ALLEGATO 1

Document No. 33-09736
4/92

T. 5241
T. 5242
+
SERBATOI BLENDING

VAREC®

MODEL 4100

MULTIFUNCTION TRANSMITTER

(MFT)

INSTRUCTION MANUAL

Section 6 Specifications and Reference Data

SPECIFICATIONS AND PHYSICAL CHARACTERISTICS

The following specifications apply to the Varec 4100 Multifunction Transmitter (MFT) assembly over the operating temperature range.

Environmental

Temperature	-40 °C to +85 °C (operating)
Humidity	-0 to 95% (non-condensing)
Transient Lightning	Meets ANSII/IEEE C62.41
EMI	Meets SAMA 33.1C
Vibration Shock	Meets SAMA PMC 31.1

Physical

Housing	Aluminum NEMA 4X, NEMA 7
Bolts	Plated carbon steel per ASTM A449, Grade 2
Paint	Epoxy-polyester

Input Power Parameters

Input Voltage	22 to 65 VDC
Fusing	Internal
Efficiency	85% minimum
Earth Isolation	2500 VRMS
Short Circuit Protection	Infinite Duration (any/all outputs)

Input Power Wiring

The power wiring can be run from the 48 VDC power supply to a number of MFTs. The size of the wire required for distributing power is dependent on the total number of MFTs on the power bus as well as the total length of wire powering the system. Table 6-1 indicates the resistivity (in ohms/1000 ft) of the wire commonly used for power distribution. The following formula provides a way of calculating the maximum permitted power wiring resistivity for a given distance and number of units.

$$R_{Ohms/1000\ ft} = \frac{150{,}000}{\text{Avg Distance (ft)} \times (\#\ \text{Units})}$$

Where:

Avg Distance = The average length of the power wiring to all units on the power bus

Units = Total number of units (MFTs) attached to the power bus

To determine the minimum wire size:

1. Calculate the resistivity using the formula indicated above.
2. Locate the largest resistivity value in Table 6-1 which is less than the resistivity calculated in step 1.
3. The wire gauge corresponding to this resistivity is the smallest wire which may be used to power the system.

Table 6-1 Wire Size vs Resistivity

Gauge Wire	Resistivity $Ohms/_{1000\ ft}$
20	12.35
18	7.765
16	4.884
14	3.071
12	1.931
10	1.215

Isolated Group Output Parameters

Field Isolation	2500 VRMS
+5 VDC Nominal	4.9 to 5.3 VDC, 50 to 150 mA
+24 VDC Nominal	23.5 to 24.5 VDC, 1 to 60 mA

Field Group Output Parameters

+12 VDC Nominal	11.3 to 12.7 VDC, 5 to 50 mA
+5 VDC Nominal	4.9 to 5.3 VDC, 1 to 100 mA

RTD Temperature Measurement

RTD Type	100 Ohm, Platinum DIN or Copper
Measure Type	3-Wire
Wiring Resistance	20 Ohm per lead, maximum leads matched to ±0.1 Ohm
Accuracy at Ambient	+/- 0.2 °F
Display/Data Units	Fahrenheit or Celsius
Calibration	none

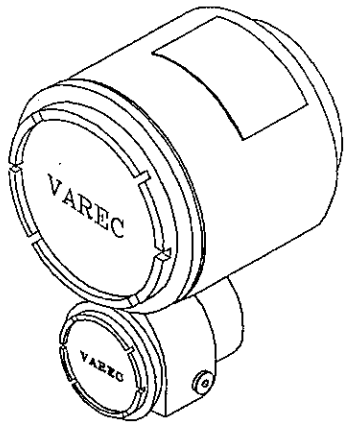
IOM072GVAE1004

4110 HART® Level Encoder

Precision measuring instrument for transmission of level measurement from mechanical float gauges

Varec®

Installation and Operations Manual



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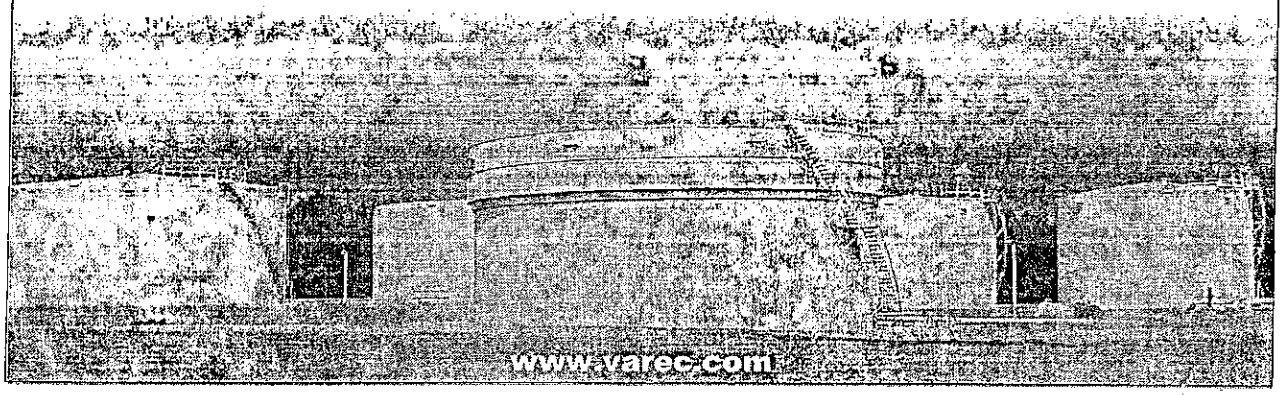


Varec, Inc.
5834 Peachtree Corners East, Norcross (Atlanta), GA 30092 USA
Tel: +1 (770) 447-9202 Fax: +1 (770) 662-8939

5 Specifications and Reference Data

5.1 General Information

Manufacturer	Varec, Inc.
Instrument designation	4110 HART® LE
Function	Function
Power Input	18 VDC nominal 12.5 VDC minimum 30 VDC maximum
Power supply	HART® Master
Power consumption	8 mA nominal @ 18 VDC (0.13 W)
Encoder type	Optical incremental
Sensor arrays	Two (2) fixed position, infrared
Battery operation	10 x 24 hours - maximum
Battery shelf life	Ten (10) years
Communications	Hart 5.0 digital compliant

5.2 Certification & Approvals

FM	Explosion Proof Class I, Div. 1, Groups C & D I.S for Class I, Div 1, Group A through G
CSA	Class 1, Groups C & D, Class II, Groups E, F & G, Class III,

5.3 Environmental

Operating temperature	-40 to 85 °C (-40 to 185 °F)
Surge protection	Meets or exceeds ANSI/IEEE 62.41

5.4 Performance Specifications

Encoder range	0 to 128 ft (0 to 39 m)
Encoder accuracy	0.04" (1 mm)
Communications range	Maximum 1000ft to 4200 MFT
Encoder resolution	0.04" (1 mm)
Rotational speed	1000 RPM @ 100% accuracy without losing synchronization with the level gauge

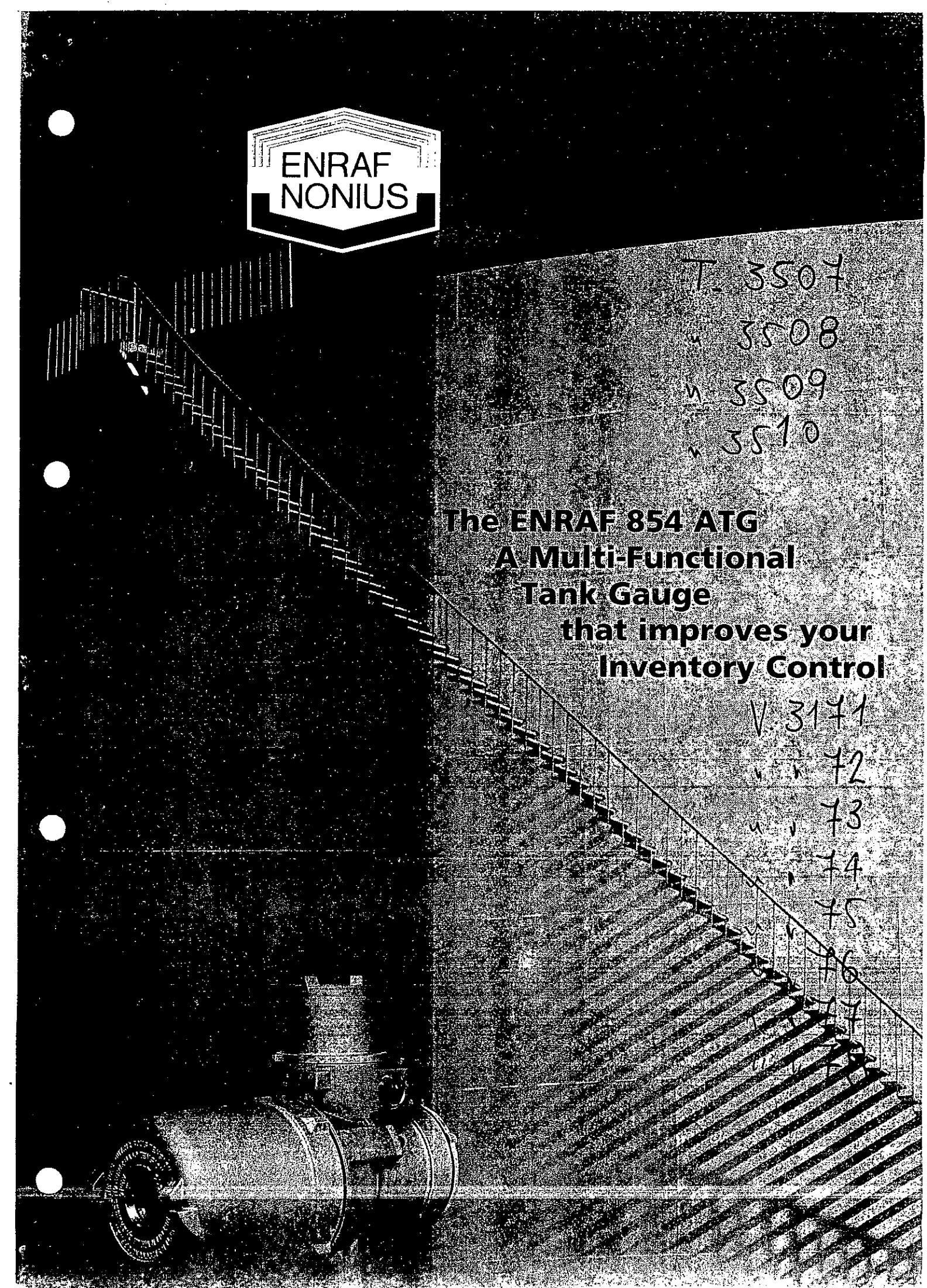
ALLEGATO 2

ENRAF NONIUS

T-3507
" 3508
" 3509
" 3510

The ENRAF 854 ATG
A Multi-Functional Tank Gauge that improves your Inventory Control

V 3171
" " 72
" " 73
" " 74
" " 75
" " 76
" " 77
" " 78



SFERE GPL

V-3171 (INTERRATO)
V-3172
V-3173
V-3174
V-3175
V-3176 (INTERRATO)
V-3177
V-3178

SERBATOI DEPOSITO

T-3507
T-3508
T-3509
T-3510

Introduction

The ENRAF series 854 Advanced Technology Gauge (ATG) is a microprocessor controlled tank gauge which accurately measures the liquid level, one or two interface levels, product density and, using additional transmitters, even the temperature of the product. In addition, the 854 ATG can provide programmable level alarm outputs and can be completed with alarm relay contacts for, for example, mixer and pump control.

All data is transmitted digitally via the 2-wire ENRAF field bus, which uses standard twisted communication cables. Shielding is not required. Remote indication is possible via the ENTIS receiving system, individual field indicators, panel mounted indicators or via third party systems (ICS and DCS) through ENRAF Interface Units.
An additional 4-20 mA analog output signal can be provided as an option.

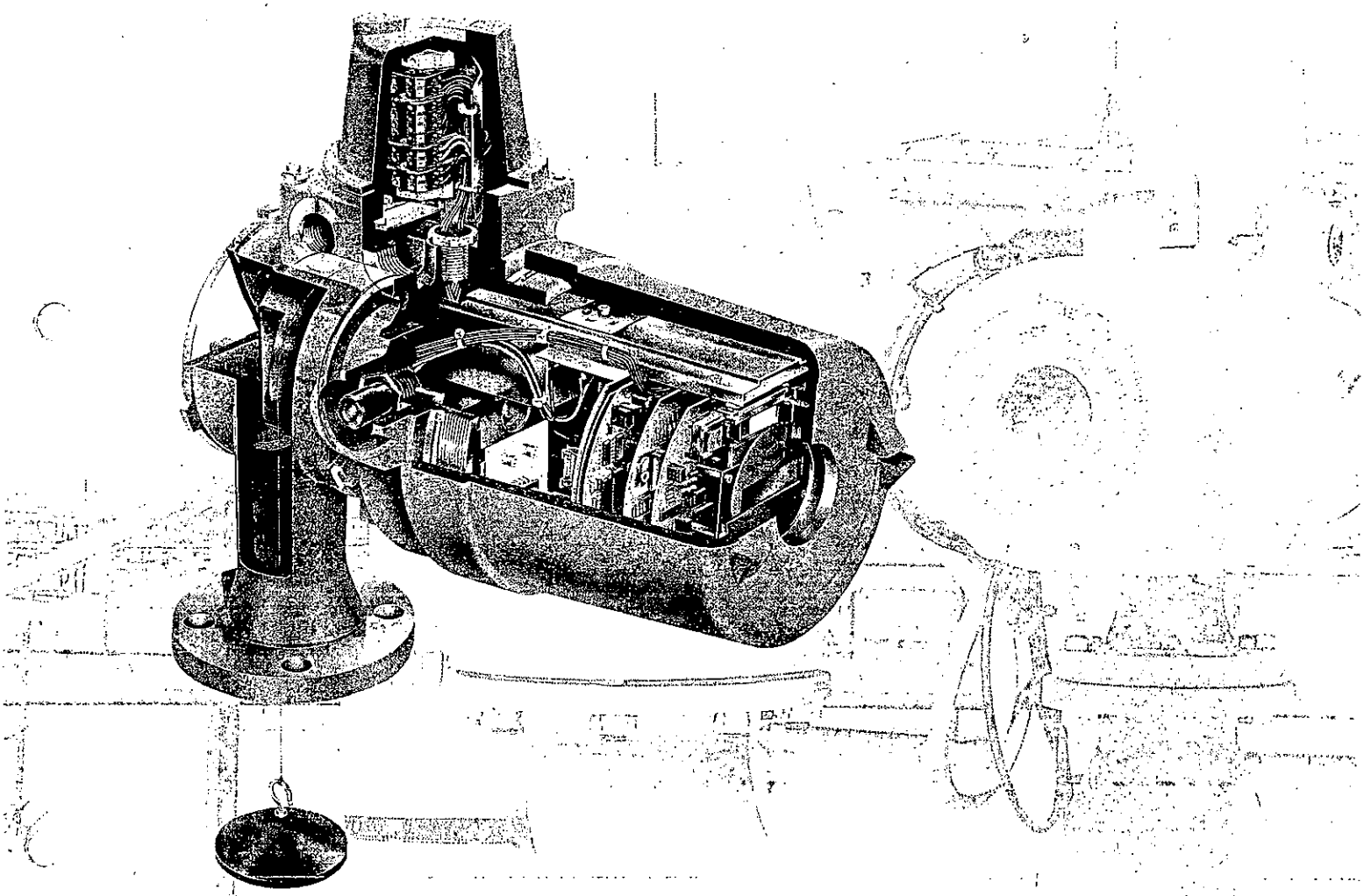
The measuring accuracy of the 854 ATG is superior to what has been available until now for tank farms. The use of microprocessors in the gauge allows accurate average level measurement to be made during product turbulence. Errors, caused by variations in the measuring system, are corrected and compensation made for changes in reference height of the measurement due to hydrostatic tank deformation.
The accuracy of the 854 ATG therefore exceeds the international requirements for custody transfer, confirmed by acceptance by Customs & Excise and official Weights & Measures certification.
The 854 ATG is approved by all major testing authorities as explosion proof. Extra safety is provided by special lightning protection barriers on all inputs and outputs. No electrical circuits are used inside the tank atmosphere, in compliance with the latest safety recommendations.
Installation of the 854 ATG is simple and inexpensive. The instrument has a 2" mounting flange and weighs only 17 kg.
To cope with different storage applications, there are three 854 ATG models available with different materials for the compartment which comes in contact with the product fumes, namely an aluminum version for tanks with operating pressures up to 6 bar, a stainless steel low pressure version for chemical and sanitary applications, for example, and a 25 bar high pressure version for measurement of liquified gases.

Operating Principle

An electronic force transducer, the resolution and durability of which has been proven in industrial weighing bridges, continuously measures the buoyancy of a small solid PTFE displacer positioned at the surface of the liquid. Variations of just 0.1 mm in level are detected by the transducer, which causes a microprocessor to respond and control a servo system to raise or lower the displacer until it is correctly positioned at the liquid surface. Prior to energizing the servo, the microprocessor verifies whether the variation in buoyancy is the result of a permanent level movement or due to surface turbulence. The servo system can move the displacer in steps of 0.005 mm, each step incrementing a level buffer by one. The servo system and its movements are continuously checked for correct operation.
The displacer can be positioned at the interface level between two liquids in a similar way to being positioned at the liquid level (or product/vapour interface), enabling free water in a tank to be quickly detected, for example. Accurately determining the weight of the displacer when it is completely immersed, provides a unique method for determining the density of the product stored in a tank.

Features

The 854 ATG is modularly constructed, using control units common to other ENRAF instruments. Each 854 ATG is prepared for the options described below.
A Temperature Processor Unit (TPU) can be fitted as an option, which converts and digitizes analog temperature data from Enraf spot resistance thermometer detectors (RTD). The TPU is available intrinsically safe certified EExd ib IIc, for temperature detectors installed in a thermo-well outside the tank vapour space, or EExd ia IIc, for temperature sensors installed in the tank vapour space (zone 0), such as our TRITEMP thermometers.



For average temperature measurement, a Multi-element Processor Unit (MPU) and Series 862 MIR/MIT selector box are required. The MPU controls and supplies the external 862 MIR/MIT, which selects the correct element of a multi-thermometer assembly and connects it through to the MPU.
As an option, the MPU can provide an analog 4-20 mA level signal (external supply), either combined with average temperature measurement or apart.

Each 854 ATG has 4 programmable level alarms (software alarms) as standard. A Servo Processor Unit II, which has 2 programmable alarm relays, can be delivered as an extra.

Another unique option for the 854 ATG is product density measurement. If this option was not specified at the time of ordering, upgrading is possible at a later date by installing a density displacer and EPROMs containing the density measurement program.

Benefits

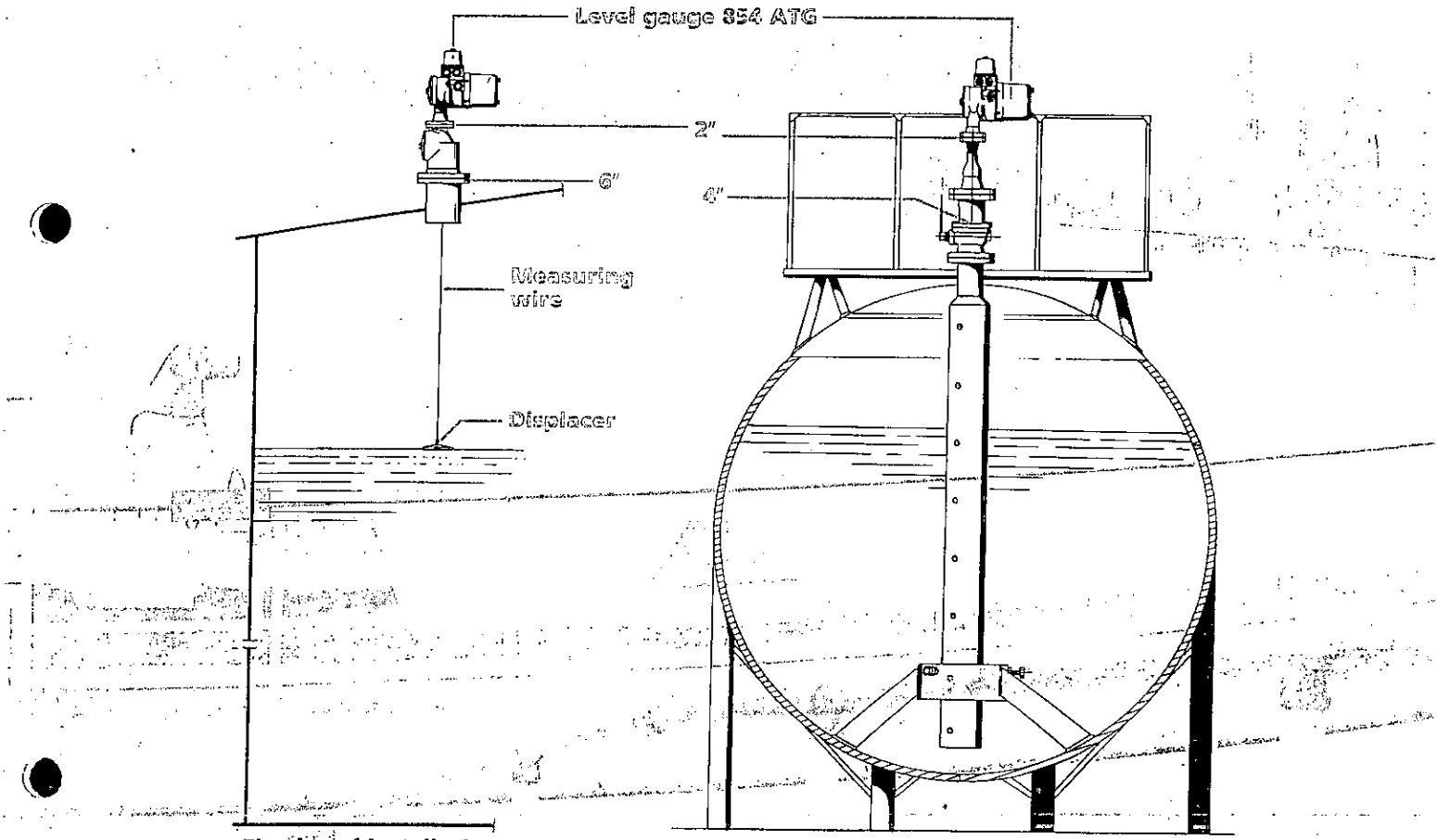
- Multi-functional instrument
- Accurate measurements can be made without standpipes thanks to tank deformation compensation
- Automatic correction for tank deformation, roof movement, drum deviation, wire weight and displacer size
- Level accuracy better than ± 1 mm
- Interface accuracy better than ± 2mm
- Temperature accuracy better than ± 0.2 °C
- Density accuracy better than ± 5 kg/m³
- Level alarm accuracy better than ± 0.1 mm
- Field calibration and checking without opening the instrument
- Automatic calibration of top reference position
- Remote repeatability test
- 2-wire transmission bus
- Effective lightning protection through isolation transformers
- MTBF more than 10 years

Commissioning

A robust portable communicating terminal, called 847 PET, has been developed for the new series of smart tank gauging instruments. The instrument engineer can program and read all instruments via the optical infra-red port, without interfering with central systems operation. The 847 PET has a rechargeable battery, full ASCII keyboard (which really can be used when wearing gloves) and displays data on its 4-line LCD display. The 847 PET is waterproof and certified explosion proof.

Construction

The compact 854 ATG is composed of two parts; the drum compartment and the instrument compartment.
The drum compartment has a convenient 2" or 50 mm mounting flange and a screw-on cover. It contains the construction is gas-tight, preventing product vapours escaping or entering the instrument compartment.
The instrument compartment has an integral terminal box, which also has a screw-on cover and threaded cable entries. A window in the instrument compartment cover allows local indications to be read and an infra-red coupling is provided for the 847 PET (Portable Enraf Terminal). The instrument compartment houses the force transducer with stepping motor unit and backplane with supply transformer. The backplane is fitted with connectors for control boards, such as the Gauge Power Unit, Servo Processor Unit, and Transmission Processor Unit. A spare connector is available for an optional Temperature Processor Unit, Multi-element Processor Unit or Hydrostatic Processor Unit.
The 854 ATG is weather-proof and explosion-proof and certified by such authorities as PTB (Cenelec), Factory [illegible] (USA), SAA (Australia), etc.



Fixed roof installation

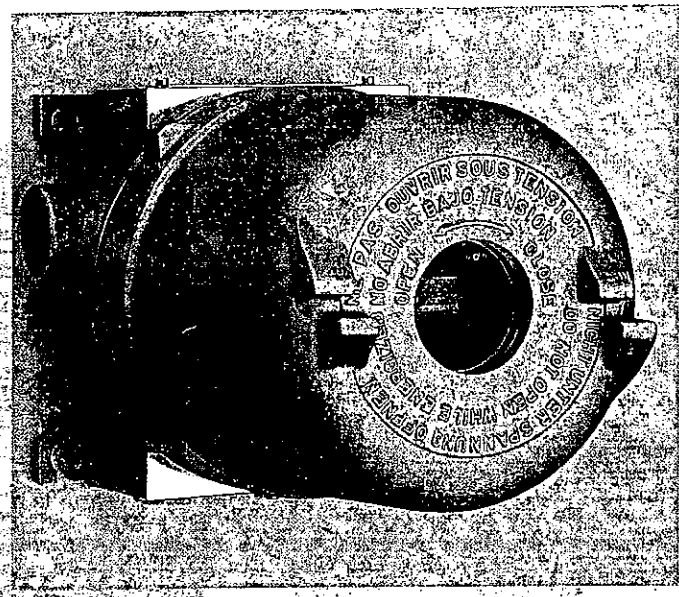
Sphere mounting

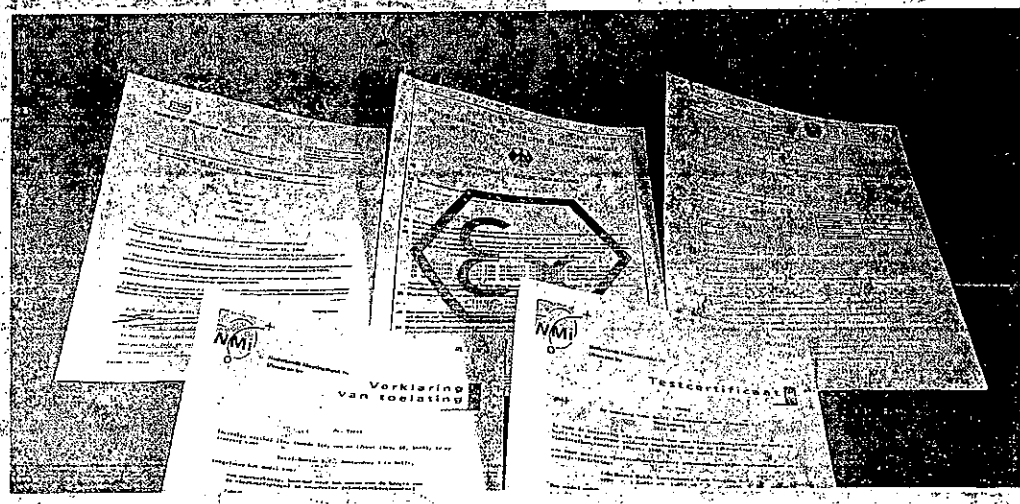
Installation

ENRAF 854 ATGs have a 2" or 50 mm mounting flange so that all you need for a tank gauging installation is a corresponding flange on your storage tank. When being used to replace older ENRAF gauges or being installed on larger flanges, an adapter can be furnished. This adapter has a removable cover for inspection and installation of the displacer and has a calibration end stop for simple, but reliable, recalibration of the 854 ATG from the control room.

Each 854 ATG is equipped with a programmable turbulence integration circuit as standard, making it possible to use the gauges with freely suspended displacers on tanks with turbulent liquids. The microprocessor system can compensate for known hydrostatic tank deformation. For tanks with excessive product turbulence or deformation, installing the level gauge on a support pipe firmly connected to the zero reference position of the tank is recommended. For floating roof tanks, the guide pole, when properly supported, is very suitable for installation of the gauge. Our staff and distributors will be pleased to assist you in determining the best installation methods. A detailed engineering note, describing various recommended mounting techniques, is freely available from Delft Instruments Tank Gauging or any of our sales offices and worldwide distributors.

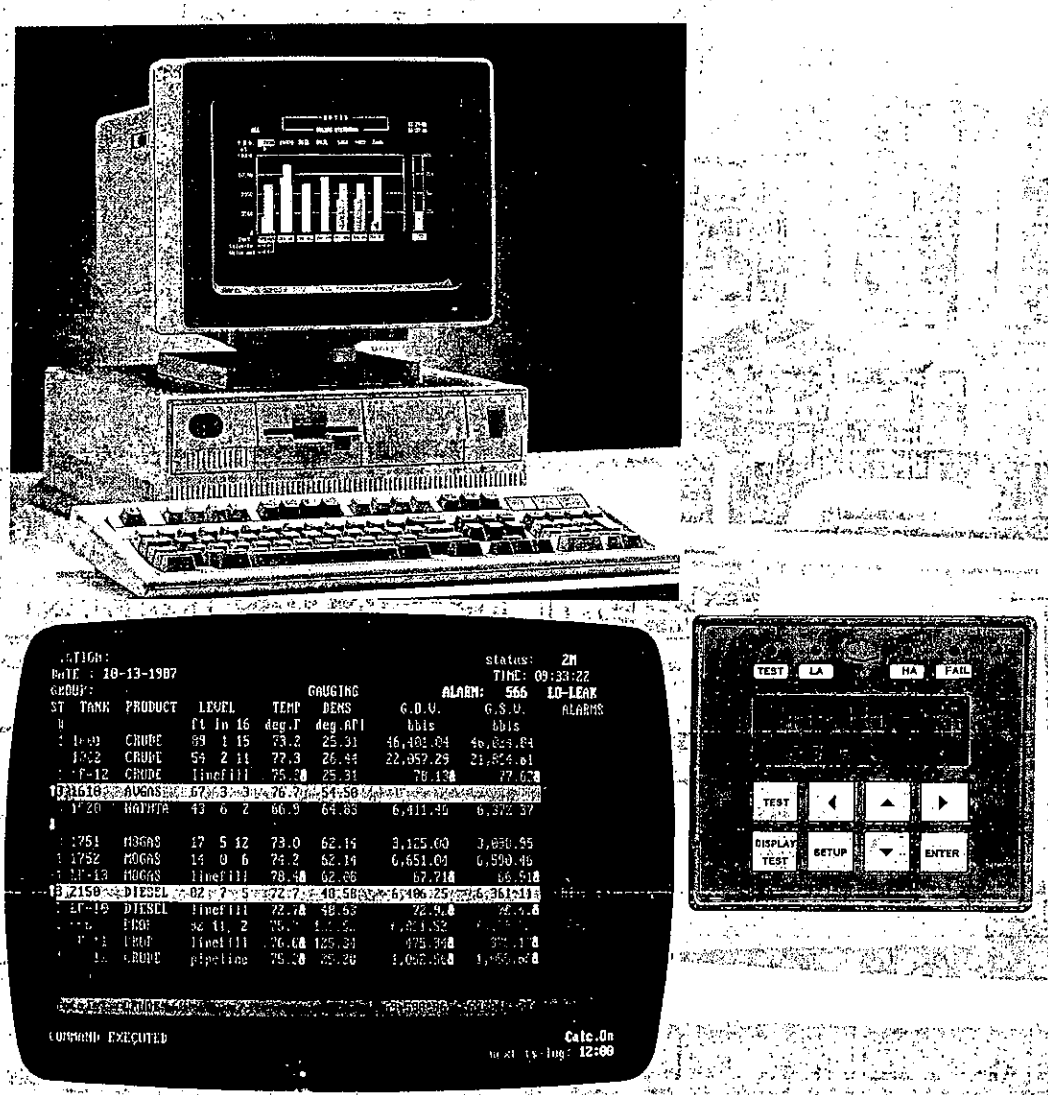
Transmission and power supply requires 2 pairs of conductors, which can be shared with other ENRAF instruments. Shielding of the cables is not required. Using common telecommunication cable, transmission over distances of 10 km or more are possible.





Accuracy

The accuracy of the level measurement is better than 1 mm for an 854 ATG with a standard 90 mm displacer. Interface levels between products with a density difference of 100 kg/m^3, or greater, can be measured with an accuracy of 2 mm. The instrument resolution and sensitivity are 0.1 mm. The accuracy of the built-in



temperature processors is 0.2 °C. Product densities can be measured with an accuracy of 5 kg/m^3.
The level and temperature measurements of the 854 ATG have been approved and certified by the authorities for Weights & Measures in the Netherlands (NMI-IJkwezen) and Germany (PTB). Many other approvals are pending.

Technical Data 854 ATG.

Measuring performance		
Measuring range	:	0-27,000 mm (standard) 0-37,000 mm (optional) for extended ranges consult factory.
Measuring accuracy	:	± 1 mm*
Sensitivity	:	± 0.1 mm*
Repeatability	:	0.1 mm*
Measuring accuracy (interface)	:	± 2 mm**
Measuring accuracy (density)	:	± 5 kg/m³***
Measuring accuracy (temp.)	:	± 0.2 °C****
Level tracking speed	:	max 40 mm/s.
Wave integration time	:	programmable, 3 set points, between 0.5 and 10 sec.
	*	For an 854 ATG under reference conditions i.e. equipped with a 90 mm displacer gauging a product with a density of 800 kg/m³.
	**	Product difference 100 kg/m³
	***	For an 854 ATG equipped with density displacer and calibrated for density measurements. (optional)
	****	for an 854 ATG equipped with a TPU or MPU/862MIR-MIT A/D convertor.
Construction		
Operating pressure	:	Medium pressure aluminum (M) and stainless steel (C) versions: 6 bar (600 kPa). High pressure stainless steel (H) version: 40 bar (4,000 kPa).
Ambient operating temp.	:	–40 °C to +85 °C
Electrical		
Power supply	:	110/130/220/240 V, 50/60 Hz.
Rating	:	25 VA, I max. 2 A.
Permissible voltage variations	:	+ 10% to –20%
Permissible frequency variations	:	45 Hz to 65 Hz.
Level Alarms	:	4 pcs programmable over entire measuring range.
Alarm hysteresis	:	programmable 0.1 mm.
Cable entries	:	3 pcs 3/4" NPT threaded. Adaptors to fit other sizes optionally available.
Transmission		
Type	:	serial, ASCII coded, bi-phase mark modulated (BPM).
Protection	:	Longitudinal Block Check Character + parity.
Protocol	:	Enraf GPU.
Common mode rejection	:	> 150 dB.
Baudrate	:	1200/2400 Baud selectable.
Transmission to 847 PET	:	infra-red, serial.
Cabling	:	2-conductors, twisted pair, $R_{max.}$ 400 Ω (loop), C_{max} 1 µF.
Isolating voltage	:	> 1,500 V.
Lightning protection	:	full galvanic isolation of all field inputs and outputs via isolation transformers.
Safety		
854 ATG tank gauge (all models)	:	Explosionproof. EEx de [ib] IIB T6 in accordance with Cenelec EN 50.018 and EN 50.020 certified by PTB Germany. Class I Div. 1 Groups B, C & D areas according to NFPA No. 70 certified by Factory Mutual Research USA.
Temperature gauging circuits	:	intrinsically safe EExd ib IIc
Materials All models;		
Servo compartment and cover	:	Cast aluminum G.Al. Si7MgWa (material No. 3.2371.61) A356 acc. AA norm.
Drum compartment:		
Medium pressure Aluminum version	:	Cast aluminum G.Al. Si7MgWa (material No. 3.2371.61) A356 acc. AA norm.
Measuring drum, drum shaft and magnet separation cap	:	Stainless steel AISI 316 (material No. 1.4401)
Medium & High pressure version	:	Stainless steel AISI 316 G-X2CrNiMo 18-15 (material No. 1.3953)
Measuring drum and drum shaft (Magnet separation cap integral part of drum compt.)	:	Stainless steel AISI 316 (material No. 1.4401)
Measuring wire	:	Stainless steel AISI 316 (standard) Optional: Hasteloy C4, Tantalum
O-rings	:	Viton.

Delft Instruments Tank Gauging BV is an operating company of Delft Instruments NV, which was formed in 1990 through a merger between two Dutch companies: Enraf-Nonius and Oldelft Groep NV.

delft instruments tank gauging

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2624 BD Delft
Tel 015-69 86 00
Fax: 015-61 95 74
Telex: 38083
P.O. Box 812
2600 AV Delft
The Netherlands

USA: Enraf-Nonius Tank Inventory Systems Inc., 12503 Exchange Drive, #536 Stafford, TX 77477, Tel: (713) 240 1001, Fax: (713) 240 9108, Tlx: 774132

Germany: Enraf-Nonius GmbH, Postfach 101023, D-5650 Solingen-1 Tel: (0212) 58750, Fax: (0212) 587549, Tlx: 8514749

France: Enraf-Nonius France S.A., 28 Ter Avenue de Versailles, 93220 Gagny, Tel: (01)45090404, Fax: (01) 45092287, Tlx: 232870

854 5k Wvt 9110 E

ALLEGATO 3

MANUALE
D'USO E MANUTENZIONE

TRASMETTITORE DI LIVELLO "ARCHIMEDE"

STG 770

TRASMETTITORE

DI LIVELLO

SERVOAZIONATO

VERSIONE - 2.0

REVISIONE - 2.2

EDIZIONE: MAGGIO 1997

LIVELLI MONTATI SU :

* T - 3310
* T - 3311
* T - 3312
* T - 3313
* T - 3314
* T - 3315
* T - 3316
* T - 3317

WHESSOE VAREC CGAI
20125 - MILANO - ITALIA
VIA VILLA MIRABELLO, 6
TELEFONO: 02/66800149
TELEFAX : 02/66800477

3.0 - COMPOSIZIONE DELL'APPARECCHIATURA

La fornitura completa della macchina è composta dai seguenti pezzi:

(Riferimenti relativi alla figura riportata nella pagina seguente)

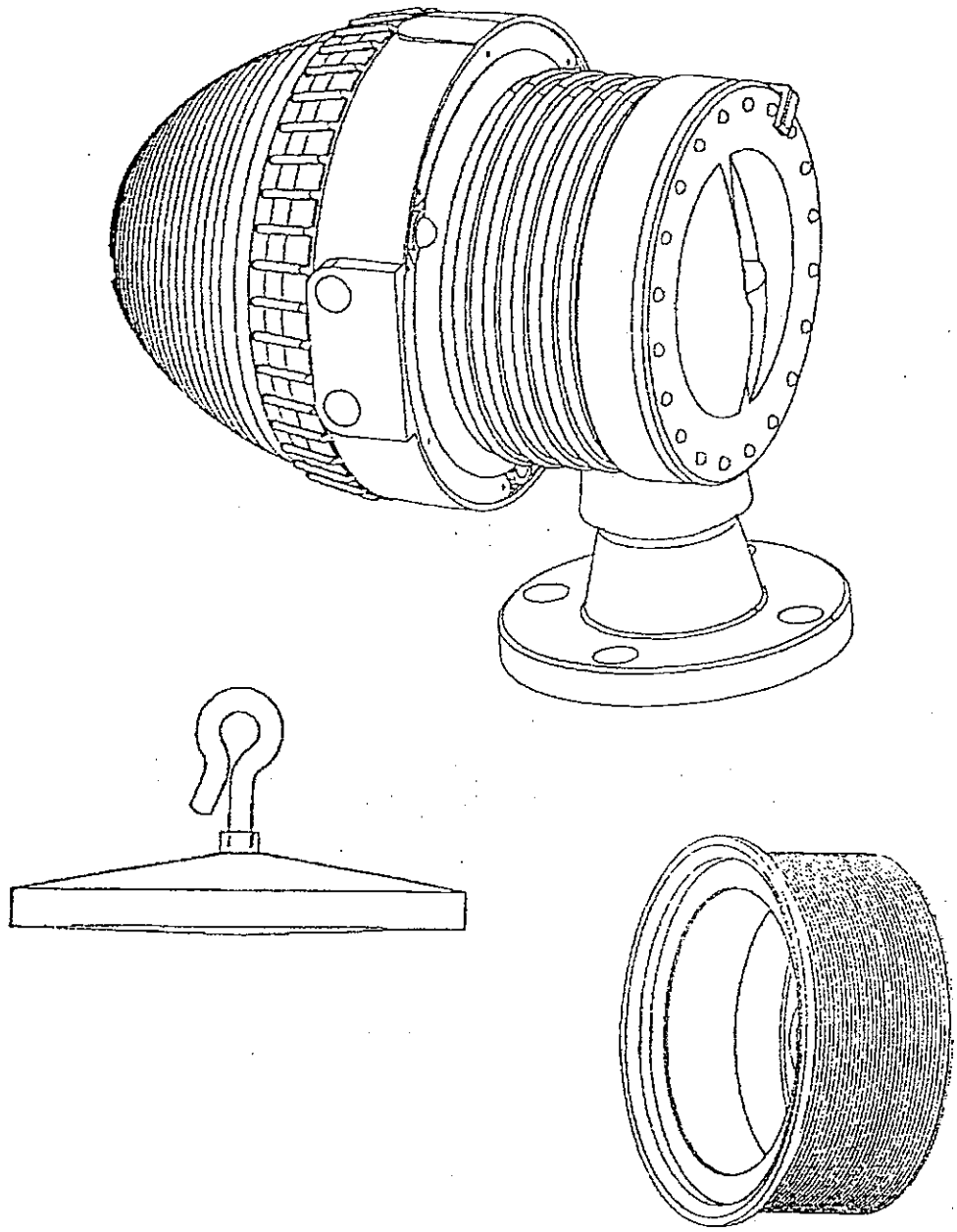
- N. 1 Corpo dello strumento - **(Rif. 1)**
- N. 1 Tamburo con avvolto filo di misura - **(Rif. 2)**
- N. 1 Dislocatore - **(Rif. 3)**
- N. 1 Documento attestante il Tipo di Certificazione.
- N. 1 Manuale d'uso e manutenzione redatto nella lingua dell'utilizzatore.

AVVERTENZA:

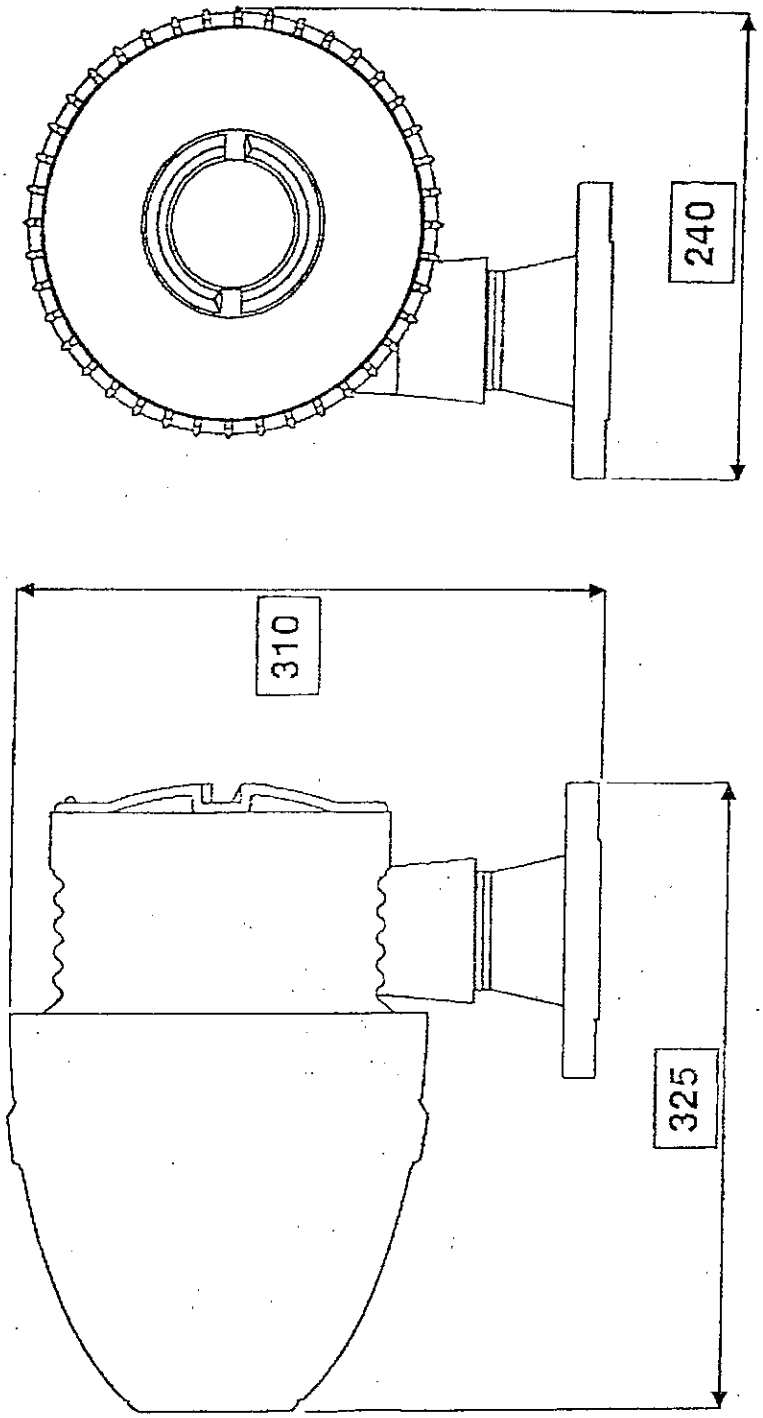
verificare la perfetta integrità di tutti i componenti prima di procedere all'installazione.

3.0 - COMPOSIZIONE DELL'APPARECCHIATURA

Figura.

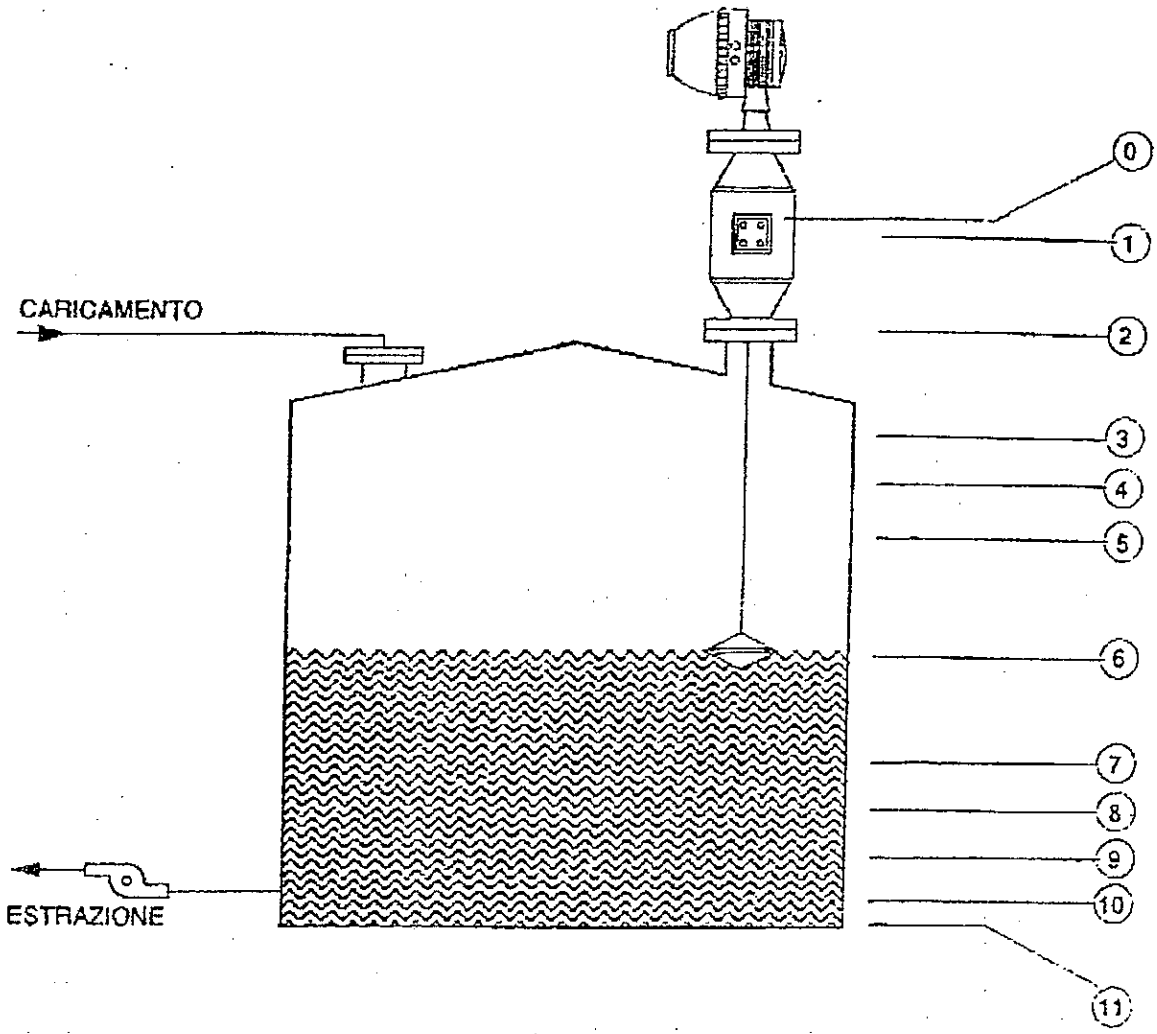


- 3.1 - DIMENSIONI D'INGOMBRO



8.0 - INSTALLAZIONE

- FIGURA EE.



0. Portello inferiore e inserimento dislocatore
1. Riferimento superiore (eventuale)
2. Limite calcolo correzione dilatazione
3. Massimo riempimento (fondo scala)
4. HHLA Allarme ALTISSIMO LIVELLO
5. HLA Allarme ALTO LIVELLO
6. Livello attuale (uso del procedimento di calibrazione)
7. Limite della correzione deformazione idrostatica
8. LA Allarme BASSO LIVELLO
9. LLA Allarme BASSISSIMO LIVELLO
10. Riferimento di zero (COMANDO BINDELLA M.)
11. Parte non misurabile ma di valore noto

5.0 - CARATTERISTICHE TECNICHE

- 5.1. - ALCUNE CARATTERISTICHE PECULIARI.

- Trasmettitore servoazionato: livello, temperatura, interfase, densità, pressione, allarmi.
- Sostanziale riduzione dei tempi di manutenzione grazie anche all'alto grado di ingegnerizzazione che ha consentito di eliminare quasi tutti gli organi soggetti a usura manutenzione e ha ridotto i tempi di smontaggio e rimontaggio.
- Trasmissione su 2 fili.
- Bassa tensione di alimentazione 48 V 50 Hz oppure 24 V cc. (anche da celle solari o da generatore eolico).
- Facile trasportabilità e montaggio grazie al suo ridottissimo peso da 9,5 a 16 Kg. (in funzione della versione scelta).
- Test a distanza da sistema di acquisizione dati Salt Salomon o da indicatore G 221.
- Elevato livello architettonico di design industriale.
- Progettazione e costruzione per un bassissimo valore di MTTR (25') e di un altissimo valore di MTBF (superiore a 12 anni).
- Basso consumo di energia 22 V A.
- Circuiti elettrici totalmente isolati verso alimentazione, verso l'uscita e verso le linee di misura della pressione e della temperatura.
- Elevato grado di sovradimensionamento dell'accoppiamento magnetico di tipo ceramico.
- Totale progettazione di parti e strutture per mezzo di computer CAD/CAM.

- 5.2. - CARATTERISTICHE FUNZIONALI E TECNICHE.

(Misure con dislocatore di 110 mm.).

- Precisione	: + - 0,8 mm.
- Sensibilità	: + 0,1 mm.
- Ripetibilità	: 0,1 mm.
- Isteresi totale max	: + 0,2 mm.
- Velocità di misura	: 300 - 2.600 mm/min.
- Campo di misura	: 0 - 26.000 mm.
- Alimentazione elettrica	: 48 V AC 50 Hz + - 15%; 24 V CC + - 10%
- Consumo	: 22 V A max
- Temperatura immagazzinamento	: ..... C°
- Trasmissione	: Seriale
- Baudrate	: 300 - 19.200 baud programmabile software
- Protezione elettrica	: Fusibile 1A ritardato
- Protezione software	: .....
- Isolamento	: 2.500 V.
- Separazione	: Galvanica su alim. uscita e sulle altre variabili.

5.0 - CARATTERISTICHE TECNICHE

- Protocollo trasmissione : .....
- Segnale per e da stazione : Seriale, con connettore fibra ottica.
- Cavo trasmissione : 2 fili + schermo.
- Set points allarmi livello 4 : HH, H, LO, LOLO.
- Differenziale di allarme livello : Fisso.
- Set points allarmi pressione 2 : H, LO.
- Isteresi di allarme pressione : Programmabile.
- Set points allarmi temperatura 2 : H, LO.
- Isteresi di allarme temperatura : Programmabile.
- Set points limiti motore 2 : Programmabili corrispondenti a HH - LOLO.
- Attacchi per connessioni elettriche 5, 1/2" NPT -F + connettore per attacco f.o.
- Allarme di perdita.
- Controllo movimentazione in atto.
- 1 uscita seriale in current loop.
- 1 uscita seriale commutabile C.L./RS232/RS485.

- 5.3. - MATERIALI.

- Lato processo : AISI 316G x 2 Ce Ni Mo 18 - 15 o GALSI 5 UNI 3.600 o ASTM A105, (Acc. C.).
- Lato trasmissione : GALSI 5 UNI 3.600 (lega alluminio).
- Esecuzione : A prova di esplosione secondo norme Europee CENELEC GR. IIA IIB - classe di temp. T6 con Certificato CESI.
- Tamburo di misura : Lega alluminio UNI 3571 indurito al corindone Optional: AISI 316.
- Filo di misura : AISI 316 STD; Optional: PTFE, HASTELLOY C, INVAR.
- Guarnizioni : (O - rings) - Perbunan nitrile (BUNAN), VITON. Optional: PTFE
- Cuscinetti : Tamburo grafite rinforzato PTFE/c.
- Magnete (accoppiamento) : Ndm a 6 poli.
- Asse tamburo : AISI 316.
- Campana separazione magnetica : AISI 316, con corpo lato proc. Acc.. C AISI 316, con corpo lato proc. AISI 316, o GALSI 5 UNI 3.600.
- Peso strumento : 8,5 Kg. versione AL
  12,5 Kg. versione M (media pressione)
  16,5 Kg. versione H (alta pressione).

5.0 - CARATTERISTICHE TECNICHE

- Flangiatura (attacco al processo) : DN 50 UNI PN6 oppure 2" ANSI 150 RF DN 50 UNI PN 40 oppure 2" ANSI 300 RF.
- Reiezione a disturbi di modo comune : > 170 db.
- Indicatore locale : Cristalli liquidi (LCD), retroilluminato, 2 file, 16 caratteri (display di tutte le misure del programma e messaggi STD)
- Misura temperatura esterna : Optional, interna del tipo SPOT con RTD, custodia con multielem. e CARD 202.000.109 in Eex-d.
- Tipo elemento termometrico : RTD 3 fili.
- Precisione temperatura : +- 0,1% scala 20/200° C.
- Precisione densità : 0,005 Kg/dm3.
- Precisione posizione interfaccia : (piede d'acqua) +- 2,5 mm. (per densità 0,75/0,95 Kg./dm3.
- Campo misura densità : 0,4/1,2 Kg/dm3.
- Misura pressione : opzionale mediante sensore.
- Precisione pressione : +/- 0.1 bar - scala 0 ÷ 30.

ALLEGATO 4

TRASMETTITORE DI LIVELLO SAAB (X BITUMI)

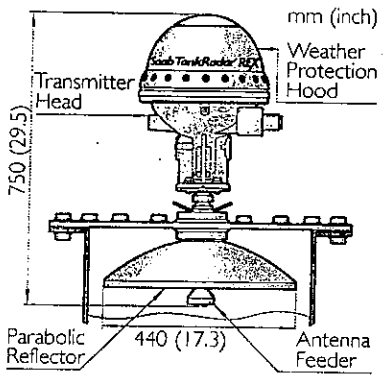
Parabolic Antenna Gauge RTG 3930

The RTG 3930 gauge is designed for mounting on tanks with fixed roofs. It measures levels of products ranging from clean products to very difficult ones like bitumen/asphalt. The design of the parabolic antenna gives extreme tolerance against sticky and condensing products.

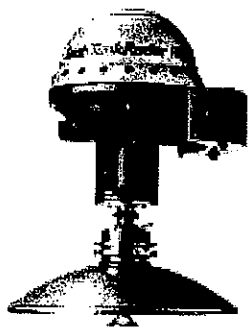
The large antenna diameter provides high antenna gain and a high signal to noise ratio. The Parabolic Antenna Gauge can be mounted on existing manhole covers. The standard parabolic reflector has a diameter of 440 mm (17 inch) and it fits onto, for example, a 20 inch manway. For easy access in extremely dirty applications, the gauge can be mounted on a manhole cover with hinges.

The Parabolic Antenna Gauge can also be used on tanks with floating roofs. The RTG is then mounted at the tank top and measures the distance down to a target plate on the floating roof.

Installation is normally made without taking the tank out of operation.



RTG 3930 Parabolic Antenna Gauge



Technical Data for RTG 3930

See also technical data for the Transmitter Head.

Instrument accuracy (2σ value):	± 0.5 mm (5/256 inch).
Maximum instrument deviation:	± 0.8 mm (1/32 inch).
Operating temperature in tank:	Max. +230 °C (+450 °F).
Measuring range:	0.8 to 40 m (2.6 to 130 ft.) below flange.
Pressure:	Clamped: -0.2 to 0.2 bar (-2.9 to 2.9 psig). Welded: -0.2 to 10 bar (-2.9 to 145 psig).
Total weight:	Appr. 25 kg (55 lbs).
Material exposed to tank atmosphere:	Antenna: Acid proof steel type EN 1.4436 (AISI 316). Sealing: PTFE (Teflon®). O-ring: FPM (Viton®).
Antenna dimension:	440 mm (17 inch).
Manway size:	Min. 20-in.
Tank connection:	Gauge is clamped or welded in a 96 mm (3.78 inch) diameter hole in manway cover, see installation manual.
Field data display:	In separate DAU (page 24) or RDU (page 27).