A 658 running on version 3.0 (or higher) of the Operating System can retrieve data from a 656 or from a 658 running on an earlier version of the Operating System, although the reverse is not true (due to the more complex data structure of the later versions of the Operating System). In addition, not all remote functions are available for the older models.

Refer to section 2.12 for more information on Remote Communications.

1.8 SPECIFICATION SUMMARY

The following table is a summary of the 658 specifications.

Table 1-2. Technical Specifications

Operation	Menu-driven with accessible help screens
Dimensions	
Package	Rugged, portable case
Size	5.8" high by 17" wide by 14.5" deep (14.7 x 43.2 x 36.8 cm)
Weight	23.2 pounds (10.6 kg)
Environmental	
Operating	5° to 40°C (41° to 104°F operating)
Storage	-20° to 55°C (-4° to 131°F)
Humidity	10% to 90% (non-condensing)
Time Clock	Crystal controlled, +25 PPM stability, 10 mS resolution. Lists time in HH:MM:SS:ms format and date in MM:DD:YY format, including day of week. Accurate to within 2 seconds per day.
Main Input Channels	Four differential Main input channels for power line monitoring.
AC Voltage Ranges	0 to 60 V RMS [V_L (low) range] 0 to 600 V RMS [V_H (high) range]
AC Current Ranges	0 to 5 Arms, 0 to 30 Arms, 1 to 300 Arms, and 10 to 3000 Arms
Frequency	45 to 65 Hz (310 to 445 Hz optional)
Input Impedance	40 Megohms (voltage) 120 Ohms (current)
Accuracy	
Voltage	±1% reading, ±0.2% full scale (6 V to 600 V)
Current	±2% reading, ±0.2% full scale (6 A to 300 A)
Voltage Resolution	0.1 V (0 to 72 V low range) 1 V (0 to 600 V high range)
Current Resolution	0.1 A resolution using 30 A current probe 1 A resolution using 300 A current probe 10 A resolution using 1000 A or 3000 A current probe

Table 1-2. Technical Specifications (Continued)

Main Input Channels (continued)	
Sampling Rate	7.2 kHz
Impulse Voltage Range	2.4 to 6120 V pk
Impulse Current Range	2.4 to 6000 A pk (Probe Dependent)
Impulse Duration	>1µs
Impulse Sampling Rate	1.8432 MHz
Impulse Accuracy	±10% reading ±1% full scale
Main Input Channels (continued)	
Impulse Resolution	
V_H (high) Range	12 V at or below 1536 V, 24 V above 1536 V
V_L (low) Range	1.2 V at or below 153.6 V, 2.4 V above 153.6
I300 range	12 A at or below 1536 A, 24 A above 1536 A w/300 A probe
I30 range	1.2 A at or below 153.6 A, 2.4 A above 153.6 A w/300 A probe
Sensor Input Channels (optional)	Eight input channels, configurable as fused current or voltage inputs
DC Input Ranges	0 to 10 VDC (voltage input) or 0 to 40 mA DC (current input)
Input Impedance	>2.0 Megohms (voltage); 250 Ohms (current loop)
Sampling Rate	12.5 Hz
Accuracy	±0.5% reading ±0.2% full scale
Memory	512 Kbytes of non-volatile event RAM; 128 Kbytes of program ROM; 64 Kbytes of system RAM; 64 Kbytes of system ROM
Disk Drive	Single 3.5 inch, double sided, double density disk.
Printer	High-resolution graphics printer, 320 dots/line, uses 4.33" (11 cm) wide thermal paper.
User Interfaces	
Screen	5-inch diagonal electroluminescent
Keyboard	Elastomeric, full travel
Serial Ports	One 9-pin Female (DCE) printer port One 25-pin Female (DCE) RS-232C port
Internal Modem (optional)	2400 bps internal (Hayes compatible)
Power Requirements	90 to 250 V RMS, 50/60/400 Hz, 100 watts typically
Uninterruptable Power Supply (UPS	Provides approximately 5 minutes of uninterrupted operation if power goes out. (Sixteen hours is the typical recharge time for the UPS.)
Installation Categories	Mains supply: Installation Category II, Pollution Degree 2 Measurement inputs: Installation Category III, Pollution Degree 2

1.9 STANDARD ACCESSORIES

Table 1-3. Standard Accessories (115025-G1)

Part Number	Quantity	Description
TM-115000-G1	1	Model 658 User's Guide
110888-G1	1	Thermal Paper
114012-G2/3/4	1	Measurement Cable Set (See table below for parts list)
113227-G1	1	3.5" DS DD Floppy Diskette
113946-G1	1	Decal, (Event), Blank
115520-G1	1	Wire Marker Kit
113255	1	Key Ring

Table 1-4. Measurement Cable Set (114012-G2 (US); -G3 (Euro); -G4 (UK))

Part Number	Quantity	Description
115816-G1	1	Cable Pallet
114013-G1	4	Measurement cable, jumper connector, 10" (25 cm), blue or black
114013-G2	4	Measurement cable, plug end for voltage probe, 8' (2.4 m), red
114013-G3	4	Measurement cable, plug end for voltage probe, 8' (2.4 m), black
113922-G1	1	Safety ground cable assembly, 8' (2.4 m), green
114890-G1	4 Sets	Safety clip set assembly, consisting of one red and one black safety clip.
110727-G3	1	*Power cord, shielded, 125 Vac, 6' 7", (2 m)
115369-G1	1	*Power cord, shielded, 230 Vac (Euro)
115368-G2	1	*Power cord, shielded, 230 Vac (UK)
*User specified, one standard only.		

1.10 OPTIONAL ACCESSORIES

To purchase any of the options, contact:

Dranetz-BMI
1000 New Durham Road
Edison, New Jersey 08818-4019
Attn: Order Entry

Tel: (732) 287-3680
FAX: (732) 248-9240

Table 1-5. Optional Accessories, (115026-G1)

Part Number	Quantity Required	Description
Current Probes and CT Termination Box (See Table 1-5 for current probe specifications.)		
TR2019B 114906-G1)	1 to 3	300 A Current Probe
TR2021 (114700-G1)	1 to 3	30 A Current Probe
TR2022 (114713-G1)	1 to 3	1000 A Current Probe
TR2023 (114714-G1)	1 to 3	3000 A Current Probe, internally terminated
ISO-658-5 (115550-G2)	1 to 3	0 to 5 A Isolated CT Termination Box
Accessories for Environmental Monitoring		
656-PA-1001 (112935-G1)	1	Eight-Channel Transducer Monitor Board. Reference designation A5.
656-XD-1001 (113800-G1)	1	Temperature & Humidity Transducer, includes a 1’ signal cable, 113802-G1, and an attached 9’ extension cable. Used with 656-PA-1001 above.
656-XD-1002 (113810-G1)	1	Conducted RF Sensor, includes a 1’ signal cable, 113802-G1, and an attached 9’ extension cable. Used with 656-PA-1001 above.
656-XD-1003 (113900-G1)	1	Radiated RF Monitor (Sensor), includes a 1’ signal cable, 113802-G1, and an attached 9’ extension cable. Used with 656-PA-1001 above.
Miscellaneous		
SM-115000-G1	1	Model 658 Service Manual

Table 1-5. Optional Accessories, (115026-G1) (Continued)

Part Number	Quantity Required	Description
115038-G1	1	Soft carrying case with probe pallet
115039-G1	1	Reusable hard shipping container
113070-G1	A/R*	Box of 10, 3.5" double sided, double density unformatted disks
658-2400M (113865-G5)	1	Memory modem PCB assembly. Reference designation A3.
113445-G1	1	Main Port Cable (male 25-pin to female 25-pin connectors)
113446-G1	1	Main Port Null-Modem Cable (male 25-pin to male 25-pin connector)
113447-G1	1	Auxiliary Port Cable (male 9- and 25-pin connector)
113448-G1	1	Auxiliary Port Cable (male 9-pin to female 25-pin connector)
115022-G1	2	Rear Extension Bracket (2 required to stand 658 on-end)
115024-G1	1	Rack Mount Kit
115080-G1	1	Vinyl Sun Shade, with Installation Instructions
658-OS-2001 (113522-G3)	1	658-OS-2001, Graphical and Harmonic Analysis PC Software Package
HB114415	1	Field Handbook for Power Quality
Adapter Cable (See Figure 1-6)		
115552-G1	A/R	Adapter cable. Connects one 658 current probe to Dranetz-BMI models 8000-2, PP-1, and PP1-R.

* As Required.

Table 1-6. Current Probe Specifications

Model	Type	Current Rating	Transient Response	Jaw Opening	Frequency Response
TR2019A	Clamp-on	1 to 300 ARMS (±1%)	2 µsec	2.0"	45 Hz-50 kHz
TR-2021	Clamp-on	0.2-30 ARMS (±1%)	2 µsec	0.47"	45 Hz-10 kHz
TR-2022	Clamp-on	10-1000 ARMS (±0.9%)	5 µsec	2.17"	30 Hz-20 kHz
TR-2023	Clamp-on	0-3000 ARMS	N/A	2.56" cable, 1.97" x 5.31" Bus Bar	48-5000 Hz
ISO-658-5	Isolated CT Terminal Box	0-5 ARMS	2 µsec	None	50-5000 Hz

1.11 RACK MOUNTING

See Appendix E for rack mounting installation instructions.

1.12 FACTORY REPAIR

When factory repair is required, proceed as follows:

1. Contact Dranetz-BMI Customer Service Department to obtain a return material authorization (RMA) number for factory repair:

   Dranetz-BMI
   1000 New Durham Road
   Edison, New Jersey 08818-4019
   Attn: Order Entry

   Tel: (732) 287-3680
   FAX: (732) 248-9240

2. Package equipment securely and ship it to Dranetz-BMI Service Department. Be sure and include the RMA on the outside of the package.