

EASZ-1 Quick Start Guide

INTRODUCTION

There are several methods of installing and calibrating your EASZ-1. This Quick Start Guide applies only to standard industrial applications where process temperatures do not change dramatically and where operators are looking for small changes of water in oil e.g. 0-1% . This Quick Start Manual cannot be used if your EASZ-1 has been certified for, and is being installed in hazardous areas. If you're installing the EASZ-1 in a hazardous area, please make sure you have purchased a hazardous area version and then follow the appropriate installation instructions for hazardous areas. However, it may be advantageous for you to read this quick start guide to gain a general understanding of the installation and calibration procedures.

ORIENTATION

The first step in installing your EASZ-1 is to consider where and how it will be mounted. The best results are achieved by mounting the EASZ-1 vertically, with the fluid flowing upwards. Simple plumbing modifications should be made to ensure the EASZ-1 is mounted vertically, with your flow going upwards. If you plan on mounting the EASZ-1 in a bypass loop, please ensure there is adequate flow going through the sensor under operational conditions.



In almost all cases, installing the EASZ-1 with the flow going downwards can cause unwanted fluctuations in reading which cannot be controlled, so avoid this at all cost and take the time to adjust your plumbing

NOTE If you are using large bore EASZ-1's and installing them in the horizontal position and especially when measuring large percentages of water in oil, you must ensure that there is adequate mixing upstream of the device. Some large bore applications will require the use of static mixers to overcome the problems of separation or bottom water

ARC WELDING

Never perform arc welding near to the EASZ-1, which will cause permanent damage to the electronics.



ELECTRICAL CONSIDERATIONS



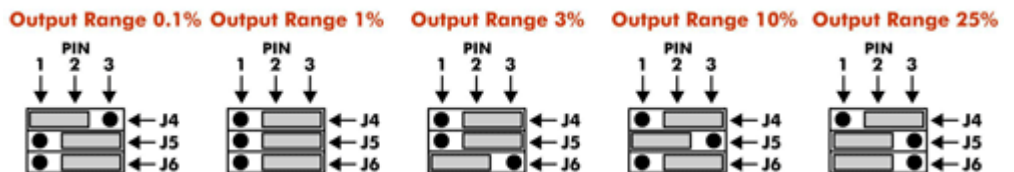
WARNING Ensure the correct polarity is observed to avoid irreparable damage to your EASZ-1. Reversing the polarity can cause PERMANENT DAMAGE and void your warranty. All wiring must be completed prior to applying power to the EASZ-1.

The 12-24 VDC power required to operate the EASZ-1 must be high-quality, steady and ripple free. Half wave rectifier sources are normally not acceptable. Always use galvanically isolated power sources. It is very common for clients to use the EASZ-1 DPM Remote Display to power the EASZ-1, since the power provided by the Remote Display is guaranteed to be clean. If you are not sure if your power is adequate to power the EASZ-1, please consult your electrical/instrumentation engineer or simply use the EASZ-1 DPM remote display to power the EASZ-1. Always have the electronics installed away from sources of electrical disturbance.

SELECTING THE OPERATING RANGE



By modifying the position of onboard jumpers, the EASZ-1 will report user selectable water in oil ratios from 0-0.1%, 0-1%, 0-3%, 0-10% and 0-25%. Once selected, these jumpers will determine the scale of the 4-20mA analogue output signal. Ensure these jumpers are appropriately installed prior to applying power to the EASZ-1. To avoid damage to the jumpers, move them with tweezers or small needle nosed pliers.

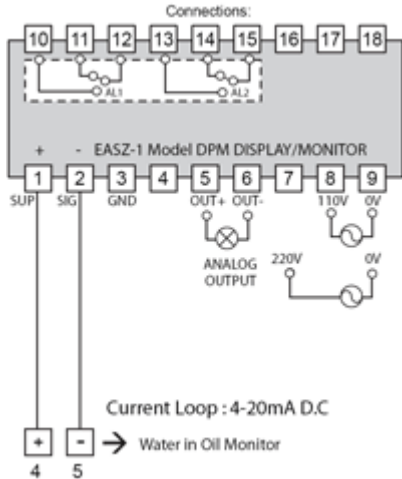


EASZ-1 Quick Start Guide

WIRING

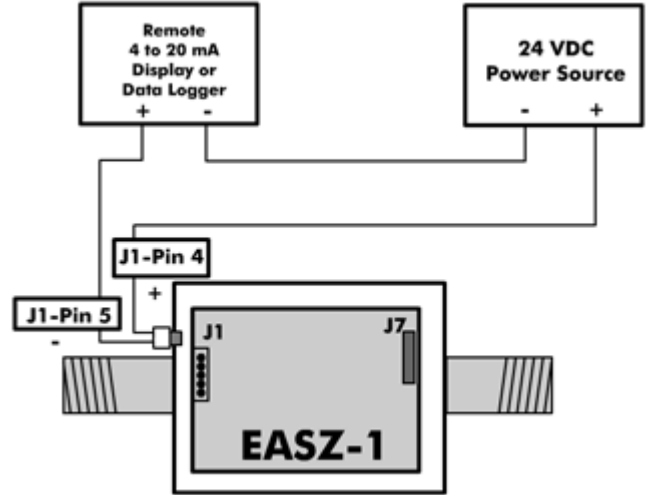
Wiring with EASZ-1 DPM Display

The following diagram indicates a typical method of wiring the EASZ-1 with the EASZ-1 DPM display.



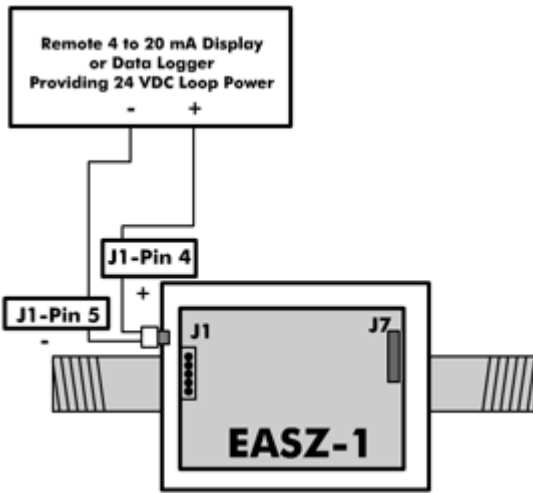
External Power Source

If the EASZ-1 is powered from a 24 VDC power supply, the analogue output signal from the EASZ-1 can be routed to any remote display or data logging hardware as follows:



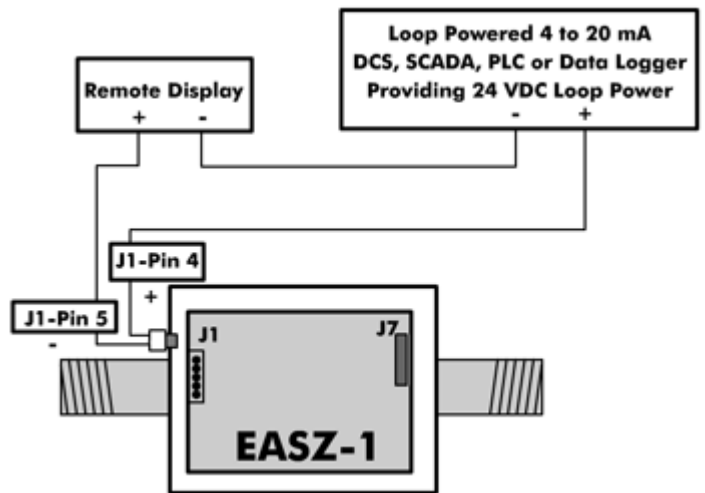
Loop Powered Display or Data Logger

The EASZ-1 can be powered by a self powered 4 to 20mA Display or Data Logger as follows:



Loop Powered DCS, SCADA, PLC or Data Logger and Remote Display

The EASZ-1 can accommodate a Remote Display plus remote data storage hardware by simply wiring the entire system in series with the 4 to 20 mA power source as follows:



REMEMBER

If you are not using the EASZ-1 Remote Display to power your EASZ-1, but are using the 2 wire loop directly from some other device, make sure the device providing the power is galvanically isolated and the 12-24 VDC power supply is high-quality, steady and ripple free

EASZ-1 Quick Start Guide

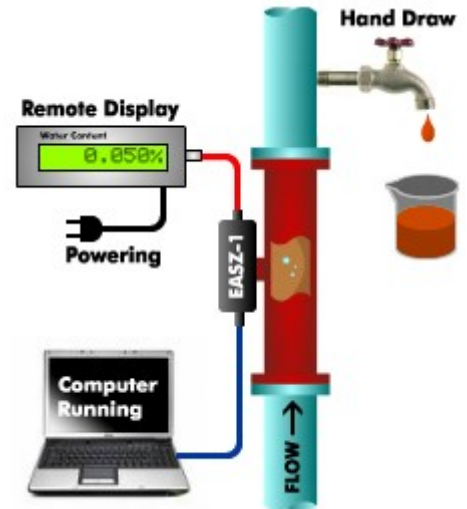
SETUP AND CALIBRATION

It is possible to purchase a factory calibrated EASZ-1 which has been pre-calibrated for a particular type of oil. In this case, there is no need to perform an onsite calibration, and the EASZ-1 will accurately report water in oil ratios assuming it has been installed correctly. If you have purchased an EASZ-1 that has not been factory calibrated, and are calibrating the EASZ-1 yourself, the following discussion will guide you through the calibration of the EASZ-1 once you've installed it into your process. Once completed, this calibration procedure will provide accurate results in most standard applications.

NOTE If you are not interested in this four step process and are assuming your oil is "bone dry" and would like to see only relative change, then simply use hyperterminal command cal0 when the oil is at normal process temperature.

Normal Calibration your EASZ-1 is a simple four step process.

1. A Hand Drawn sample is taken at normal process operating temperature
2. At the exact moment that the sample is being drawn, a "store" command is issued to the EASZ-1. This command will store the dielectric constant of the oil into the EASZ-1's memory.
3. The Hand Drawn sample is taken to a lab for analysis, and a report produced.
4. The moisture data produced by this report is then transferred into the EASZ-1 with a "calX.XX" command and the EASZ-1 will begin producing values.



SGS OIL, GAS & CHEMICALS			
Lab Order No :	JM100962987		
Product :	2 samples as shown below		
Company :	Eesiflo International Pte Ltd		
Attn :	Ms Doreen Seow		
Tel/Fax :	6748 9911 / 6748 9912		
Sample Recd. Date :	30-05-07		
Date Tested :	30-05-07		
Date Reported :			
ANALYSIS REPORT			
Sample Labelled :	(1) Qusion NMR NMR Sample No. 1 28/5/07		
	(2) Qusion NMR NMR Sample No. 2 19/3/07		
On testing, the following results were obtained :			
Test	Unit	Method	Results
Water by distillation	% vol	95-05 ¹	⁽¹⁾ 20.05 ⁽²⁾ 20.05

The hand drawn sample should be handled carefully, and taken to a laboratory capable of performing ASTM measurements of moisture in oil. A report similar to that shown here will indicate the water content of your hand drawn sample. In our example, a water content of 0.05% was present when the store command was issued to the EASZ-1.

Once this report becomes available, we must enter this information into the EASZ-1 by issuing a "calX.XX" command through the communications interface as described on the following pages.

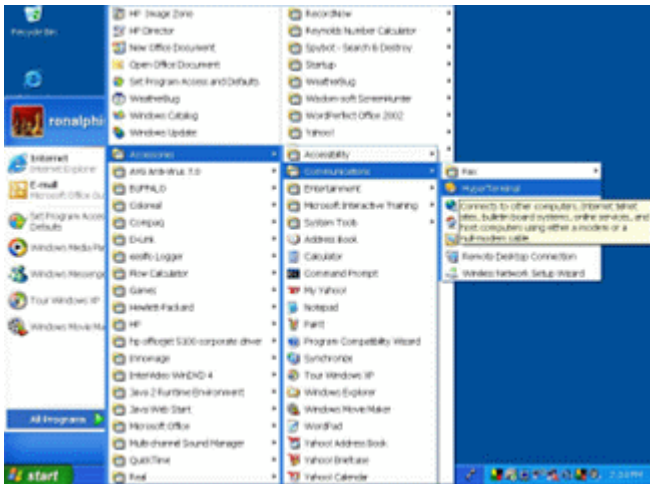
EASZ-1 Quick Start Guide

COMMUNICATIONS SOFTWARE SETUP

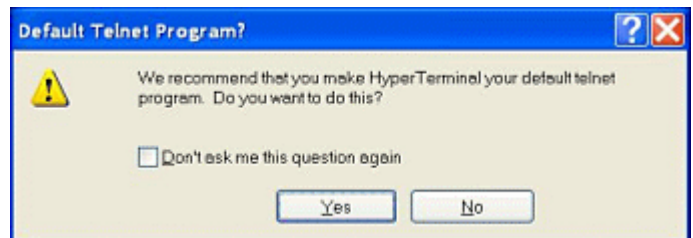
The EASZ-1 employs a simple text based communications protocol during setup and testing. The simplest software communications package is called HyperTerminal which is pre-installed onto every Windows computer. However, if you're using the Windows VISTA, HyperTerminal can be downloaded from the original software manufacturer at: <http://www.hilgraeve.com/hyperterminal.html>

To setup HyperTerminal, follow these steps:

1. In Windows, click on "Start / All Programs / Accessories / Communications / HyperTerminal"



2. You may be prompted to choose if HyperTerminal should be your Default Telnet Program. Please click on the NO button.



3. At the Connection Description window enter "EASZ-1"

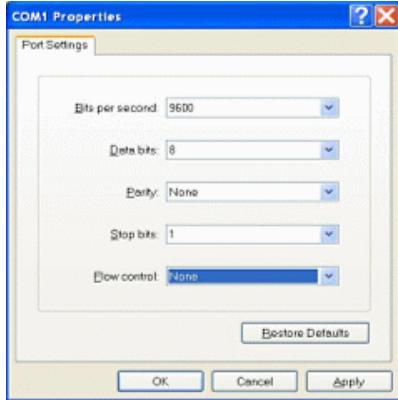


4. In the "Connect To" window select COM1 from the Connect using dropdown list then click on OK.

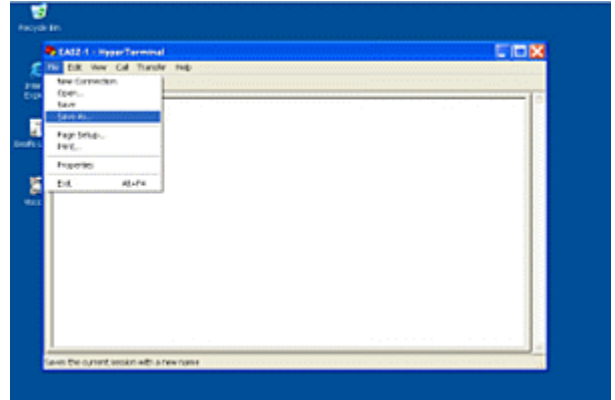


EASZ-1 Quick Start Guide

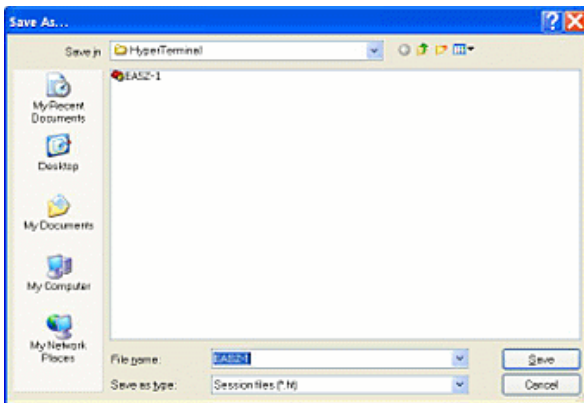
- At the "COM1 Properties" select: Bits per second = 9600, Data bits = 8, Parity= None, Stop Bit = 1, Flow Control = None, then click the OK button.



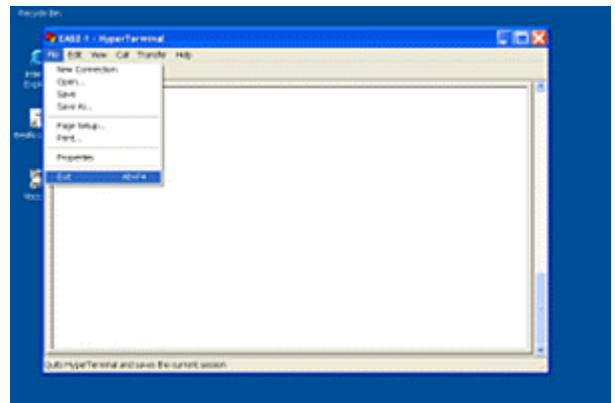
- At the EASZ-1 HyperTerminal window click on File then Save As.



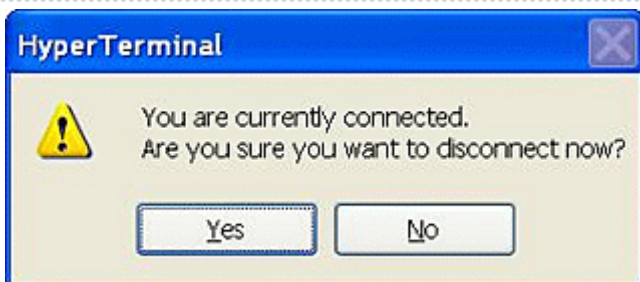
- At the "Save As" window enter EASZ-1 into the File name field then click on Save.



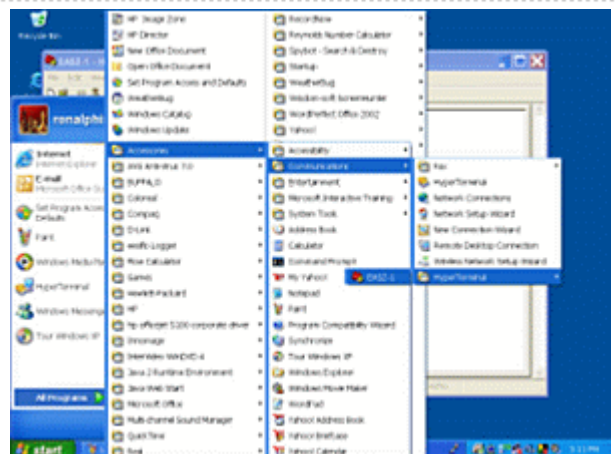
- When you're back at the EASZ-1 HyperTerminal window click on File then Exit.



- You will be prompted with a disconnect message. Please click on Yes.



- Click on "Start/All Programs/Accessories/Communications / HyperTerminal" sub menu and then EASZ-1.ht.



EASZ-1 Quick Start Guide

COMMUNICATING WITH THE EASZ-1

At the beginning of the calibration procedure it is necessary to issue a “store” command to the EASZ-1, which will cause it to store the immediate properties of the oil/water solution that is passing through it. To complete the calibration it is necessary to transfer the information provided by the laboratory analysis of the Hand Drawn sample, with a “calX.XX” command. Follow these steps:

1. Connect the Serial Interface Cable provided with your EASZ-1 to the appropriate COM Port on your PC.

NOTE

- *The Serial Interface Cable provided with your EASZ-1 is unique, and MUST be used to communicate with the EASZ-1. All other commercially available RS232 Serial cables will NOT work.*
- *If you are using a laptop computer, you may need a Serial to USB Converter (such as that sold by RadioShack) in conjunction with the Serial Interface Cable.*



2. Before opening the EASZ-1, please touch the pipe with both hands at the same time to reduce static electricity, and then remove the lid from the EASZ-1.
3. Apply the 12/24 VDC power to the EASZ-1
4. Connect the flat connector on the Serial Interface Cable to the J7 connector on the EASZ-1 electronics board
5. Power up your PC and click on “Start/All Programs/Accessories/Communications/ HyperTerminal” then in the sub menu click on EASZ-1.ht.
6. At the beginning of the calibration procedure it is necessary to issue a “store” command. Once the HyperTerminal screen appears, simply type “store” and the EASZ-1 will respond with “OK”. The properties of the fluid passing through the EASZ-1 have been saved in internal memory.
7. When the lab report returns with the moisture content of your hand drawn sample, it is necessary to enter this information by entering “calX.XX” where X.XX is replaced with the value provided by your laboratory analysis. In our example above, the X.XX will be replaced with 0.05, resulting in a command of “cal0.05”
8. Once the calX.XX has been entered, the EASZ-1 will respond with OK, and the EASZ-1 will start displaying calibrated values.

Congratulations you have successfully calibrated your EASZ-1.

RECALIBRATION

The EASZ-1 employs state of the art electronics which do not exhibit long term drift, and should accurately report water in oil content for a very long period of time. However, if the properties of your oil change enough to affect it's dielectric constant, then the above calibration procedure should be repeated as required.