ELECTRONICS INTERNATIONAL INC.

MVP-50P Worksheet

Download this file, fill it out and then save it. Include it with your order.

www.buy-ei.com

General Info:

Aircraft Information:		Example:
Customer Name:		Peter Pilot
Customer Phone & E-mail:		555-555-5555, peterp@gmail.com
Aircraft Make & Model:		Cessna, 182R
Aircraft Tail Number:		N5555H
Engine Mfg and Model		Continental, O-470U
# of Cylinders & Max HP		6, 230 HP
Distance from furthest cylinder to EDC (the EDC is remote mounted):		6' is standard. There may be a charge for longer cables.
[ ] Include a Certificate of Conformance ($10.00) **[ ]** Include an 8130-3 ($195.00). Can add up to two weeks to lead time.		

All data must be verified for accuracy and must match the POH/AFM and any changes required by any AD's, Supplements or STC's. Also, limit and marking information must be cross-checked against the instruments mounted in the aircraft panel. A configuration file for a TSO'd and/or STC'd CGR-30P can ***only*** be generated or changed by Electronics International Inc. If any of the information provided on this form is wrong, there may be a reprogramming fee to change the configuration.

Important Information: The information in this document must be verified for accurate and match the aircraft's hardware and POH/AFM marking requirements. **If the data supplied in this document is incomplete or missing, your order will be delayed.** Our mission is to get your order shipped as soon as possible.

MARKING REQUIREMENTS

The following functions come with the MVP-50P package. Provide marking and other information for each of these functions.

Tachometer:

Markings:		
Color	**Range**	**Example**
		Red, >2700
		Green, 2000 to 2500

[ ] My engine is equipped with an Electronic Ignition. If this is the case, we need the pulses per revolution and voltage levels of the RPM signal:

_____.

Example: Left: 2 pulses/rev, 0-5 pulse, Right: standard mag.

Manifold Pressure:

This function uses the PT-30ABS or PT-60ABS (if turbocharged) Pressure Transducer.

Markings: If markings are not specified in the POH/AFM, write "No Limits." Pressure requirements over 32"Hg require a different transducer and has an up charge.		
Color	**Range**	**Example**
		Green, 15 to 25

[ ] Replace the MP transducer with the PT-60ABS (0 to 70" Hg). Up charge of $ 49.95.

If the MP tube is a hard line, you may need a flare fitting to interface to the Vacuum Pressure Transducer.

[ ] Add a 1/4," 37 degree Flare Fitting to the kit ($19.95 ea.).

EGT:

EGT limits are normally not specified. Select the EGT Probe to be used:

☑ P-110F, Fast Response, Hose Clamp (standard in the kit)

☐ P-110R, Long life, Hose Clamp

CHT:

CHT Markings: Aircraft that do not have cowl flaps normally do not have limits for the CHTs. If CHT limits are not listed in the POH/AFM, mark "No Limits."		
Color	**Range**	**Example**
		Red, >460'F
		Yellow, 400 to 460
		Green 200 to 400

The following CHT Probes are available. Select one:

- ☑ P-100, Screw-in, 3/8 – 24 (standard in the kit)
- ☐ My engine is equipped with Tanis Heaters. Note: P-102-3/8 probes will be provided in the kit.
- ☐ P-101, Military Bayonet with an A-101 CHT Adaptor. Up charge: $17.00 each probe.
- ☐ P-102-18, Gasket, 18mm
- ☐ P-102-14, Gasket, 14mm
- ☐ P-102-12, Gasket, 12mm

Fuel Flow:

Select one of the following:

- ☐ This aircraft Is a gravity feed system with no fuel pump.
- ☐ This aircraft has a Fuel Pump.
  - ☐ The engine has 350 HP or less. The FT-60 Flow Transducer will be provided.
  - ☐ The engine has 351 to 550 HP. The FT-90 Flow Transducer will be provided.
  - ☐ The engine has 551 to 1300 HP. The FT-180 Flow Transducer will be provided.

[ ] This aircraft has a pressure carburetor with a fuel return line, you will need to purchase a FFDM-1, Differential Flow module ($395.00).

To display "Estimated Fuel Remaining" we need the following information:

_____ Total Fuel Available (usable fuel, see POH/AFM)

_____ Tab or Partial Fuel Level (level if you do not wish to carry a full load of fuel)

Notes:

a) Also available is a FFAM-1, Fuel Flow Add Module. This module adds the fuel flow for two Flow Transducers ($395.00).

b) Primary Fuel Flow (this is normally derived from metered fuel pressure at the flow divider):

1) If any limit on your current primary fuel flow gauge is marked in pressure only, the MVP-50P must also display metered fuel pressure to replace this gauge.

2) If all the limits on your current primary fuel flow gauge are marked in flow (even though pressure may also be shown), the MVP-50P Fuel Flow system will replace this gauge and Metered Pressure does not need to be measured.

Fuel Flow Markings: If Fuel Flow limits are not listed in the POH/AFM, mark "No Limits."

Color	Range	Example
		No Limits

Fuel Pressure:

Select one of the following:

- ☐ Fuel Pressure is not Monitored.
- ☐ Fuel Pressure is monitored at the fuel pump.
- ☐ This is a turbocharged aircraft and fuel pressure is referenced to the upper Deck.
- ☐ Fuel Pressure is monitored at the flow divider. See Fuel Flow (d) above.
- ☐ This is a gravity feed system with no fuel pump. Note: Fuel Pressure cannot be monitored.

Markings:

Color	Range	Example
		Red, >14 psi
		Green, 9 to 14 psi
		Red, <9 psi

Fuel Level:

The MVP-50P can provide accurate fuel level readings for straight and level flight. By calibrating the MVP-50P to the fuel tank, nonlinearity in the tank's shape and nonlinearity in the Fuel Level Sensor can be compensated. The MVP-50P cannot correct for inconsistent or non-repeatable readings from a Resistive Fuel Level Sensor. Unfortunately, many Resistive Fuel Level Sensors (and in some cases even new units) exhibit these problems. If you find inconsistent or inaccurate fuel level readings (due to a defective Resistive Fuel Level Sensor), you must have the sensor replaced or repaired. Read the "Important Notice" in the MVP-50P Operating Instructions. **Fuel Level Sensors are NOT provided in the kit.** The following are some E.I. probes and modules available:

P-300C: This is ¾" OD capacitive probe ($349.00).

P-300C Mini: This is a 3/16" OD capacitive probe ($298.00).

P-300M: Magnetic Float Sensor, replacement for Resistive Sensor ($395.00).

RFLM-4: Provides the current for up to 4 resistive fuel level sensors (included in the kit). $98.00

FLAM -4: Monitors up to 4 capacitive fuel level probes in one tank and outputs the signal to the EDC-33P as single tank ($475.00).

Important Notice: Only use the RFLM-4 for a Resistive Probe, otherwise damage will occur.

For each Fuel Level Probe we require the following information: Note: All displayed Fuel Levels must be in the same units-of-measure.

Displayed Name	Probe Type	Tank Configuration
	Select only one: ☐ Resistive Probe (an RFLM-4 will be provided) ☐ E.I. P-300M magnetic probe. ☐ E.I. P-300C capacitive probe. ☐ Penny Cap Capacitive Probe (select only one below): ☐ The signal will come from the signal conditioner box. ☐ The signal will come from the probes.	Full Fuel Level:_____. Select only one: ☐ This tank can be selected to feed the engine. ☐ Fuel is only transferred from this tank to another.
	Select only one: ☐ Resistive Probe (requires a RFLM-4) ☐ E.I. P-300M magnetic probe. ☐ E.I. P-300C capacitive probe. ☐ Penny Cap Capacitive Probe (select only one below): ☐ The signal will come from the signal conditioner box. ☐ The signal will come from the probe.	Full Fuel Level:_____. Select only one: ☐ This tank can be selected to feed the engine. ☐ Fuel is only transferred from this tank to another.

Displayed Name	Probe Type	Tank Configuration
	Select only one: ☐ Resistive Probe (requires a RFLM-4) ☐ E.I. P-300M magnetic probe. ☐ E.I. P-300C capacitive probe. ☐ Penny Cap Capacitive Probe (select only one below): ☐ The signal will come from the signal conditioner box. ☐ The signal will come from the probes.	Full Fuel Level: _____. Select only one: ☐ This tank can be selected to feed the engine. ☐ Fuel is only transferred from this tank to another.

If some other fuel level probe is to be used, provide specification for the probe:

_____

Oil Pressure:

This function uses the PT-100GA Pressure Transducer.

Markings:		
Color	**Range**	**Example**
		Red, >100 psi
		Green, 40 to 90 psi
		Red, <25 psi

Oil Temperature:

This function uses the P-120 Oil Temp Probe.

Markings:		
Color	**Range**	**Example**
		Red, >240 ‘F
		Yel, 200 to 240
		Green, 65 to 200
		Yellow, <65

Volts:

The voltage limits are set by E.I. Select one of the following:

- ☐ 12-Volt System.
- ☐ 24-Volt System.

Amps:

Normally Amps do not have limits specified. A 100 Amp shunt is provided in the kit or the MVP-50P can be connected to the aircraft's existing shunt. To do this the value of the existing shunt must be provided. See www.buy-ei.com and look under VA-1A Downloads for help on determining the value of your existing shunt. Select one of the following:

- ☐ The aircraft's Existing Shunt Value is _____ Amps at _____ mV.
- ☐ The 100 Amp Shunt that comes with the system will be used.

Note: The EDC-33P only has only one channel to monitor current. The FM-VA-3 module (when connected to temp channels on the EDC-33P) allows three more current measurements ($195.00).

- [ ] Add the FM-VA-3 to the Kit ($195.00).
- [ ] Add the following number of S-50 Shunts to the kit: _____ ($39.00 ea.).

OPTIONAL FUNCTIONS

The following functions are optional and can be added to the Main or System screen. Most any function can be monitored by the MVP-50P. Provide information for each function added to the package. Check that you have channels on the EDC-33P to support your selections (see appendix A).

Hydraulic Pressure:

This function uses the PT-3000S Pressure Transducer (3000 psi max). $250.00

Markings:		
Color	**Range**	**Example**
		Green, 1000 to 2000
		White, all other areas.

TIT:

Markings:		
Color	**Range**	**Example**
		Red, >1650 ‘F
		Green, <1650

Select the probe type:

- ☐ P-111, 1/8” NPT (w/ 6’ cable, $98.00).
- ☐ P112, 7/16-20 (w/ 6’ cable, $98.00).
- ☐ P114, 1/4” NPT (w/ 6’ cable, $98.00).
- ☐ P-110, Hose Clamp (w/ 6’ cable, $98.00).

Vacuum Pressure:

If markings are not listed in the POH/AFM, we suggest using Green 4.5 to 5.5. This function uses the PT-05Diff Pressure Transducer ($150.00). If the vacuum tube is a hard line, you may need a flare fitting.

[ ] Add a 1/4,” 37 degree Flare Fitting to interface to the Vacuum Pressure Transducer ($19.95 ea.)

Markings:		
Color	**Range**	**Example**
		Green, 4.5 to 5.5

Carb Temp:

If markings are not listed in the POH/AFM, we suggest using Blue, 10 to 39'F and Green for all other areas. Some very old carburetors do not have the port for the Carb Temp Probe drilled out. This port can be drilled and taped. The P-128, 1/4-28 fast response temp probe is used to measure Carb Temp (w/ 6' cable, $98.00).

Markings:		
Color	**Range**	**Example**
		Blue, 10 to 39 'F
		Green, all other areas.

Cabin Altitude:

This function uses the PT-30ABS module ($150.00).

Markings:		
Color	**Range**	**Example**
		Yellow, < 18.6 "Hg
		Green, all other areas.
		Note: Only be displayed in "Hg.

Cabin Differential Pressure:

This function uses the PT-05Diff module ($150.00).

Markings:		
Color	**Range**	**Example**
		Yellow, > 4.0 psi
		Green, all other areas.

Induction Air Temperature (IAT):

This function uses the P-128 Temperature Probe (w/ 6' cable, $98.00).

Markings:		
Color	**Range**	**Example**
		No Limits.

Compressor Discharge Temperature (CDT):

This function uses the P-128 Temperature Probe (w/ 6' cable, $98.00).

Markings:		
Color	**Range**	**Example**
		No Limits.

Carbon Monoxide:

This Function requires RS232 Port 3 or 4 Input and the CO Guardian Option, $495.00. If Carbon Monoxide is monitored, a second EDC-33P cannot be used. If markings are not specified in the POH/AFM, we recommended the limits shown in the example.

Markings:		
Color	**Range**	**Example**
		Red, > 75 ppm
		Yellow, 25 to 75 ppm
		Green, 0 to 25 ppm

G-Meter:

The G-Meter function provides a real time g-force display on the CGR-30P. The MVP-50P does not provide a peak-hold function, but the g-force readings are recorded for the entire flight. To capture the g-forces for all phases of the flight with no gaps, set the "Data Sample Rate" to 0.3 seconds. The G-Meter option can be used to capture g-forces in slow flight when turning to final, hard landings, turbulence, hard pull-ups, steep turns, aerobatic maneuvers, stalls, spins or when performing any maneuver that may stress the aircraft or lead to a stall/spin situation. The price is $495.00 and this function uses a pressure channel on the EDC-33P.

Markings:		
Color	**Range**	**Example**
		Red, > 3.8
		Green, -1.5 to 3.8
		Red, < -1.5

Annunciators:

On the Main Screen in blue and on the System Screen, under the heading "ENGINE AND SYSTEM FUNCTIONS" there are A total of 11 digital gauges that can also be configured as annunciators. If annunciators are to be displayed, provide the following data. Check that you have channels on the EDC-33P to support your selections (see appendix A).

Main Screen

System Screen

Annunciators: A VI-221 Voltage Interface Moduel will be used for for each Annunciator.				
Name: (6 characters Main Screen 9 Characters System Screen)	**ON-State Color:** (Red, Yel, Grn, Blue or Wht)	**ON-State Voltage:** (Select 12V, 24V, Bus, 0V, Ground or Open)	**OFF-State Voltage:** (Select 12V, 24V, Bus, 0V, Ground or Open)	**Example:**
				Fuel P, Grn, +12V, 0V

Flaps, Gear and Other Status Indicators:

Select each function that will be displayed in the upper portion of the System Screen and provide the voltage range of the signal to the EDC-33T (Example: 0 to Bus Voltage or 0 to 5Volts). All of the following functions are secondary to the existing indicators in the aircraft. Each function requires a VI-221 Voltage Interface ($19.95 ea.).

[ ] Rudder Trim. Voltage Range: _____ (Experimental or OEMs Only)

[ ] Elevator Trim. Voltage Range: _____ (Experimental or OEMs Only)

[ ] Aileron Trim. Voltage Range: _____ (Experimental or OEMs Only)

[ ] Flap Position. Voltage Range: _____.

[ ] One input controls the indication of all the Gears. Gear-Up Voltage Level: _____.

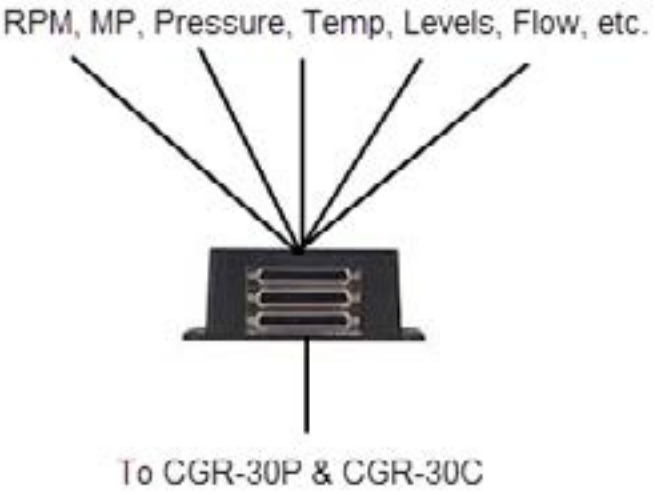
In this case the Nose and Main Gear-up Voltage Levels are not required.

[ ] Nose Gear-up Voltage Level: _____.

[ ] Mains Gear-up Voltage Level: _____.

[ ] Unsafe Voltage Level: _____. If Gear status is displayed, the Unsafe status is required.

Appendix A: EDC-33P Overview



The EDC-33P (Engine Data Converter, "EDC") converts all of the engine and aircraft system signals into serial data. This data is transmitted to the MVP display via one wire. The EDC reduces the wire bundle to the instrument panel by over 100 wires.

There are three 37-pin D-sub connectors that interface the EDC to the various probes, transducers and modules. The EDC's Temperature, Pressure and Fuel Level inputs can be used to monitor voltage outputs from almost any transducer. In this way almost any function can be displayed on the MVP. Up to two EDC's can be connected to a MVP display. This significantly increases the total number of functions that can be displayed on the MVP. A second EDC-33P is $995.00.

Make sure you have sufficient channels on the EDC-33P to support all the functions and annunciators you will be displaying on the MVP-50P. The channels available on an EDC are as follows:

These Channels can be used for various functions or annunciators:

17 – Temp Channels: Maybe used to monitor any voltage or thermocouple.

6 – Pressure Channels: Maybe used to monitor any voltage (very high input impedance).

4 – Fuel Level Channels: Maybe used to monitor any voltage.

These Channels are dedicated to specific functions:

2 - RPM Channels: Used only to monitor right and left mags.

1 - Volt Channel: Used only to monitor volts.

1 - Amp Channel: Used only to monitor Amps

1- Fuel Flow Channel: Used only to monitor Fuel Flow

*** Be sure you have ordered the hardware to support all the functions listed in this document.**

*** Check that all range and configuration information is complete and accurate.**

FAILURE TO SIGN THIS DOCUMENT WILL RESULT IN AN IMCOMPLTET FORM, AND WILL DELAY YOUR ORDER.

I (the undersigned) have entered and verified all the limits, markings and aircraft configurations listed in this worksheet to be correct and taken from the information in the aircraft's POH/ AFM which includes any changes mandated by any AD's, Supplements and STC's. When necessary, I have checked with my FAA certified mechanic to insure all of the data listed above is correct.

I understand there is important safety information in the Installation and Operating Instructions that must be read before installing the CGR-30P and flying the aircraft.

| --- | --- | --- |
| Owner/Pilot's Printed Name | Owner/Pilot's Signature | Date |