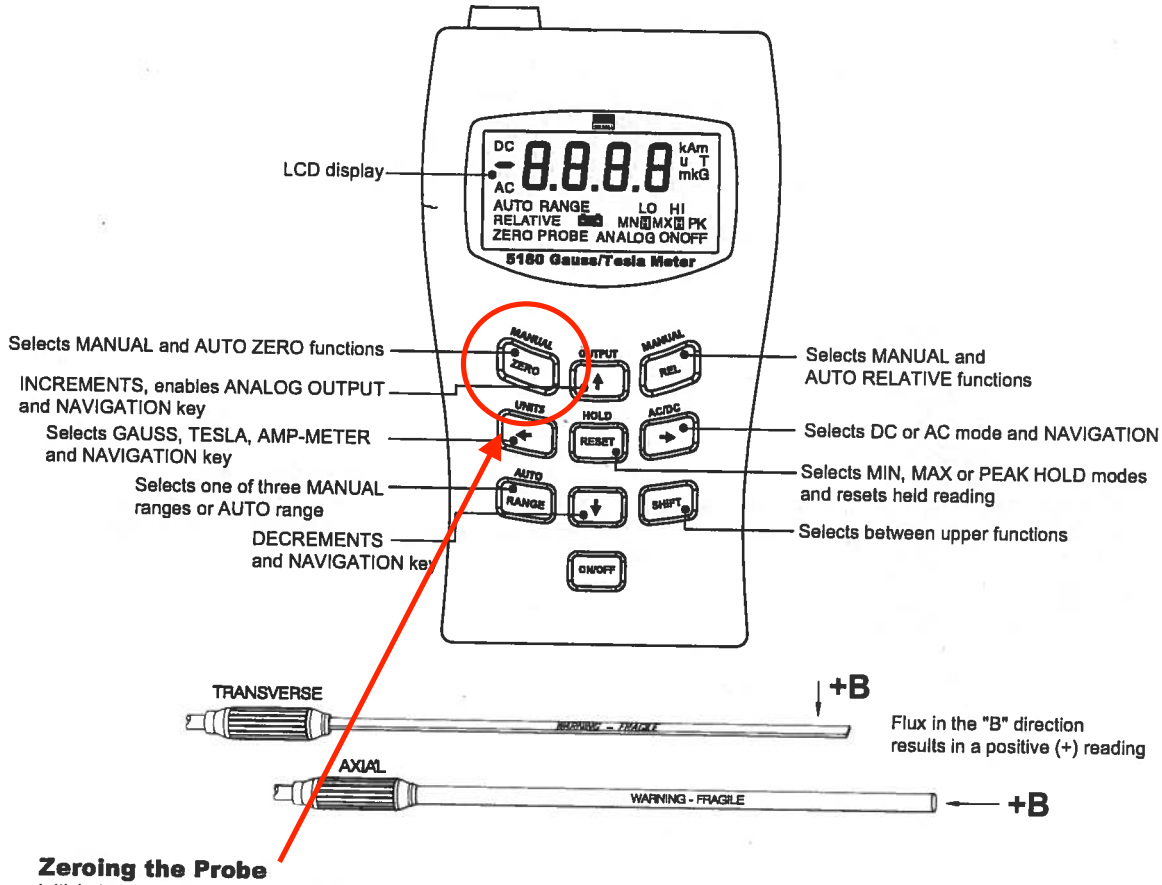
5100 Series Hall Effect Gauss / Tesla Meters

Quick Reference Card



Zeroing the Probe

Initial electrical offsets in the probe and meter will be interpreted as flux density signals. To remove these errors place the tip of the probe in the Zero Flux Chamber and press the ZERO pushbutton. Once the zeroing operation has completed, use the MANUAL ZERO mode to make fine adjustments as needed. Stray magnetic fields from nearby equipment, magnets and the earth will also affect accuracy. To remove these errors place the probe in a fixed position and press the ZERO pushbutton. The ZERO function can be used in static (DC) fields not exceeding the lowest full-scale range.

Relative*

To observe small variations in a larger magnetic field, position the probe in that field, select a fixed range and press the RELATIVE pushbutton. The value of that field will be subtracted from all future readings. Use the MANUAL RELATIVE mode to make fine adjustments as needed.

Units

The UNITS pushbutton selects between flux density readings in gauss, tesla or amp-meters.

Hold

MAX HOLD retains the arithmetic maximum reading. MIN HOLD retains the arithmetic minimum. PEAK HOLD* retains the highest magnitude regardless of polarity. In any mode press the RESET pushbutton to clear the held reading. Any HOLD mode requires a fixed range setting.

Analog Output*

The analog output is calibrated to ±3 V full scale. Minimum load is 10 kohms.

Tips

Always ZERO the probe prior to making measurements. Maximum readings occur when the Flux lines are perpendicular to the sensor's plane. Flux density diminishes with increasing distance from the magnetic source. Flux density variations are common in permanent magnets. Do not subject the probe to physical abuse or extreme temperatures. Degauss the Zero Flux Chamber if it is exposed to high magnetic fields. A low battery condition will degrade accuracy. Observe all safety precautions.

*5180 Model only

SYPRIS TEST & MEASUREMENT
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F.W. BELL®

Rev. date 12/2004

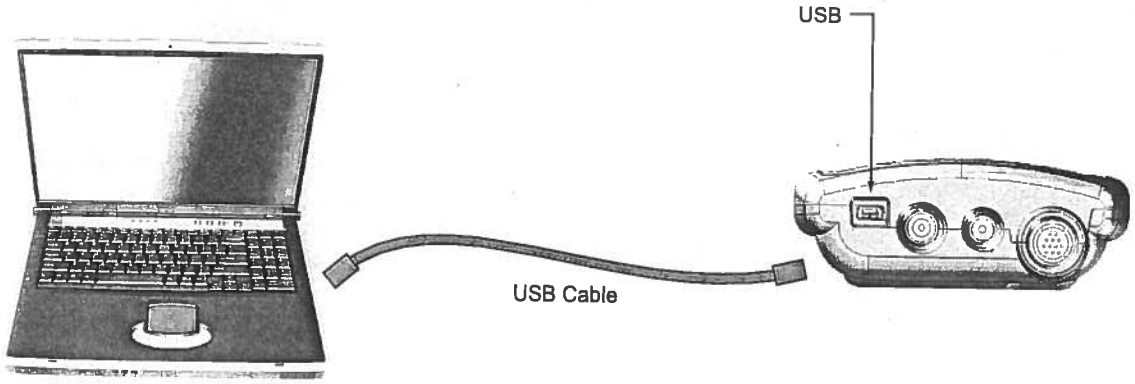
Model 5180

Flux Density Range			Resolution		
GAUSS	TESLA	A/m	GAUSS	TESLA	A/m
# 1 G	100 µT	79.6 A/m	0.001 G	000.1 µT	00.01 A/m
300G	30 mT	23.88 kA/m	0.1G	0.01 mT	0.01 kA/m
3 kG	300 mT	238.8 kA/m	1G	0.1 mT	0.1 kA/m
30 kG	3 T	2.388 MA/m	0.01 kG	0.001T	1 kA/m

Model 5170

Flux Density Range			Resolution		
GAUSS	TESLA	A/m	GAUSS	TESLA	A/m
# 1 G	100 µT	79.6 A/m	0.001G	000.1 µT	00.01 A/m
200G	20 mT	15.92 kA/m	0.1G	0.01 mT	0.01 kA/m
2 kG	200 mT	159.2 kA/m	1G	0.1 mT	0.1 kA/m
20 kG	2 T	1.592 MA/m	0.01 kG	0.001T	1 kA/m

Key: # - When used with high sensitivity probes.



Note: Additional software may be required. Please visit www.fwbell.com for software updates.

Remote Commands *5180 model only

Units Commands	Description
:UNIT:FLUX:AC:GAUSs	Program ac gauss units
:UNIT:FLUX:AC:TESLa	Program ac tesla units
:UNIT:FLUX:AC:AM	Program ac ampere per meter units
:UNIT:FLUX:DC:GAUSs	Program dc gauss mode
:UNIT:FLUX:DC TESLa	Program dc tesla units
:UNIT:FLUX:DC:AM	Program dc ampere per meter units
:UNIT:FLUX?	Query flux units settings

Measurement Commands	Description
:MEASure:FLUX?	Obtain flux density reading

Display Format Commands	Description
:UNIT:FLUX:AC:GAUSs	Program ac gauss units
:UNIT:FLUX:AC:TESLa	Program ac tesla units

Zero / Relative Commands	Description
:SYSTem:AZERo	Initiates an automatic zero operation
:SYSTem:ARELative:STATe <n>	Enable / disable relative mode
:SYETem:ARELative:STATe?	Query relative mode setting

Status Register Commands	Description
:STATus:MEASurement:EVENt?	Query Measurement Event reg.
:STATus:OPERation:EVENt?	Query Operation Event reg.
:STATus:QUEStionable:EVENt?	Query Questionable Event reg.
:STATus:MEASurement:ENABle <NRf>	Program Measurement Event Enable reg.
:STATus:OPERation:ENABle <NRf>	Program Operation Event Enable reg.
:STATus:QUEStionable:ENABle <NRf>	Program Questionable Event Enable reg.
:STATus:MEASurement:ENABle?	Query Measurement Event Enable reg.
:STATus:OPERation:ENABle?	Query Operation Event Enable reg.
:STATus:QUEStionable:ENABle?	Query Questionable Event Enable reg.
:STATus:MEASurement:CONDition?	Query Measurement Condition reg.
:STATus:OPERation:CONDition?	Query Operation Condition reg.
:STATus:QUEStionable:CONDition?	Query Questionable Condition reg.
:STATus:PRESet	Clear all event registers

Common Commands	Description
*CLS	Clear all event registers and error buffer.
*ESE <NRf>	Program standard event enable register.
*ESE?	Read standard event enable register.
*ESR?	Read standard event register and clear it.
*IDN?	Return meter type and software version number.
*OPC	Set the Operation Complete bit in the standard event register after all commands have been executed.
*OPC?	Returns an ASCII "1" after all commands have been executed.
*OPT?	Returns information about the attached Hall probe.
*SRE <NRf>	Program STATUS enable register.
*SRE?	Read STATUS enable register.
*STB?	Read STATUS byte register.

Hold Commands	Description
:SENSe:HOLD:STATe <n>	Enable / disable hold mode
:SENSe:HOLD:STATe?	Query hold mode setting
:SENSe:HOLD:RESet	Reset held value

Range Commands	Description
:SENSe:FLUX:RANGe:AUTO	Enable auto range
:SENSe:FLUX:RANGe: <n>	Program fixed range
:SENSe:FLUX:RANGe?	Query range setting

Error Commands	Description
:SYSTem:ERRor?	Retrieve error message
:SYSTem:CLEar	Clear error message

Analog Output Commands	Description
:SYSTem:OUT <n>	Enable / disable analog output

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