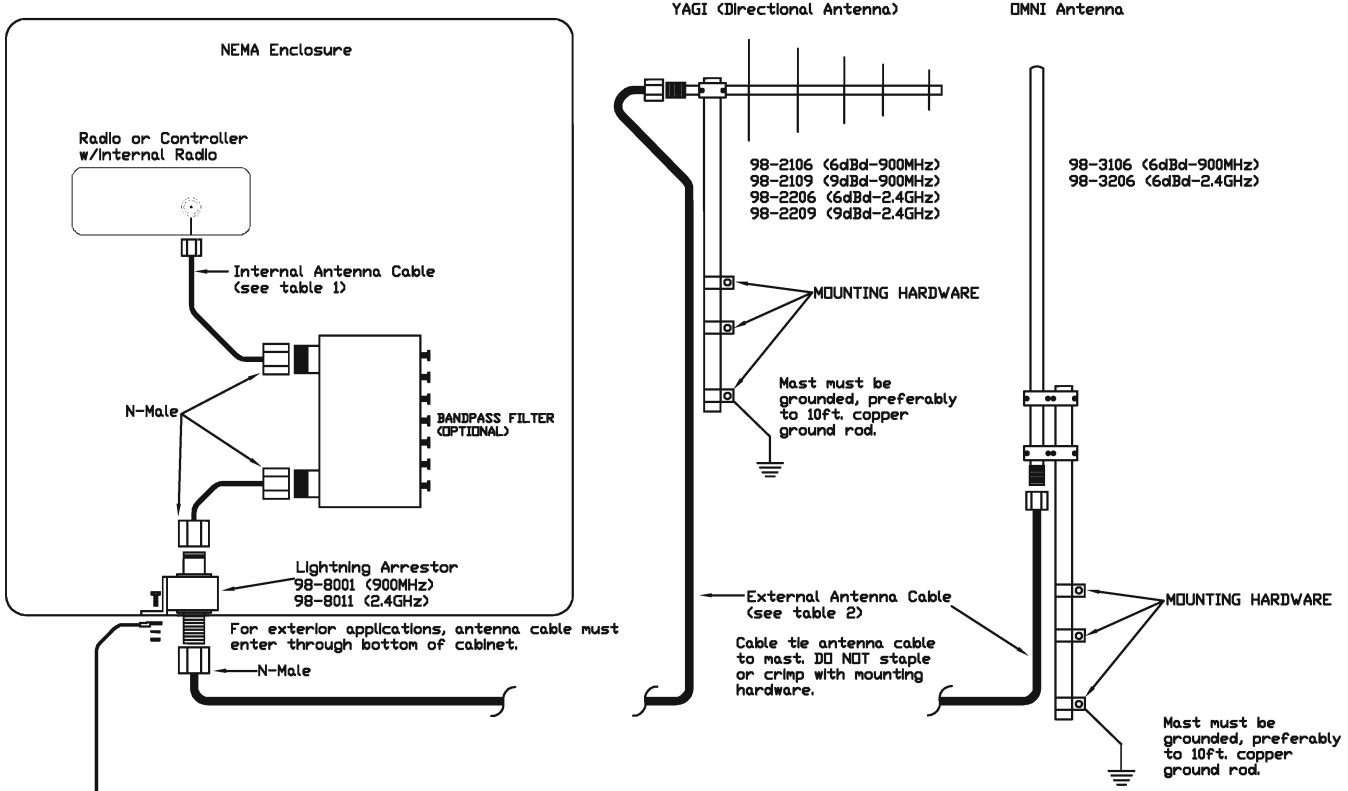

1) DC resistance test all cables and antennas before installation.

a) On all antenna cables, test for continuity from center pin to center pin, and outer shield to outer shield on either end. Check for open circuit from center pin to outer shield.

b) YAGI antennas should measure OPEN circuit from center pin to shield.

c) OMNI antennas should measure a DC SHORT from center pin to shield.

2) Antenna mounting must be mechanically stable. Use guy wires on tall installations.

3) Ensure that antenna and mast are well grounded, except on tanks with cathodic protection, where the mast must be insulated (i.e. fiberglass) and only the antenna (frame) grounded.

4) Use level and compass to align and site antenna per path study.

5) Check for in-band noise using radio configuration software. Install optional bandpass filter if noise levels consistently exceed -100dB (use long term scan to verify).

6) Test antenna system for SWR/losses. Antenna system loss should be less than 6% (VSWR of 1.65:1 or better).

7) Test system for functionality (data integrity/throughput), then weatherproof all exterior antenna cable and antenna connections. Weatherproofing kit is part# 98-9001 (good for 10 sites typical).

Table 1

Radio Hardware	Radio Connector	Cable P/N (xx=inches)
Freewave Internal & SSR-900	SMA	98-61xx
ScadaBridge	TNC	98-62xx
Freewave external	Type N	98-63xx
GSM/GPRS Cellular	MMCX	98-64xx
Extend 900MHz	RSMA	98-65xx

Table 2

Application	Cable Type	Cable P/N (xxx=inches)	Loss - 900Mhz	Loss - 2.4GHz
Cables <= 100 ft.	LMR-400	98-4xxx	4dB/100ft.	6.5dB/100ft.
Cable >= 100 ft. or Low Loss	LMR-600	98-5xxx	2.5dB/100ft.	4dB/100ft.

Industrial Control Links
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External Antenna System Installation

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SHEET 1 of 1