Bench Tree

	Metric	Imperial
Communication channel	hydraulic	hydraulic
Standard sizes	241-89 mm	241-89 mm
Length (of all modules 1 7/8”)	-	-
Inclinometer module	202 cm	79.5”
m+ Module (Pulsator)	89 cm	35.1”
m+ Gamma modules	125 cm	49.25”
Battery Module (each)	176.5 cm	69.5’
Connecting module	15.25 cm	6”
Fishing neck/ Socket	42 cm	16.5”
Weight (of all modules 1 7/8”)	-	-
Inclinometer module	15,8 kg	35 lbs
m+ Module (Pulsator)	8.6 kg	19 lbs
m+ Gamma modules	13.6 kg	30 lbs
Battery Module (each)	18.1 kg	40 lbs
Connecting module	3.6 kg	8 lbs
Fishing neck/ Socket	4.5 kg	10 lbs
General information	-	-
Length of layout	Standard layout – 5.04 m Layout with two battery module – 6.78 m	
External diameter	47,6 mm (1 7/8”) frame, use BeCu with non-magnetic drill collar diameters 88.9-241.33 mm (3.5” – 9.5”)	
Sensors	Spatial orientation, Temperature (standard), Gamma, cps (AAPI optional)	
Energy source	Battery Module is consisting of lithium type “Double D” (up to 150° C or up to 175° C optionally). More than 800 hours on one set of modules.	
Communication channel	Positive pressure variations of drilling fluid	
Possibility of programming	Full programming on surface. Down Link Mode – switching mode turning pumps On/Off.	
Emergency removal	Can be removed and re-installed in vertical sections by means of geophysical cable (except Adapters UZOP)	
The configuration of measurements	The list and sequence of data given by the expansion in programming, depending on customer needs	
Internal memory	16 MB, up to 1000 hours of recording (depending on configuration)	
Settings	-	-
The operating temperature	150° C or 180° C (302° F – 356° F) depending on battery model 150° C – 175° C (302° F – 347° F) for all Bench Tree layouts	
Pressure of drilling fluid	Up to 20 000 psi	
Supply of drilling fluid	Up to 1200 gpm (8 ¼") At least 50 gpm (3 ½")	
Differential pressure on the system	It depends on the system configuration	
XP for the elimination of absorption	The average size of bridging additives is 40 lb / bbl max. (Recommended)	
Operating characteristics	-	-
The transfer time of measurements	50-100 seconds. For a typical user configuration	
Position updates diverter	~ 15 sec. (Depending on configuration)	
Gravity TFO	Accuracy ± 0.5°	
Magnetic TFO	Accuracy ± 0.5°	
Azimuth	Accuracy of ± 0.25°; 3 sigmas; Resolution to 0.09°	
Zenith angle	Accuracy ± 0.1°; 3 sigmas; Resolution to 0.04°	
Data collection Gamma	~ 20,000 cps max (possible option AAPI)	
Size	-	-

Computer requirements	-	-
Operating System	Microsoft Windows XP/7	
Memory	At least 512 MB RAM	
Processor	At least Pentium 1.2 GHz. Recommended: Dual Core	
Disk Space	At least 100 MB of disk space. Recommended: 10 GB (for data recording)	
Ports	Ethernet is required. Serial ports as an option (Allow. WITS output from the PC)	
Utilities	Real Time Display, configuration utilities, Roll Test, available memory	
BTR	-	-
Power	85-264 VAC, 47-63Hz, 140W. Recommended: UPS	
Size	24.13 cm x 29.1 cm x 12.7 cm, 4.99 kg	9.5” x 11.5” x 5”, 11 lbs
RDG	-	-
RD-G Voltage	At least 14 V DC Recommended: 40mA, ISB	
Size	20.3 cm x 33 cm x 6.35 cm, 4.99 kg	8” x 13” x 2.5, 11 lbs
BTR/D	-	-
Power	85-264 VAC, 50-60 Hz, 180W	
Size	26 cm x 35.6 cm 10.2 cm, 6.8 kg	10.25” x 14” x 4”, 15 lbs
Transmitter	-	-
Type	4-20mA with power cord 8547 WECO Union, 0 - 5,000 psig (standard), 10,000 psig (possible)	
YCR	-	-
The range	Distance of transmission: 1200 ft **(**Cable between the display and the receiver on the drilling)	
Power	Input: 85-264 V AC, 47-63 Hz, 5 watts	