LVC TURBINE INTERFACE
MODEL HF-4

FOR USE IN
RECOR 323 LVC VOLUME CORRECTORS

ADDENDUM TO USERS MANUAL

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MODEL NO. HF-4

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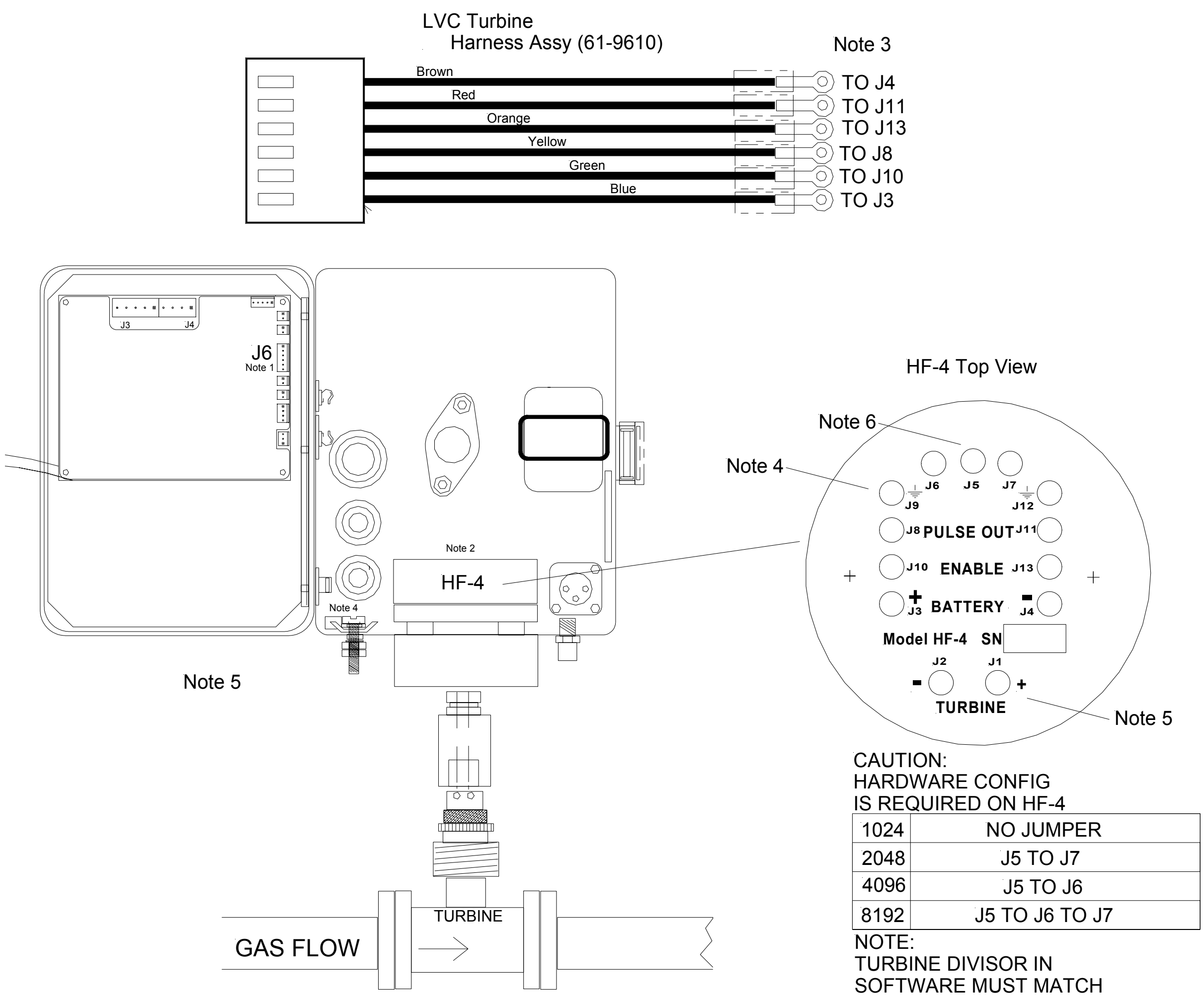
1.0 DESCRIPTION

The HF-4 is a preamplifier designed to be used with the Reynolds Equipment 323 LVC or XVC electronic volume correctors. It is designed to receive a signal from a turbine meter pickup coil. A turbine meter pickup coil with the sensitivity to provide an accurate pickup of turbine rotor travel has the electric characteristics of high impedance and low voltage output. But, electrical noise-free pulse transmission requires the opposite low impedance and high voltage. The HF-4 performs this function. When properly located only inches from the coil, it amplifies and strengthens the turbine meter output for reliable noise-free connection to the Reynolds Equipment 323 LVC or XVC electronic volume corrector.

2.0 INSTALLATION

The HF-4 is installed at the factory and internally connected to the LVC PCB via LVC Turbine Harness (61-9610). It is recommended that the LVC be equipped with special “yoke” (available from Reynolds Equipment Company) which will allow installation of LVC in close proximity, directly above, the turbine meter. User is only required to route the turbine meter cable through the bottom of LVC pedestal and then connect the two turbine meter wires as shown in Figure 1 below (also shown in Reynolds drawing Turbine Interface Assy (HF-4) Interconnect (61-9690i). The turbine wires should be in shielded cable and shield must be connected to LVC Case Ground. It is further recommended that the LVC Case Ground then be connected to an external suitable earth ground.

Figure 1



CAUTION:
HARDWARE CONFIG
IS REQUIRED ON HF-4

1024	NO JUMPER
2048	J5 TO J7
4096	J5 TO J6
8192	J5 TO J6 TO J7

NOTE:
TURBINE DIVISOR IN
SOFTWARE MUST MATCH
THIS SELECTION

NOTE:
1. J6 on LVC PCB connects to HF-4 via LVC Turbine Harness Assy (61-9610).
2. Turbine Interface Assy (HF-4) is mounted on an aluminum plate in the bottom area of the LVC housing.
3. These ring connectors connect to the HF-4 terminals as designated here.
4. J9 of the HF-4, should be connected to LVC Case Ground via ground braid.
5. Turbine meter should be connected to the HF-4 terminals J1 and J2. The two wires from the turbine meter should be routed up through the LVC pedestal (located at the very bottom on the outside of the LVC housing). Turbine meter wires should be within shielded cable and shield should be connected to LVC Case Ground.
6. Pulse Divider terminals are J5, J6 and J7. For Divide by 1024, Connect nothing; For Divide By 2048, connect J5 to J7; For Divide By 4096, connect J5 to J6; For Divide By 8192, connect J5, J6 and J7 together.

3.0 SOFTWARE CONFIGURATION

Using Lvchost software, Configure 1, set up as follows:

1. Meter Drive (Input Scale Factor): TURBINE
2. Meter Rotation: CLOCKWISE
3. Meter Speed: FAST
4. Turbine K Factor: (Should be set to K-Factor supplied with turbine meter)
5. Turbine Divisor: (Should be set to same divisor as jumper of the HF-4 has been configured to). See 5.0 Specifications regarding Pulse Divider possibilities.

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4.0 EFFECT ON LVC BATTERY LIFE

An LVC equipped with the HF-4 can expect to reduce the standard battery pack life by 30 percent to (approximately 2.8 years).

5.0 SPECIFICATIONS

Dimensions: 3” dia x 1’ thickness

Power consumption: approximately 20uA

Sensitivity (Low Voltage Dropout): 45 millivolts p-p typical

Pulse Divider Possibilities: 1024, 2048, 4096, 8192

Note: The Factory divisor default setting is “Divide by 2048”. To select divisor, configure J5, J6 and J7 as follows:

Divide by 1024	NO CONNECT
Divide by 2048	Connect J5 to J7 *
Divide by 4096	Connect J5 to J6 **
Divide by 8192	Connect J5 to J6 and J7 ***

* Use Jumper wire (with crimped spade terminals)(included)
** Use (1) metal jumper (included)
*** Use (2) metal jumpers (included)

6.0 USEFUL INFORMATION

This table shows all the pertinent information and required divisor settings related to an LVC when used with a turbine meter.

Meter	MaxFreq	MaxPPM	Divisor	AdjMaxPPM	K-Fact(Typ)	Calc ISF	ACF/Min
1"	5500	330000	4096	80	13200	0.31	25
2"	3850	231000	2048	112.7	2350	0.871	98.29
4"	575	34500	1024	33.6	115	8.904	300
6"	320	19200	1024	18.7	32	32	600
8"	333	19980	1024	19.5	20	51.2	999
12"	250	15000	1024	14.6	6	170.66	2500

Meter = Size of turbine meter

MaxFreq = Max output freq of turbine meter (Freq at max flow)
MaxPPM = Max pulses/minute (Max meter freq x 60)
Divisor = Pulse divisor Jumper setting on puck and "setting" in software.
AdjMaxPPM = Max Pulses/minute that will be put into the LVC (Max PPM/Divisor)
K-Fact(Typ) = Typical K-Factor for this particular size of meter.
Calc ISF = Calculated Input Scale Factor. Since LVC uses an ISF which corresponds to ACF/Pulse, we must convert the K-factor (which equals Pulses/ACF) to ACF/Pulse. This is done by first dividing K-Factor by the divisor. Then take the reciprocal of this number to convert to ACF/Pulse. This number is the required ISF for the LVC (The LVC automatically calculates this number).
ACF/Min = Actual Cubic Feet per minute flow that should be measured by the LVC at max flow (AdjMaxPPM x Calc ISF). This value multiplied by 60 = ACFH (Actual Cubic Feet/hour). This is a number that should be shown in the LVC Profiler after 1 hour. This number also may be seen on Daniel spec sheet (Flow Rate (SCFH) at .25psig).