kg	5.1Kg	5.1Kg	4.4Kg	4.4Kg	5.1Kg	5.3Kg	6.0Kg	5.4Kg	
IP		54	66	66	66	66	66	55	54	54	55	55
MIL		NO	STD 810G	NO	NO	NO	NO	NO	NO	NO	NO	NO
OPERATING TEMPERATURE		- 20° + 50°	- 20° + 50°	- 20° + 60°	- 20° + 60°	- 20° + 50°	- 20° + 50°	- 30° + 50°	- 20° + 50°	- 20° + 50°	- 20° + 50°	- 20° + 50°
WARRANTY		2 Years				2 Years	1 Year	1 Year	1 Year			
PRESENTATION		2021	2018	2017	2017	2017	2017	2018	2018		2018	2020

Legend		
		Competitor is worst
		Competitor is better

R20 1000 m 1”/2”- Competitors

MANUAL TOTAL STATION

Update February 2022		STONEX	Leica Geosystems	TOPCON	GEOMAX	SOUTH
MODEL		R20	TS07	GM-101	Zoom50	N41
ANGLE MEASUREMENT	Accuracy	1" 2"	1" 2" 3" 5" 7"	1" 2" 3" 5"	1" 5"	1" 2"
	Display resolution	1"	1"	0.5" 1"	1"	1"
DISTANCE MEASUREMENT	Prism mode	2mm + 2 ppm	1mm + 1.5 ppm	1.5mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm
	Reflective sheet (6x6cm)	2mm + 2 ppm				2mm + 2 ppm
	Reflectorless	3mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm	2mm + 2 ppm
DISTANCE ACCURACY	Prism mode	5.000m	3.500m	6.000m	3.500m	5.000m
	Reflective sheet (6x6cm)	1000m				
	Reflectorless	1000m	1000m	1000m	1000m	1.000m
MEASUREMENT TIME	Track	0.3sec	0.15sec	0.4sec		0.4sec
	Fast	0.5sec	2.0sec	0.6sec	2.0sec	
	Standard	0.8sec	2.4sec	0.9sec	2.4sec	1.3sec
	Reflectorless	> 0.3sec	2.4sec		> 2.0sec	>1.3sec
MEMORY		> 80.000 points	2GB	50.000 points	50.000 points	833.000 points
DISPLAY	Resolution (dots)	320x240	320x240	192x80	320x240	320x240
	Type	Color	Color	B/W	Color	Color
	Touch	NO	NO	NO	√	√
KEYBOARD	Type	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric	Alphanumeric
	Backlight	NO	NO	√	√	√
	2nd	√	NO	NO	Optional	√
H-V MOVEMENTS		Lock drives	Endless drives	Lock drives	Lock drives	Lock drives
GUIDE LIGHT		NO	NO	NO	NO	√
AUTO-FOCUS		NO	NO	NO	NO	NO
IMAGE		NO	NO	NO	NO	NO
TRIGGER KEY		√	√	NO	NO	√
PLUMMET		Laser	Laser	Laser	√	Laser
INTERFACE	RS232	NO	√	√	NO	NO
	Bluetooth	√	√	Optional	√	√
	USB (OTG)	√	√	√	√	√
	USB mini	NO		NO	√	NO
	SD	NO		NO	NO	NO
POWER	Battery capacity	2600mAh	2800mAh	2430mAh		
	Operating time (hours)	22	15	14	8	8
	Nr. battery	2	1	2	2	2
WEIGHT		5.6Kg	4.5Kg	5.1Kg	5.3Kg	6.0Kg
IP		54	66	66	54	54
MIL		NO	STD 810G	NO	NO	NO
OPERATING TEMPERATURE		- 20° + 50°	- 20° + 50°	- 20° + 60°	- 20° + 50°	- 20° + 50°
WARRANTY		2 Years	1 Year	1 Year	1 Year	2 Years
PRESENTATION		2022	2018	2017	2017	2017

Legend		
		Competitor is worst
		Competitor is better

STONEX

VISIT OUR WEBSITE
www.stonex.it

REQUIRE INFO
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WE ARE HERE
Paderno Dugnano (Milano) - Italy

UniStrong