

LTR	ECO	RELEASE DATE / BY
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* Preliminary models, currently not in production

48	122340		HIGH FIELD TR PROBE	HTR81-0608-10
47	122339		HIGH FIELD AX PROBE	SAR81-1908-10
46	122338		HIGH FIELD AX PROBE	HAR81-2508-10
45	122347		HIGH FREQ TR PROBE	STD81-0404-10
44	122345 *		HIGH FREQ AX PROBE	PAA81-1908-10
43	122342-3		MAGNA PROBE	MOX81-2506-30
42	122342		MAGNA PROBE	MOX81-2506-10
41	122341-3		LOW FIELD PROBE	MOS81-3204-30
40	122341		LOW FIELD PROBE	MOS81-3204-10
39	122336		CRYOGENIC AX PROBE	CAP81-2560-10
38	122334		CRYOGENIC TR PROBE	CTP81-3260-10
37	122316 *		AXIAL PROBE	SAA81-0604-10
36	122315		AXIAL PROBE	SAM81-1908-10-T
35	122314		AXIAL PROBE	SAM81-1908-10
34	122313		AXIAL PROBE	SAM81-1904-10-T
33	122312		AXIAL PROBE	SAM81-1904-10
32	122335		AXIAL PROBE	SAF81-1902-10-T
31	122311		AXIAL PROBE	SAF81-1908-10-T
30	122310		AXIAL PROBE	SAF81-1908-10
29	122309		AXIAL PROBE	SAF81-1904-10-T
28	122308		AXIAL PROBE	SAF81-1904-10
27	122307		AXIAL PROBE	HAM81-2508-10-T
26	122306		AXIAL PROBE	HAM81-2508-10
REF	ITEM NO.	DRAWING NO.	DESCRIPTION / MODEL	

25	122305		AXIAL PROBE	HAM81-2504-10-T
24	122304		AXIAL PROBE	HAM81-2504-10
23	122303		AXIAL PROBE	HAF81-2508-10-T
22	122302		AXIAL PROBE	HAF81-2508-10
21	122301		AXIAL PROBE	HAF81-2504-10-T
20	122300		AXIAL PROBE	HAF81-2504-10
19	122337		TRANSVERSE PROBE	FTM81-0215-10-T
18	122333		TRANSVERSE PROBE	STF81-0204-10-T
17	122332		TRANSVERSE PROBE	STF81-0204-10
16	122331		TRANSVERSE PROBE	STM81-0404-10-T
15	122330		TRANSVERSE PROBE	STM81-0404-10
14	122329		TRANSVERSE PROBE	STM81-0402-10-T
13	122328		TRANSVERSE PROBE	STM81-0402-10
12	122327		TRANSVERSE PROBE	STF81-0404-10-T
11	122326		TRANSVERSE PROBE	STF81-0404-10
10	122325-3		TRANSVERSE PROBE	STF81-0402-30-T
9	122325		TRANSVERSE PROBE	STF81-0402-10-T
8	122324		TRANSVERSE PROBE	STF81-0402-10
7	122323		TRANSVERSE PROBE	HTM81-0608-10-T
6	122322		TRANSVERSE PROBE	HTM81-0608-10
5	122321		TRANSVERSE PROBE	HTF81-0608-10-T
4	122320		TRANSVERSE PROBE	HTF81-0608-10
3	122319		TRANSVERSE PROBE	HTF81-0604-10-T
2	122318		TRANSVERSE PROBE	HTF81-0604-10
1		U2-6277	SCHEMATIC, 8000 SERIES PROBES	
REF	ITEM NO.	DRAWING NO.	DESCRIPTION / MODEL	

UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES (DO NOT SCALE TO DWG)	THIS DRAWING IS THE PROPERTY OF OECO / F.W. BELL AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY OECO / F.W. BELL				
			TITLE PROBE SPECIFICATIONS, 8000 SERIES GAUSSMETER		
	SCALE NONE	DRN 07-16-09 GG	SHT 1 OF 7		
	DEC± .005	APPD 10-30-12 AVZ			
	FRAC± —	QA APPD 10-29-12 JSS			
	ANG± —	REL 10-29-12 LNP	DWG NO. U1-6276		
			REV —		

REF	QTY	ITEM NO.	DRAWING NO.	DESCRIPTION		REV
				SHEET NO. 2	DWG NO. U1-6276	—

SPECIFICATIONS: AXIAL PROBES

- 1.0 GENERAL DESCRIPTION
- 8000 SERIES AXIAL PROBES ARE PRECISION, SEMICONDUCTOR MAGNETIC FIELD SENSORS DESIGNED FOR USE WITH F.W. BELL 8000 SERIES GAUSSMETERS TO PROVIDE STABLE AND REPEATABLE AXIAL MAGNETIC FLUX DENSITY MEASUREMENTS.
- THESE UNITS FEATURE RUGGEDIZED CONSTRUCTION SUITABLE FOR MANUAL OR FIXTURED APPLICATIONS.
- 2.0 ELECTRICAL AND PHYSICAL SPECIFICATIONS
- 2.1 FOR SPECIFICATION DETAILS REFER TO TABLE 2 ON PAGE 8.
- 2.2 ELECTRICAL SCHEMATIC : REF [1]
- 2.3 STORAGE TEMPERATURE RANGE : -25°C TO +75°C (-13°F TO +167°F)

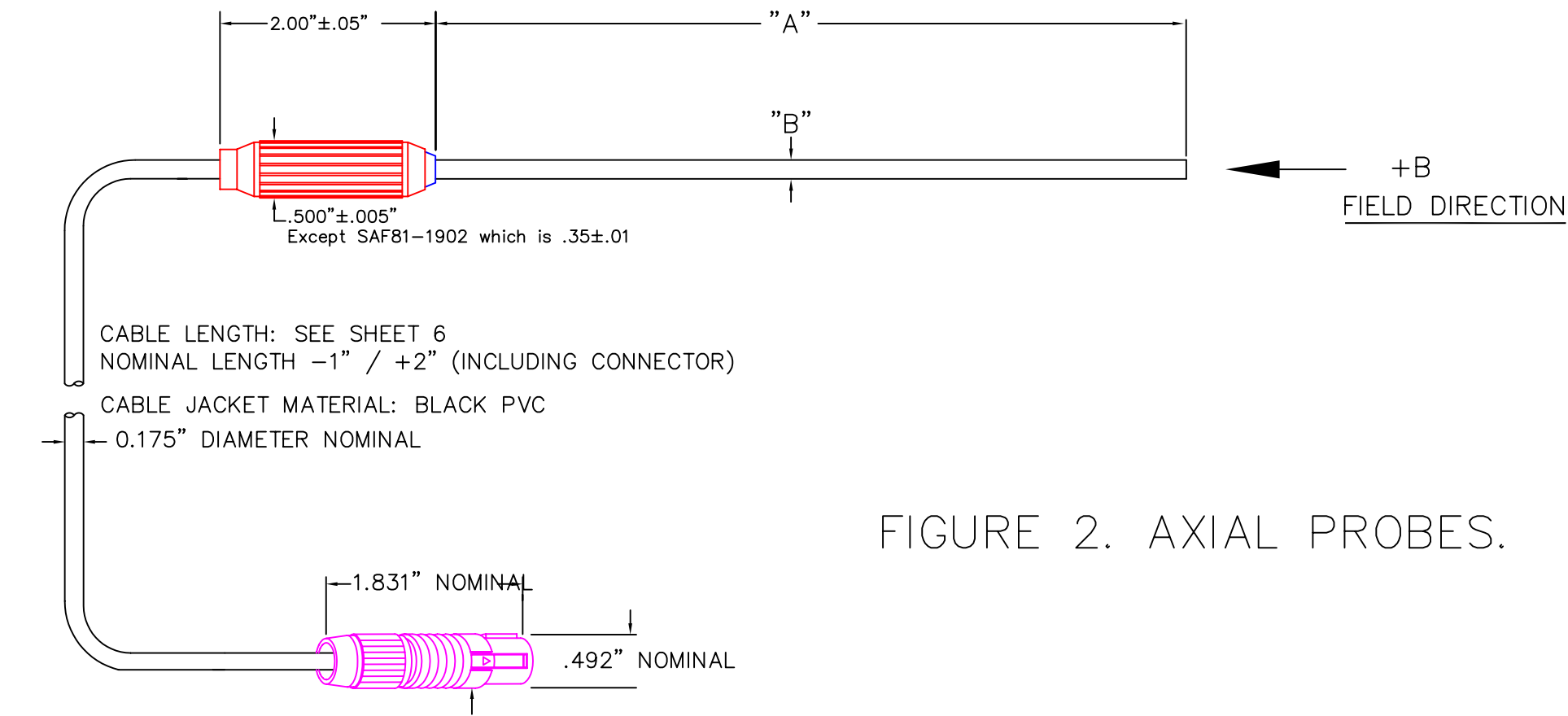
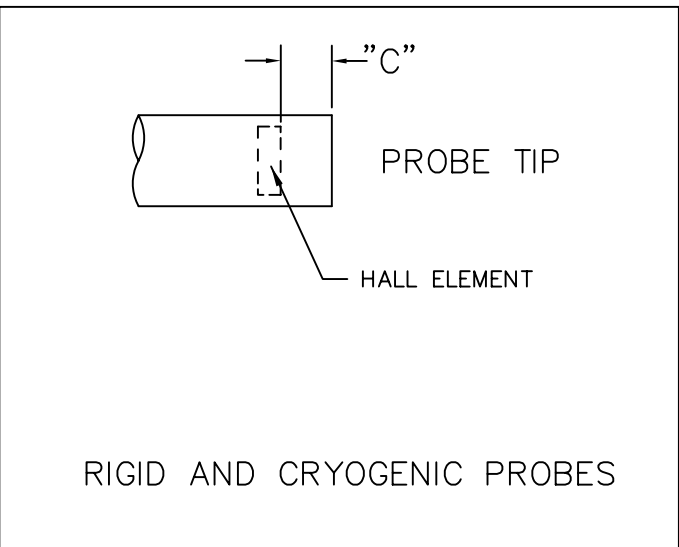


FIGURE 2. AXIAL PROBES.

CABLE LENGTH: SEE SHEET 6
NOMINAL LENGTH -1" / +2" (INCLUDING CONNECTOR)
CABLE JACKET MATERIAL: BLACK PVC
0.175" DIAMETER NOMINAL

CONNECTOR MANUFACTURER: NEUTRIK USA
INSERT: PA 6.6, BLACK COLOR, UL 94V-0 RATED, NEUTRIK P.N. MMI
HOUSING: CuZn39Pb3/ZnAl4Cu1 SATIN CHROMIUM PLATED, NEUTRIK P.N. MSC
CONTACTS: CuZn39Pb3/CuZn35Pb2/CuSn6 - 0.2um AuCo, NEUTRIK P.N. MPS

- 3.0 CALIBRATION
- 3.1 CALIBRATION IS REFERENCED TO A LABORATORY STANDARD MAGNET. THIS STANDARD IS MEASURED BY THE NUCLEAR MAGNETIC RESONANCE (NMR) TECHNIQUE, WHICH IS BASED ON ACCEPTED VALUES OF NATURAL PHYSICAL CONSTANTS.
- 3.2 PROBES ARE CALIBRATED TO INDICATED ACCURACY OVER THE SPECIFIED RANGES WHEN USED WITH THE APPROPRIATE F.W. BELL GAUSSMETER.
- 3.3 GAUSSMETER ERRORS MUST BE ADDED TO PROBE LINEARITY ERRORS TO OBTAIN OVERALL MEASURING ACCURACY.
- 4.0 SPECIAL PROBES
- 4.1 ELECTRICAL AND/OR PHYSICAL REQUIREMENTS NOT COVERED BY STANDARD PROBES MAY BE FURNISHED AS SPECIAL PROBES.



REF	QTY	ITEM NO.	DRAWING NO.	DESCRIPTION		
				SHEET NO. 3	DWG NO. U1-6276	REV —

GENERAL DESCRIPTION

2.0 ELECTRICAL AND PHYSICAL SPECIFICATIONS

2.3 LINEARITY — ±0.5 % OF READING

2.8	WEIGHT	—	NET: 10 OZ
			SHIPPING: 1 LB

3.1 CALIBRATION IS REFERENCED TO A LABORATORY STANDARD SOLENOID COIL.
THIS STANDARD IS TRACEABLE TO INTERNATIONAL MAGNETIC LOW FIELD STANDARDS.

3.3 GAUSSMETER ERRORS MUST BE ADDED TO PROBE LINEARITY ERRORS TO OBTAIN OVERALL MEASURING ACCURACY.

4.1 ELECTRICAL AND/OR PHYSICAL REQUIREMENTS NOT COVERED BY STANDARD PROBES
MAY BE FURNISHED AS SPECIAL PROBES.

CABLE LENGTH : SEE CHART ON PAGE 6
NOMINAL LENGTH -1" / +2" (INCLUDING CONNECTOR)

CABLE JACKET MATERIAL: BLACK PVC

0.175" DIAMETER NOMINAL

1.831" NOMINAL

.492" NOMINAL

CONNECTOR MANUFACTURER: NEUTRIK USA
INSERT: PA 6.6, BLACK COLOR, UL 94V-0 RATED, NEUTRIK P.N. MMI
HOUSING: CuZn39Pb3/ZnAl4Cu1 SATIN CHROMIUM PLATED, NEUTRIK P.N. MSC
CONTACTS: CuZn39Pb3/CuZn35Pb2/CuSn6 - 0.2um AuCo, NEUTRIK P.N. MPS

WHITE LEXAN

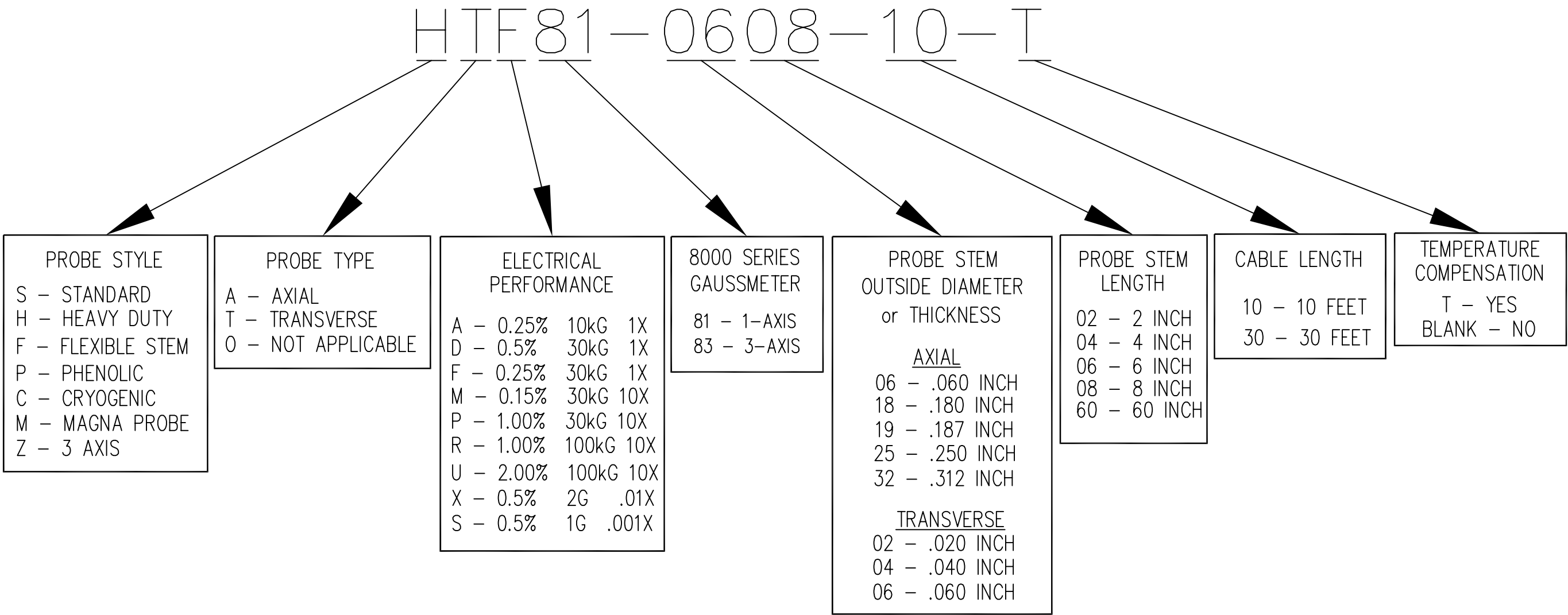
REF	MODEL NO.	MATERIAL	CORRECTED LINEARITY	SENS.	ACTIVE AREA	OP. TEMP RANGE	TEMP. STABILITY		HALL DEVICE TYPE	FREQUENCY RESPONSE	TEMPERATURE COMPENSATED
							ZERO	CAL			
42	MOX81-2506-10	LEXAN (WHITE)	0.5%/2G	.01X	6" X .25" (NOM)	0°C TO +75°C	±0.070 GAUSS PER °C (TYP)	-0.04% PER °C (TYP)	YD-2381-008	DC TO 400 HERTZ	NO
43	MOX81-2506-30										

REF	QTY	ITEM NO.	DRAWING NO.	DESCRIPTION		
				SHEET NO. 4	DWG NO. U1-6276	REV —

REF	QTY	ITEM NO.	DRAWING NO.	DESCRIPTION		
			SHEET NO. 5	DWG NO.	U1-6276	REV —

PROBE MODEL CHARACTER DEFINITION

For reference only. Not all combinations are possible or presently in production.



NOTES:

1. Electrical Performance defined as:

a. xx% = Corrected Linearity deviation over specified range.
Initial absolute accuracy at the calibration reference point is typically <50% of this value.

b. xxkG = ±Magnetic flux density range for specified accuracy; for example -30kG to +30kG

c. 1X, 10X etc. = Relative sensitivity factor defined by internal sensor material or configuration.
For reference only. All range scaling is automatically performed by the gaussmeter.
2. MOS model probes are 0.5% to ±1G for 8000 series, compared to 1.0% for others such as the 5100 Series.

REF	QTY	ITEM NO.	DRAWING NO.	DESCRIPTION		
				SHEET NO. 6	DWG NO. U1-6276	REV —

TABLE 1. ELECTRICAL SPECIFICATIONS FOR TRANSVERSE PROBES

REF	MODEL NO.	"A" ±.063"	"B"	"C"	"D"	MATERIAL	CORRECTED LINEARITY	SENS	ACTIVE AREA ±.002"	OP. TEMP RANGE	UNCOMPENSATED TEMP. STABILITY		HALL DEVICE TYPE	FREQ. RESP. DC TO:	TEMPERATURE COMPENSATED			
											ZERO (GAUSS/°C) TYPICAL	CAL (%/°C) TYPICAL						
2	HTF81-0604-10	4"	0.180" ±.003"	0.060" +.000" -.004"	0.150" ±0.020"	ALUMINUM 3003 3/4 FH	0.25%/30kG	1X	0.070" DIA.	0°C TO +75°C	±0.090	-0.040	YD-2381-003	20 kHz	NO			
3	HTF81-0604-10-T												YB-3913-001		YES *			
4	HTF81-0608-10	8"					YD-2381-003	NO										
5	HTF81-0608-10-T						YB-3913-001	YES *										
6	HTM81-0608-10						±0.130	±0.005	YD-2381-005				400 Hz		NO			
7	HTM81-0608-10-T	YB-3913-007	YES *															
11	STF81-0404-10	4"	0.156" ±.004"	0.042" ±.004"		0.25%/30kG	1X	0.070" DIA.	±0.090		-0.040	YB-3913-005	20 kHz	NO				
12	STF81-0404-10-T	YB-3913-006										YES *						
8	STF81-0402-10	2"										YB-3913-005		NO				
9	STF81-0402-10-T											YB-3913-006		YES *				
10	STF81-0402-30-T											±0.130		±0.005	YB-3913-008	400 Hz	NO	
13	STM81-0402-10					YB-3913-007	YES *											
14	STM81-0402-10-T	YD-2381-003				NO												
15	STM81-0404-10	4"				0.180" ±.003"	0.060" +.000" -.004"	ALUMINUM 3003 3/4 FH	0.15%/30kG		10X	0.040" DIA.	±0.090	-0.040	YB-3913-008		20 kHz	YES *
16	STM81-0404-10-T														YB-3913-007			YES *
48	HTR81-0608-10	8"				0.180" ±.003"	0.060" +.000" -.004"	ALUMINUM 3003 3/4 FH	0.15%/30kG		10X	0.040" DIA.	0°C TO +75°C	±0.090	-0.040	YB-3913-008	400 Hz	NO
38	CTP81-3260-10	60"	0.312" ±.005" (DIAMETER)	N/A	0.320" ±0.063"	STAINLESS STEEL	2.0%/100kG	10X	0.040" DIA.	-269°C TO +75°C	±0.130	±0.010	YD-2381-007	DC ONLY	NO			
							1.0%/30kG											

REF	MODEL NO.	"A" ±.063"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"	MATERIAL	CORRECTED LINEARITY	SENS	ACTIVE AREA ±.002"	OP. TEMP RANGE	UNCOMPENSATED TEMP. STABILITY		HALL DEVICE TYPE	FREQ. RESP. DC TO:	TEMPERATURE COMPENSATED
																	ZERO (GAUSS/°C) TYPICAL	CAL (%/°C) TYPICAL			
17	STF81-0204-10	4"	0.155" ±.005"	0.040" +.002" -.009"	0.130" ±0.008"	0.375" ±0.063"	0.130" ±0.003"	0.020" ±0.003"	N/A	N/A	N/A	FLEXIBLE RUBBER EXPOSED ELEMENT	0.25%/30kG	1X	0.070" DIA.	0°C TO +75°C	±0.090	-0.040	YD-2381-003	20kHz	NO
18	STF81-0204-10-T								0.053" ±0.005"	0.025" ±0.003"	0.192" ±0.032"								YB-3913-006		YES *
19	FTM81-0215-10-T	15"	0.100" ±.005"	N/A								VINYL FIBERGLASS EXPOSED ELEMENT	0.15%/30kG	10X	0.040" DIA.		±0.130	±0.005	YB-3913-010	400Hz	

*Temperature Compensated probes have reduced error associated with changes in probe tip temperature. The amount of improvement varies somewhat depending on probe type, with typical results as follows:

Probe Type	Calibration	Zero Offset
1X Probes	-.02%/°C	±0.06G/°C (±6mT/°C)
10X Probes	-.003%/°C	±0.085G/°C (±8.5mT/°C)

REF	QTY	ITEM NO.	DRAWING NO.	DESCRIPTION		
				SHEET NO. 7	DWG NO. U1-6276	REV —

TABLE 2. ELECTRICAL SPECIFICATIONS FOR AXIAL PROBES

REF	MODEL NO.	"A" ±.063"	"B"	"C"	STEM MATERIAL	CORRECTED LINEARITY	SENS	ACTIVE AREA	OP. TEMP RANGE	UNCOMPENSATED TEMP. STABILITY		HALL DEVICE TYPE	FREQ. RESP. DC TO:	TEMPERATURE COMPENSATED							
										ZERO (GAUSS/°C) TYPICAL	CAL (%/°C) TYPICAL										
37 **	SAA81-0604-10	4"	0.06",±.005"	0.01",±.002"	ALUMINUM 3003 3/4 FH	0.25%/10kG	1X	0.005"	0°C TO +75°C	±0.120	-0.080	JB-1158	10 kHz	NO YES *							
20	HAF81-2504-10		0.250" ±.005"	0.015" ±.004"		0.25%/30kG		YD-2384-004		±0.090	-0.040	YB-3913-002	20 kHz								
21	HAF81-2504-10-T											YD-2384-004									
22	HAF81-2508-10	8"				0.15%/30kG	10X	YD-2384-010		±0.130	±0.005	YB-3913-002	400 HZ	NO YES *							
23	HAF81-2508-10-T											YD-2384-010									
24	HAM81-2504-10	4"				0.25%/30kG	1X	YD-2384-007		±0.090	-0.040	YB-3913-011	20 kHz	NO YES *							
25	HAM81-2504-10-T											YD-2384-011									
26	HAM81-2508-10	8"				0.15%/30kG	10X	YD-2384-010		±0.130	±0.005	YB-3913-011	400 HZ	NO YES *							
27	HAM81-2508-10-T											YD-2384-011									
28	SAF81-1904-10	4"	0.187" +.002" -.007"			0.25%/30kG	1X	YD-2384-007		±0.090	-0.040	YB-3913-003	20 kHz	NO YES *							
29	SAF81-1904-10-T											YD-2384-003									
30	SAF81-1908-10	8"				0.15%/30kG	10X	YD-2384-013		±0.130	±0.005	YB-3913-012	400 HZ	NO YES *							
31	SAF81-1908-10-T											YD-2384-012									
32	SAF81-1902-10-T	2"				0.15%/30kG	10X	YD-2384-013		±0.130	±0.005	YB-3913-012	400 HZ	NO YES *							
33	SAM81-1904-10	4"										YD-2384-012									
34	SAM81-1904-10-T	0.15%/30kG				10X	YD-2384-013			±0.130	±0.005	YB-3913-012	400 HZ	NO YES *							
35	SAM81-1908-10											8"									
36	SAM81-1908-10-T	0.250" ±.005"				1X	YD-2384-012			±0.130	±0.005	YB-3913-012	400 HZ	NO YES *							
46	HAR81-2508-10											YD-2384-030									
		1%/100kG				1X	YD-2384-033			±0.130	±0.005	YB-3913-012	400 HZ	NO YES *							
												YD-2384-030									
47	SAR81-1908-10	8"				1%/100kG	1X	YD-2384-033		±0.130	±0.005	YB-3913-012	400 HZ	NO YES *							
												YD-2384-030									
						1%/100kG	1X	YD-2384-033		±0.130	±0.005	YB-3913-012	400 HZ	NO YES *							
												YD-2384-030									
						1%/100kG	1X	YD-2384-033		±0.130	±0.005	YB-3913-012	400 HZ	NO YES *							
												YD-2384-030									
44 **	PAA81-1908-10		0.187",±.005"	0.250",±.015"	PHENOLIC	0.25%/10kG	1X	0.040"		±0.090	-0.040	JB-1021	50 kHz	NO							
39	CAP81-2560-10	60"	0.250" ±.005"	0.250" ±0.063"	STAINLESS STEEL		10X	0.030" DIA. (NOM)	-269°C TO +75°C	±0.130	-0.010	YD-2384-016	DC ONLY								

*Temperature Compensated probes have reduced error associated with changes in probe tip temperature. The amount of improvement varies somewhat depending on probe type, with typical results as follows:

Probe Type	Calibration	Zero Offset
1X Probes	-.02%/°C	±0.06G/°C (±6mT/°C)
10X Probes	-.003%/°C	±0.085G/°C (±8.5mT/°C)