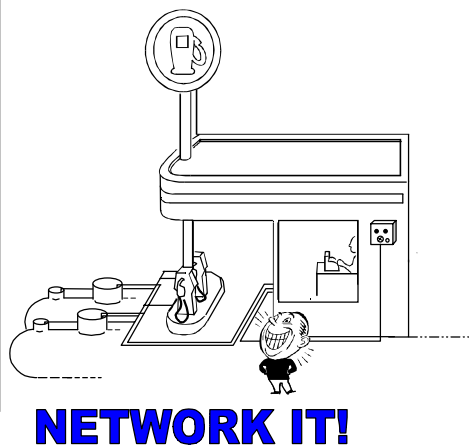
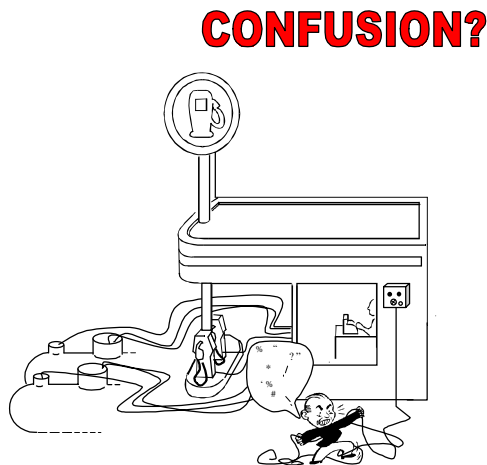


How easily can you upgrade and modify your existing tank gauging system?

Changing environmental regulations and expanding sites have encouraged tank gauging and leak detection equipment manufacturing engineers to re-evaluate the flexibility of their equipment. Advanced technology has given us the opportunity to better equip our customers.



In the world of tank gauging and leak detection, one of the most frustrating problems is the accommodation of new equipment or expandability to meet new requirements. Site owners are continually pressed to look at this problem. As a site owner, have you ever replaced the technology you had to accommodate a new feature or requirement?

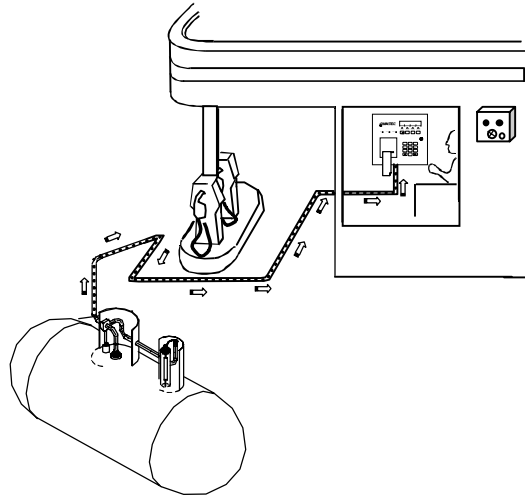
Research in the petroleum industry has identified three key problems.

1. Will it be physically and technically possible to add new equipment to an existing site?
2. Can your system meet the needs of changing environmental requirements?
3. Installation costs associated with new sites or retrofits.

A lack of flexibility and expansion ability in tank gauging and leak detection systems has resulted in costly retrofitting and or replacement equipment. New regulations, such as in-station diagnostics (ISD), which require the monitoring of dispenser hoses and the pressure of vapors in tanks have created a demand for systems that can accommodate these changes without having to add new equipment, new console modules, modified equipment, additional cable runs, additional conduit runs, or worse, entire new systems.

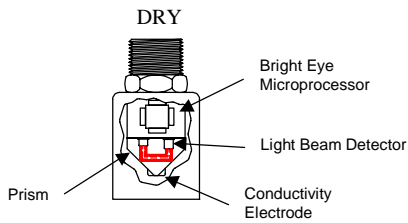
While researching the electrical architecture and intrinsic safety restrictions of European markets, it became apparent that finding a way to network multiple monitoring points along one cable run would greatly expand the flexibility and adaptability of leak detection systems as we now know them. In addition, networking technology will allow us to build smaller, more accommodating consoles. Keeping this advantage in mind, networking would make it easier to add new accessories to existing systems. For instance, one of the sites we analyzed in Spain had six tanks on site which required six magnetostrictive probe cables, six interstitial sensor cables, six sump sensor cables and six dispenser pump sensor cables. Cable runs for this one site were a minimum of 24 and ran anywhere from 30 to 50! By networking probes and sensors, sites like this one are easily wired and can be monitored off one control system. What typically would have required 18 sensor cables for a 6-tank system now would only require one! Think of the cost advantages in reduced conduit runs, cable runs, and overall installation time.

Networking requires 4-wire buss technology that allows multiple sensors to transmit signals off a common 4-wire run. Most importantly, a sensor with microprocessor technology is able to send the controller information unique to its location and function. Simply put, a product distinguishing piping sump sensor at tank #5 can identify itself to the controller as such and indicate its status (see illustration).

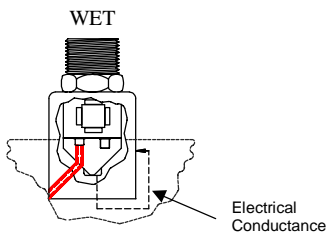


Print-out of information sent to controller from the microprocessor based sensor

S#	P/N	LABEL	TEST
01	BX-LS	T1, Dispenser#1	P
02	BX-LWF	T1, Doublewa#1	P
03	BX-PDS	T2, Sump#1	P
...			
42	BX-PDWS	T6, Doublewa#6	P
43	BX-PDWF	T7, Doublewa#6	P
44	BX-RES	T8, Reservoir#6	P
S#=SENSOR NUMBER, P/N=PART NUMBER			
T=TANK, P=PASS, A=ALARM, F=FAIL			



Electro-optic sensors use a beam of light that travels to a prism in the sensor which is bent and returned to the controller creating a normal operating signal. When liquid is present at the prism the light beam is refracted therefore cutting the signal to the controller creating an alarm condition. With the addition of a conductive electrode the optic sensor is able to determine whether the liquid is water or product.



With network and 4-wire technology being introduced to the electro-optic sensing market (Bright Eye series optic sensors by Omntec), we will one day be able to adapt to other markets using the same four wires and combine vapor sensing, pressure sensing and almost any sensing technology available. Bright Eye Series sensors have been third party certified by Ken Wilcox Assoc., Inc. for use in petroleum applications, field-tested by OMNTEC and is listed for safety by UL, ULC and Cenelec.

Principles of Operation

It has been the objective of the engineering team at Omntec to make 4-wire technology the main thoroughfare for the leak sensing world, thereby helping to answer those three key concerns – expandability, flexibility and reduced installation costs for both new or existing systems.

“Approximately \$1,700.00 can be saved in conduit, miscellaneous fittings and labor.”

Jim Sear – Service Manager
Fenley & Nicol Environmental

“Savings for a typical three tank installation would run about \$2,000.00.”

Allen Redmond – Electrical Estimator
Tyree Organization