BALDOTA

COMPANY PROFILE

BALDOTA CONTROL & EQUIPMENTS PVT. LTD.

A Total Solution Provider in Instrumentation & Control Systems

BALDOTA Group is one of the largest multi-disciplined business enterprises in India operating from its permanent base in Mumbai. From its humble beginning in the year of 1987, Baldota Group has now grown as an established business conglomerate during its 35 years of operation.

BALDOTA Group primarily consist of two Divisions that are operated by experienced and qualified professionals and supported by full flagged manufacturing unit, machineries and state of art Digital Test and Calibration laboratory certified with NABL accreditation.

BALDOTA CONTROL & EQUIPMENTS PVT. LTD.

We provide total solution in multi-disciplinary design, engineering, supply, erection and commissioning, maintenance and consulting services to Indian industries in the field of **Instrumentation, Automation and Control.**

We undertake complete EPC job for Electrical & Instrumentation from concept to realization and we are now planing to enhance our capability to include mechanical work for the complete project.

VISION :-

To be established as most reliable local partner in offering world-class Instrumentation Products, Systems, Accessories and Engineering Services to our esteemed customers.

MISSION :-

"Pursuing satisfaction of our clients, we tackle each challenge with safe, reliable and innovative solutions. We entrust our competent and multi-local teams to provide sustainable development for our company and for the communities where we operate".

VALUES :-

Commitment to Health & Safety, Openness, Flexibility, Integration, Innovation, Quality, Competitiveness, Teamwork, Responsibility and Integrity.

CORE COMPETENCE :-

- Design and Engineering Services to process industries on a wide range of platforms, tools and technologies.
- Multi-disciplinary expertise, flexibility, innovative engineering skills.
- Focusing on Customer requirements to optimally complement in-house engineering skills and thus release resources to create value.
- Optimizing People and Process Management to achieve Project objectives.

BALDOTA VALVE AND FITTING CO. PVT. LTD.

We are also specialized in design and development manufacturing high quality international standard products which include Instrumentation valves, precision pipe fittings, compression tube fittings, PTFE products, flanges, fasteners and other customized equipment's in all grades of material. With extensive sales and marketing network throughout India and committed post sales & service support team, we have maintained a strong database of fully satisfied customers.

CERTIFICATES

TÜVINDIA

Certificate

TÜVINDIA
TUV INDIA PVT. LTD.
ISO 9001:2015
www.tuv-nord.com/in QM 002

Management system as per

ISO 9001:2015

The Certification Body TUV INDIA PVT. LTD. hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

BALDOTA CONTROL AND EQUIPMENTS PVT. LTD
BALDOTA VALVE & FITTING CO. PVT. LTD.
R - 895, Baldota House, T.T.C. Industrial Estate,
M.I.D.C. Rabale, Navi Mumbai, Thane – 400 701,
Maharashtra,
India

BALDOTA

operates a management system in accordance with the requirements of ISO 9001: 2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope

BALDOTA CONTROL AND EQUIPMENTS PVT. LTD:
Manufacture, Assembly, Testing, Calibration, Dispatch of Measuring and Control Instruments and System such as Transmitters, DCS/PLC Modules, Controllers for Industrial Control and Automation.

BALDOTA VALVE & FITTING CO. PVT. LTD:
Manufacture and Dispatch of Tube and Pipe Fittings, Sample Handling System, Pressure & Flow Control Equipment and Industrial Valves.

Certificate Registration No. **QM 01 00806**
Audit Report No. **Q 5891/2014**

Valid from **10.03.2024**
Valid until **09.03.2027**
Initial certification **10.06.2018**

Visit our database to verify the validity of this certificate.

Mumbai, **10.03.2024**

Certification Body at TUV INDIA PVT. LTD.

TUV INDIA PVT. LTD.
801, Raheja Plaza 1, L.B.S Marg,
Ghatkopar (W) Mumbai – 400 086,
India
www.tuv-nord.com/in

NABCB
QM 002

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

TÜV®

TÜVNORDGROUP

BALDOTA

TÜVINDIA

Certificate

TÜVINDIA
TUV INDIA PVT. LTD.
ISO 14001:2015
www.tuv-nord.com/in EM 002

Management system as per

ISO 14001:2015

The Certification Body TUV INDIA PVT. LTD. hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

BALDOTA CONTROL AND EQUIPMENTS PVT. LTD
BALDOTA VALVE & FITTING CO. PVT. LTD.
R - 895, Baldota House, T.T.C. Industrial Estate,
M.I.D.C. Rabale, Navi Mumbai, Thane – 400 701,
Maharashtra,
India

operates a management system in accordance with the requirements of ISO 14001 : 2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope

BALDOTA CONTROL AND EQUIPMENTS PVT. LTD:
Manufacture, Assembly, Testing, Calibration, Dispatch of Measuring and Control Instruments and System such as Transmitters, DCS/PLC Modules, Controllers for Industrial Control and Automation.

BALDOTA VALVE & FITTING CO. PVT. LTD:
Manufacture and Dispatch of Tube and Pipe Fittings, Sample Handling System, Pressure & Flow Control Equipment and Industrial Valves.

Certificate Registration No. **IND 104 24394903**
Audit Report No. **Q 5891/2014**

Valid from **10.03.2024**
Valid until **09.03.2027**
Initial certification **10.03.2024**

Visit our database to verify the validity of this certificate.

Mumbai, **10.03.2024**

Certification Body at TUV INDIA PVT. LTD.

TUV INDIA PVT. LTD.
801, Raheja Plaza 1, L.B.S Marg,
Ghatkopar (W) Mumbai – 400 086,
India
www.tuv-nord.com/in

NABCB
EM 002

TÜV®

TÜVNORDGROUP

TÜVINDIA

Certificate

TÜVINDIA
TUV INDIA PVT. LTD.
ISO 45001:2018
www.tuv-nord.com/in OH 006

Management system as per

ISO 45001:2018

The Certification Body TUV INDIA PVT. LTD. hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

BALDOTA CONTROL AND EQUIPMENTS PVT. LTD
BALDOTA VALVE & FITTING CO. PVT. LTD.
R - 895, Baldota House, T.T.C. Industrial Estate,
M.I.D.C. Rabale, Navi Mumbai, Thane – 400 701,
Maharashtra,
India

BALDOTA

operates a management system in accordance with the requirements of ISO 45001 : 2018 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope

BALDOTA CONTROL AND EQUIPMENTS PVT. LTD:

Manufacture, Assembly, Testing, Calibration, Dispatch of Measuring and Control Instruments and System such as Transmitters, DCS/PLC Modules, Controllers for Industrial Control and Automation.

BALDOTA VALVE & FITTING CO. PVT. LTD:

Manufacture and Dispatch of Tube and Pipe Fittings, Sample Handling System, Pressure & Flow Control Equipment and Industrial Valves.

Certificate Registration No. **IND 126 24394903**
Audit Report No. **Q 5891/2014**

Valid from **10.03.2024**
Valid until **09.03.2027**
Initial certification **10.03.2024**

Visit our database to verify the validity of this certificate.

Mumbai, **10.03.2024**

Certification Body at TUV INDIA PVT. LTD.

TUV INDIA PVT. LTD.
801, Raheja Plaza 1, L.B.S Marg,
Ghatkopar (W) Mumbai – 400 086,
India
www.tuv-nord.com/in

NABCB
OH 006

IAF

TÜV®

TÜVNORDGROUP

BALDOTA

CERTIFICATES

FieldComm Group™
Connecting the World of Process Automation

HART COMMUNICATION PROTOCOL · FDI · ethernet-apl™ advanced physical layer · PA-DIM®

CERTIFICATE OF MEMBERSHIP

The Board of Directors hereby acknowledges that

Baldota Control and Equipments Pvt Ltd

has accepted and fulfilled the requirements of the Bylaws
and all rights and privileges of membership are hereby granted.

Membership Term: January 2023 - December 2023

President and CEO

smar
Technology Company

MANUFACTURER CERTIFICATION

To whom it may concern:

We, NOVA SMAR S/A., hereby certify that BALDOTA CONTROL & EQUIPMENTS PVT. LTD., located at located at 86, Universal Industrial Estate, I. B. Patel Road, Goregaon (East), Mumbai – 400 063, Maharashtra, India, has authorized to assembly our product CD600-Plus with Semi Knocked Down (SKD) which supplied by NOVA SMAR S/A.

Yours faithfully
NOVA SMAR S/A.

President Director

October 21, 2020

CERTIFICATES

smar

Certificate

SMAR ASSEMBLY, TESTING AND CALIBRATION LINE IN INDIA

This is to Certify that M/S Baldota Control and Equipments Pvt. Ltd. has established a SMAR Certified Assembly Line in India at its Factory Baldota House, 1st floor , R-895, MIDC Rabale, Navi-Mumbai- 400071 following complete SMAR Standards.

This Assembly Line has been Approved and Authorized to Assemble, Test & Calibrate Pressure Transmitters (LD 29X, LD 30X) and Temperature Transmitters (TT 30X).

This Assembly Line has been successfully Commissioned and Verified by SMAR Brazil representatives and became operational on Thursday, 10th September, 2015.

10 de September de 2015

Pedro Henrique Macchetti
Industrial Division
Quality

SMAR CONTROLLED

smar
Smar Equipamentos Industriais Ltd
CNPJ: 46.761.730/0005-10

Certificate

We at Smar Equipmentos Industriais Ltda would like to congratulate Baldota Control and Equipment's Pvt Ltd for the very important achievement of the approval of the assembly line by the certifying agency FM Approvals, thus releasing the assembly of transmitters for hazardous (classified) locations.

smar

Libanio Carlos de Souza - Managing Commimee - President
Libanio Carlos de Souza
Presidente – Comitê Gestor
Smar Equipamentos Industriais Ltda.

Date

CERTIFICATES

System Integrator Certificate

This certifies that

Baldota Control & Equipaments PVT.LTD

is a **SYSTEM302** Certified Integrator as conforming to the requirements of the following program

CERTIFIED system 302 SYSTEM INTEGRATOR

As prescribed by NOVA SMAR S/A - 2019

smar
Technology Company

President

smar

FM Approvals
Member of the FM Group

FM Approvals
1151 Boston-Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA
T: 781 762 4300 F: 781-762-9375 www.fmapprovals.com

September 12. 2017

Graziela Castro
Smar Equipamentos Industriais Ltda
Av Dr Antonio Furlan Jr 1028
Sertaozino SP. 14170-480
Brazil

Subject: Final Letter Report - Initial Audit at Baldota Control and Equipment's Pvt Ltd
Customer ID: 1000003548-1
Project ID: 0003062949

Dear Ms. Castro,

This final letter report is to serve as confirmation that Baldota Conrtol and Equipment's Pvt Ltd has successfully completed the required audit requirements at Baldota House, R-895, MIDC Rabale, Navi Mumbai. Maharashtra 400701. At this time. FM Approvals authirizes the manufacturing and marking of product at this location in accordance with audited product approvals. This location will be subject to future surveillance audits to ensure product compliance.

The issuance of this final letter report is considered to be the completion of the subject program and the project will be closed. You will be billed for work performed to date.

If you have any questions please feel free to contact me at 781-255-4878 or email me at ignazio.pendola@fmapprovals.com.

Sincerely,

Ed Pendola
Quality Customer Service Manager
Tel: 781-255-4878
Email: ignazio.pendola@fmapprovals.com.

Robert Lovell
Operations VP, Manager of Auditing and Quality Assurance
Tel: 781-255-4820
Email: robert.lovell@fmapprovels.com

Ex CE FM APPROVED FM APPROVED

CERTIFICATES

IECEx Certificate of Conformity

Certificate No.:	IECEx BVS 19.0015	Page 2 of 4
Date of issue:	2021-05-26	Issue No: 1

Manufacturer:
Nova Smar S/A
Av. Dr. Antonio Furlan Jr. 1028
14170-480 Sertaozinho-SP
Brazil

Additional manufacturing locations:
Baldota Control and Equipment Pvt. Ltd.
R-895, MIDC Rabale
Navi Mumbai
Maharashtra IN-400 701
India

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11:2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26:2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga

This Certificate does not indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

DE/BVS/ExTR19.0025/00

Quality Assessment Report:

NO/NEM/QAR08.0006/08

Government of India
Ministry of Commerce & Industry
Petroleum & Explosives Safety Organisation (PESO)
5th Floor, A-Block, CGO Complex, Seminary Hills,
Nagpur - 440006

E-mail : **explosives@explosives.gov.in**
Phone/Fax No : **0712 -2510248, Fax-2510577**

Approval No : A/P/HQ/MH/104/7359 (P519418) Dated : **12/09/2022**

To,

M/s. NOVA SMAR S/A,
Dr.Antonio Furnan Jr,Sertaozinho
1028
BRAZIL

Sub : Approval of Flame Proof Type Electrical Equipment under Petroleum Rules 2002- Regarding.

Sir(s),

Please refer to your letter No. **OIN1147455** dated **29/08/2022** on the subject.

The following Ex electrical equipment(s) manufactured by you according to **IEC 60079-0 : 2017, IEC 60079-1 : 2014-06,** standards and covered under **DNV Product Assurance AS** Test reports mentioned below is/are approved for use in **Zone 1** of Gas **IIC** hazardous areas coming under the the Petroleum Rules, 2002 administered by this Organization.

Sr. No	Description	Safety Protection	Equipment reference Number	Test Agency			Drawing no
				Name	Certificate No.	Certificate Date	
1	Pressure transmitter LD series Type LD 290, 291, 292 & 293 LD 301, 302 & 303	Ex db IIC T6 Gb	**P519418/1**	DNV Product Assurance AS	IECEx PRE 18.0031X Issue No. 1	24/08/2021	As per test report

This Approval is granted subject to observance of the following conditions:-

1)The design and construction of the equipment shall be strictly in accordance with description, condition and drawings as mentioned in the DNV Product Assurance AS Test Reports referred to above.

2)The equipment shall be used only with approved type of accessories and associated apparatus.

3)Each equipment shall be marked either by raised lettering cast integrally or by plate attached permanently to the main structure to indicate conspicuously:-
(a) Name of the manufacturer
(b) Name and number by which the equipment is identified.
(c) Number & date of the test report of the DNV Product Assurance AS applicable to the equipment.
(d) Equipment reference number of this letter by which use of apparatus is approved.
(e) Protection level.

4) A certificate to the effect that the equipment has been manufactured strictly in accordance with the drawing referred to in the DNV Product Assurance AS Test report and is identical with the one tested and certified at DNV Product Assurance AS shall be furnished with each equipment.
5) The customer shall be supplied with a copy of this letter, an extract of the conditions and maintenence schedule, if any, recommended by DNV Product Assurance AS in their test reports and copy of instructions booklet detailing operation & maintenance of the equipment so as to maintain its Flame Proof characterestics.
6) The After sales service and maintanance of subject equipment shall be looked after by your representative Baldota Control and Equipments Pvt Ltd, BALDOTA HOUSE, R-895, MIDC, RABALE 400 701

Conditions of the Approval:-
The approval for above equipment is subject to validity of IECEx Quality Assessment Report No. NO/NEM/QAR08.0006.

This approval also covers the permissible variations as approved under the DNV Product Assurance AS test reports referred above. This approval is liable to be cancelled if any of the conditions of the approval is violated or not complied with . The approval may also be amended or withdrawn at any time, if considered necessary in the interest of safety.

The field performance report from actual users/your customers of the subject equipment may please be collected and furnished to this office for verification and record on annual basis.
The Approval is Valid upto **31/12/2026**

Yours faithfully,

(A.B. Tamgadge)
Dy. Chief Controller of Explosives
For Chief Controller of Explosives
Nagpur

Copy to :
1. Jt. Chief Controller of Explosives, West Circle, MUMBAI
2. Baldota Control and Equipments Pvt Ltd,BALDOTA HOUSE, R-895, MIDC, RABALE 400 701

for Chief Controller of Explosives
Nagpur

(For more information regarding status,fees and other details please visit our website http://peso.gov.in)

This is System Generated document. Signature is not required.

Government of India
Ministry of Commerce & Industry
Petroleum & Explosives Safety Organisation (PESO)
5th Floor, A-Block, CGO Complex, Seminary Hills,
Nagpur - 440006

E-mail : **explosives@explosives.gov.in**
Phone/Fax No : **0712 -2510248, Fax-2510577**

Approval No : A/P/HQ/MH/104/7687 (P562232) Dated : **18/07/2023**

To,

M/s. Baldota Control & Equipments Pvt. Ltd.,
PlotNo,R - 895, Baldota House,
R - 895, Baldota House, Rabale,
Taluka: Mumbai,
District: MUMBAI,
State: Maharashtra,
PIN: 400701

Sub : Approval of Intrinsically Safe Type Electrical Equipment. under Petroleum Rules 2002- Regarding.

Sir(s),

Please refer to your letter No. **OIN1386973** dated **14/07/2023** on the subject.

The following Ex electrical equipment(s) manufactured by you according to **IEC 60079-0 : 2017, IEC 60079-11 : 2011, IEC 60079-26 : 2014-10,** standards and covered under **DEKRA Testing and Certification GmbH** Test reports mentioned below is/are approved for use in **Zone 1** of Gas **IIC** hazardous areas coming under the the Petroleum Rules, 2002 administered by this Organization.

Sr. No	Description	Safety Protection	Equipment reference Number	Test Agency			Drawing no
				Name	Certificate No.	Certificate Date	
1	Pressure Transmitter type LD 301****-****-***-*	Ex ia IIC T4/T5/T6 Ga/Gb	**P562232/1**	DEKRA Testing and Certification GmbH	IECEx BVS 19.0015 issue No.1	26/05/2021	As per test report
2	Pressure Transmitter type LD 291***-**-***	Ex ia IIC T4/T5/T6 Ga/Gb	**P562232/2**	DEKRA Testing and Certification GmbH	IECEx BVS 19.0015 issue No.1	26/05/2021	As per test report
3	Pressure Transmitter type LD 290***-**-**	Ex ia IIC T4/T5/T6 Ga/Gb	**P562232/3**	DEKRA Testing and Certification GmbH	IECEx BVS 19.0015 issue No.1	26/05/2021	As per test report

This Approval is granted subject to observance of the following conditions:-

1)The design and construction of the equipment shall be strictly in accordance with description, condition and drawings as mentioned in the Test Reports referred to above.
2)The equipment shall be used only with approved type of accessories and associated apparatus.
3) Each equipment shall be marked either by raised lettering cast integrally or by plate attached permanently to the main structure to indicate conspicuously:-
(a) Name of the manufacturer
(b) Name and number by which the equipment is identified.
(c) Number & date of the test report of the DEKRA Testing and Certification GmbH applicable to the equipment.
(d) Equipment reference number of this letter by which use of apparatus is approved.
(e) BIS approval number.
(f) Protection level.
4) A certificate to the effect that the equipment has been manufactured strictly in accordance with the drawing referred to in the Test report and is identical with the one tested and certified at Testing agency shall be furnished with each equipment.
5) The customer shall be supplied with a copy of this letter, an extract of the conditions and maintenence schedule, if any, recommended by DEKRA Testing and Certification GmbH and copy of instructions booklet detailing operation & maintenance of the equipment so as to maintain its safe characterestics.

6) The IS/IEC 60079-17 and IS/IEC 60079-19 shall be followed for maintenance and repair of overhaul of the subject equipments.

Conditions of the Approval:-
Remaining model no. 292,293,302,303 could not be granted since certificate of conformity IECEx BVS 19.0015 ISSUE NO.1 DATED 26/05/2021 does not reflect the same.

This approval also covers the permissible variations as approved under the DEKRA Testing and Certification GmbH test reports referred above. This approval is liable to be cancelled if any of the conditions of the approval is violated or not complied with . The approval may also be amended or withdrawn at any time, if considered necessary in the interest of safety.

The field performance report from actual users/your customers of the subject equipment may please be collected and furnished to this office for verification and record on annual basis.
The Approval is Valid upto **31/12/2027**

Yours faithfully,

(K. Thiagarajan)
Jt. Chief Controller of Explosives
For Chief Controller of Explosives
Nagpur

Copy to :
1. Jt. Chief Controller of Explosives, West Circle, MUMBAI

for Chief Controller of Explosives
Nagpur

(For more information regarding status,fees and other details please visit our website http://peso.gov.in)

This is System Generated document. Signature is not required.

CREDENTIALS

Forbes Marshall

TÜV CERT ISO 9001 : 2000 Certificate 04100 M 0422 ES
TÜV NORD

Please Respond to:
A-34/35, MIDC Estate, 'H' Block,
Pimpri, Pune - 411 018, INDIA
TEL, +91 (0) 20 27442020
FAX, +91 (0) 20 27442040
URL, http://www.forbesmarshall.com

DATE: 02.04.2009

TO WHOMSOEVER IT MAY CONCERN

THIS IE TO CERTIFY THAT WE ARE USING MORE THAN ONE HUNDRED NUMBERS M/S SMAR MAKE TRANSMITTERS (PRESSURE & DIFFERETIAL PRESSURE TRANSMITTERS ETC.,) IN OUR VARIOUS APPLICATIONS SINCE JUNE, 2006. AND THEIR PERFORMANCE ARE FOUND TO BE SATISFACTORY.

For Forbes Marshall Pvt. Ltd.

(Rahul Bhosale)

Project Manager

IRQS
A DEPARTMENT OF INDIAN REGISTER OF SHIPPING
ISO - 9001 ISO 14001
RvC
ACCREDITED BY THE DUTCH COUNCIL FOR ACCREDITATION
& OHSAS 18001
Approved by IRQS

राष्ट्रीय केमिकल्स एण्ड फर्टिलाइजर्स लिमिटेड
(भारत सरकार का उपक्रम)
दसवी मंजिल, "प्रियदर्शिनी",
ईस्टर्न एक्सप्रेस हाईवे,
सायन, मुंबई - 400 022.

RASHTRIYA CHEMICALS AND FERTILIZERS LIMITED
(A Government of India Undertaking)
10th Floor, "Priyadarshini",
Eastern Express Highway,
Sion, Mumbai - 400 022.

P. M. C. Nair
Chief General Manager (Corporate)
पी. एम. सी. नायर
मुख्य महा प्रबंधक (निगमित)

कार्यालय/Office : (022) 2404 5173/5068 निवास/Resi.: (022) 2754 4081 फैक्स /Fax : 2404 5197 / 5028
ई-मेल/E-mail : pmcnair@rcfltd.com ; projrcf@vsnl.com

DT:13TH JULY 2010

TO WHOM SOEVER IT MAY CONCERN

This is to verify that we are using SMAR make Transmitters in our various applications. The performance of the product is satisfactory.

For M/s. Rashtriya Chemicals & Fertilizers Ltd.
Chembur, Mumbai

Authorised Signatory

पी. एम. सी. नायर
P. M. C. NAIR
कार्यपालक निदेशक (तक.)
Executive Director (Tr.)

TELANGANA STATE POWER GENERATION CORPORATION LTD.
Kothagudem Thermal Power Station: O&M: Paloncha.

Office of Assistant Divisional Engineer
Instruments and Controls
KTPS-A Station
Paloncha.

TO WHOM SO EVER IT MAY CONCERN

We HAVE PROCURED Smar make Hart intelligent DP transmitters model no. LD 301 and Smar make Hart Configurator model no. HPC 401 plus in the year 2012 and 2013 respectively. The performance of these instrument is found to be satisfactory.

Assistant Divisional Engineer
Instrumentation & Controls
KTPS 'A' Stn, Paloncha.

Assistant Divisional Engineer,
Instruments & Controls,
KTPS-A Station,
PALONCHA – 507115.

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sai sulphonates private limited

Regd. Office : WHITE HOUSE, 2nd Floor, 21, C. R. Avenue, Kolkata - 700 072, India
Phone : +91-33-4016 6100 / 2236 6500, Fax : +91-33-4016 6147 / 2236 8468
E-mail : sulphonates@fogla group.com, Website : www.foglagroup.com

CIN : U24119WB1987PTC043163

FOGLA GROUP

Date: 22.09.2014

COMPLETION CERTIFICATE FOR ERECTION SERVICES

This is to certify that M/s. Baldota Control & Equipments Pvt. Ltd., having its Registered office at 86, Universal Industrial Estate, I. B. Patel Road, Goregaon (East), Mumbai – 400 063. INDIA, have been awarded complete Package of Erection, Commissioning of Electrical Equipment & Instrumentation Job including Calibration of the equipment for our LABSA 96% Plant vide Order No. SSPL/KGP/LABSA 96/13-14/015 Dtd. 11th February, 2014.

They have successfully executed and completed the same including Erection, Testing and Commissioning of the Project. The overall performance of the contractor in executing the work has been SATISFACTORY with good safety practices. The plant is under operation since August, 2014.

The support extended by BALDOTA Team is found to be satisfactory.

For **SAI SULPHONATES PVT. LTD.**

Narendra Sharma
Director

Factory :
Factory :
J. L. No. 86,
P.S. - Kharagpur (Local)
Dist. Paschim Midnapore - 721 304
Factory :

CREDENTIALS

LARSEN & TOUBRO

Larsen & Toubro Limited
L&T Construction
Power Transmission & Distribution
Mount Poonamallee Road,
Manapakkam, P. B. No. 979,
Chennai - 600 089, INDIA.

Ref: LTCD/PTDIE/INST/KAPP-3&4/FIP/BAL/001 Date: 08-Feb-2016

TO WHOM SO EVER IT MAY CONCERN

This is to certify that we have placed our Purchase Order Ref: E8849PO4000003 dated 24TH Jan 2014 for the Pressure & Differential Pressure Transmitters (SMAR- Brazil make) to their Indian Exclusive Representative M/s Baldota Control & Equipments Private Limited, Mumbai for the Field Instrumentation package of 2*700MW KAPP 3 & 4 projects of Nuclear Power Corporation India Limited. The total number of transmitter in this Package is 1286 numbers covering LD301 and LD290 series. Deliveries of the materials pertaining to the above purchase order are under progress.

We have completed the technical and factory evaluation of M/s. Baldota prior to placement of this order. M/s. Baldota have in house testing and calibration facilities and trained manpower to support the execution of such high volume orders of transmitters.

Overall performance of the vendor in executing the order is said to be satisfactory so far.

For LARSEN & TOUBRO LIMITED,

Surojit Saha
Manager – Instrumentation
EHV, SS & PD BU
Power Transmission & Distribution IC

Tel: +91-44-2270 4000/ 2270 5000 Fax: +91-44-2270 5462, 2270 5494 www.Lntecc.com
Registered Office: L&T House, N. M. Marg, Ballard Estate, Mumbai - 400 001. INDIA
Licence No.: CIN - L99000MH1946PLC004768
L&T Construction - Power Transmission & Distribution is a brand of Larsen & Toubro Limited

Dodsal

Dodsal Enterprises Private Limited
CIN: U15122MH1948PTC006195
Registered Office : G - 1402 & E - 1401 & 1402, Lotus Corporate Park,
Graham Firth Steel Compound, Western Express Highway, Goregaon (East), Mumbai-400063
Tel : +91- 22-6672 3500, Fax : +91-22-6672 3599
E-mail : dodsalenterprises@dodsal.com

February 8, 2016

TO WHOMSEVER IT MAY CONCERN

This is to certify that we have placed our P.O. number 03/PEN/75/YAS/PO/088/106-00/14 dated 22ND Dec 2014 for the Pressure & Differential Pressure Transmitters (SMAR- Brazil make) to their Indian Exclusive Representative M/s Baldota Control & Equipments Private Limited, Mumbai for the Balance of Turbine Island package of 2x700MW KAPP 3 & 4 projects of Nuclear Power Corporation India Limited. There are a total of 483 No's Profibus transmitters and 207 conventional transmitter with HART protocol in this package.

We have completed the technical and factory evaluation of M/s. Baldota prior to placement of this order. M/s. Baldota have in house testing and calibration facilities and trained manpower to support the execution of such high volume orders of transmitters.

Overall performance of the vendor in executing the order is said to be satisfactory.

Authorised Signatory

Regional Offices : New Delhi, Kolkata, Chennai

Government of India
Nuclear Recycle Board
NRPSED

Date: 28-08-2015

Ref: NRB/E&P/SK/2015/

PO No.: NRBPSU/03/EEQ/UPT/1138/EPO/748

Subject: Installation & Commissioning Certificate

This is to certify that M/s Baldota Control & Equipment's Pvt Ltd. have done the Satisfactory Installation of Remote Sealed Capillary Transmitter against above Purchase PO at INRP , Tarapur on 28-08-2015.

This is for your information and further action please.

Subrat Kaushik
SO/F, E&P

(Shri K. Agarwal)
GM, NRPSED

→APO (NRBPSU)

Cc to:
1 AAO, NRB
2 ASO, INRP Stores.
3 M/s Baldota Control & Equipments (P) Ltd.

Date: 9/3/2016.

TO WHOMSOEVER IT MAY CONCERN

THIS IS TO CERTIFY THAT WE ARE USING SMAR MAKE PRESSURE, DIFFERENTIAL PRESSURE TRANSMITTERS IN OUR VARIOUS APPLICATIONS. THE QUANTITY OF THE TRANSMITTERS USED ARE MANY HUNDREDS IN EACH PROJECT. SOME TRANSMITTERS ARE ARE IN APPLICATION SINCE 20-22 YEARS WITHOUT ANY PROBLEM.

WE HAVE ALSO USED THEIR SPECIAL PURPOSE REMOTE SEAL TYPE TRANSMITTERS WITH GOLD COATED ISOLATION DIAPHRAGM, FOR HIGH PRESSURE HYDROGEN APPLICATION.

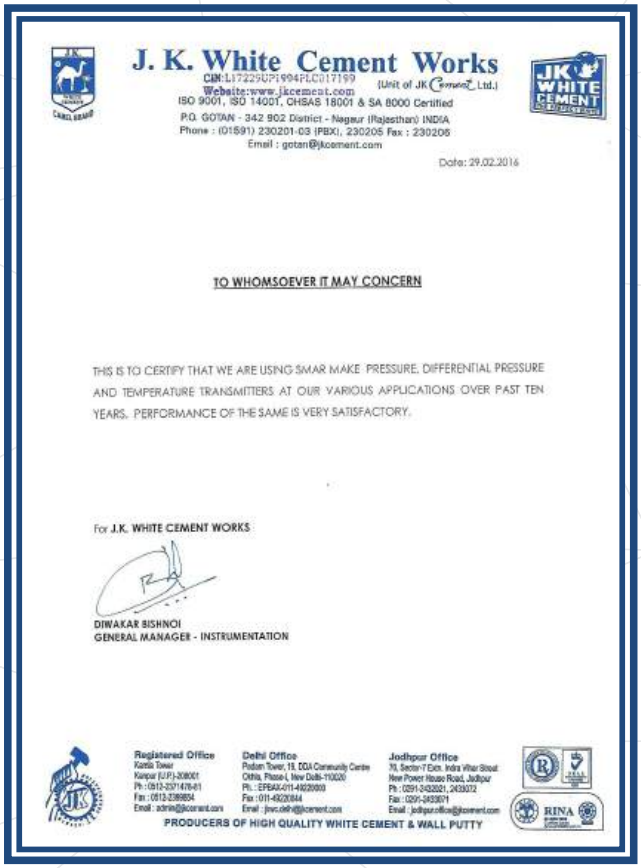
PERFORMANCE OF ALL TYPE OF TRANSMITTERS IS FOUND TO SATISFACTORY.

Payade 9/3/2016

Name : Narayan Payade
Designation : (C&I/G)

वैज्ञानिक अधिकारी / Scientific Officer
नाभिकीय पुनःसंसाधन बोर्ड / Nuclear Recycle Board
भाभा परमाणु अनुसंधान केंद्र / B.A.R.C.
भारत सरकार / Government of India

CREDENTIALS



J. K. White Cement Works
CIN:L17229UP1994PLC017199 (Unit of JK Cement Ltd.)
Website:www.jkcement.com
ISO 9001, ISO 14001, OHSAS 18001 & SA 8000 Certified
P.O. GOTAN - 342 902 District - Nagaur (Rajasthan) INDIA
Phone : (01581) 230201-03 (PBX), 230205 Fax : 230206
Email : gotan@jkcement.com

Date: 29.02.2016

TO WHOMSOEVER IT MAY CONCERN

THIS IS TO CERTIFY THAT WE ARE USING SMAR MAKE PRESSURE, DIFFERENTIAL PRESSURE AND TEMPERATURE TRANSMITTERS AT OUR VARIOUS APPLICATIONS OVER PAST TEN YEARS. PERFORMANCE OF THE SAME IS VERY SATISFACTORY.

For J.K. WHITE CEMENT WORKS

DIWAKAR BISHNOI
GENERAL MANAGER - INSTRUMENTATION

Registered Office: Kanoria Tower, Kanpur (U.P.)-208001, Ph: 0512-2371478-81, Fax: 0512-2399894, Email: admin@jkcement.com
Delhi Office: Padam Tower, 19, DDA Community Centre Okhla, Phase-I, New Delhi-110020, Ph.: EPBAX-011-40220000, Fax: 011-40220844, Email: jkwc.del@jkcement.com
Jodhpur Office: 10, Sector-'F' Extn. Indira Vihar Scheme, New Power House Road, Jodhpur, Ph: 0291-2432021, 2433072, Fax: 0291-2433071, Email: jodhpur.office@jkcement.com

PRODUCERS OF HIGH QUALITY WHITE CEMENT & WALL PUTTY

MCSC
شركة المقاولات والصيانة الميكانيكية ذ.م.م.
Mechanical Contracting & Services Company W.L.L.
(Mechanical & Civil Engineers) C.R. 1762

Date: 19th January, 2015

COMPLETION CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that

"M/s. Baldota Control & Equipments Pvt. Ltd.,"

has completed the Design, Manufacturing, Supply, Installation, Commissioning and Training of the

"Panel Mounted Multi-function Calibration System & Software"

Supplied to

"M/s. Mechanical Contracting & Services Company W.L.L."

P. O. Box: 5238, Manama, Kingdom of Bahrain

Under Purchase Order 312392-1 Dtd. 1st November, 2014

Training has been conducted at MCSC Bahrain site

Using the calibration test bench

And field instrument.

The overall performance of the Test Bench have been found to be satisfactory

And

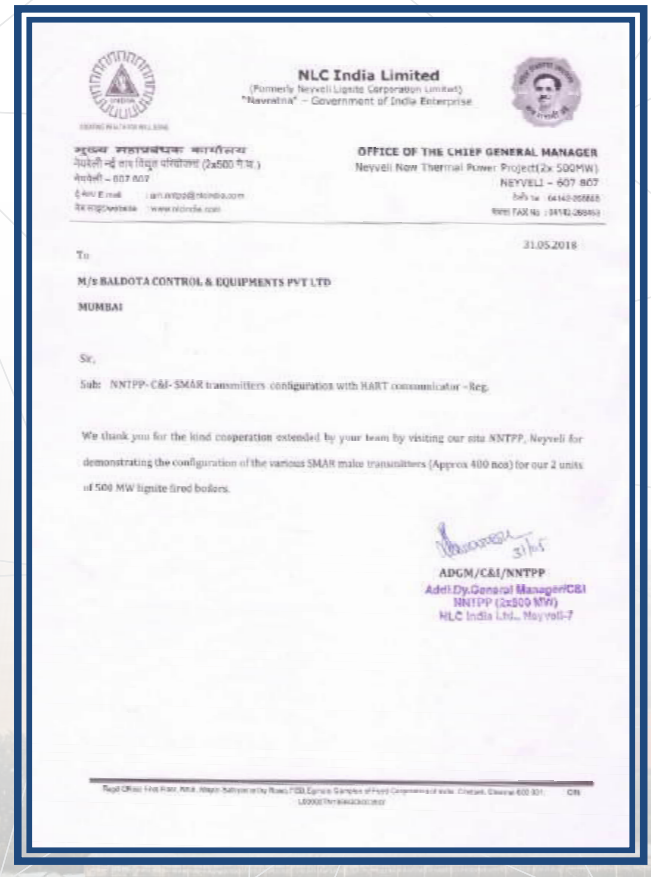
The support extended by Baldota Team during the project execution have been

Preeminent.

For Mechanical Contracting & Services Company W.L.L

Renzy Kurian
Project Manager

A Company Authorized for ASME 'S', 'U' and National Board 'R' Stamps



NLC India Limited
(Formerly Neyveli Lignite Corporation Limited)
"Navratna" – Government of India Enterprise

OFFICE OF THE CHIEF GENERAL MANAGER
Neyveli New Thermal Power Project(2x 500MW)
NEYVELI – 607 807

31.05.2018

To

M/s BALDOTA CONTROL & EQUIPMENTS PVT LTD

MUMBAI

Sir,

Sub: NNTPP- C&I- SMAR transmitters configuration with HART communicator - Reg.

We thank you for the kind cooperation extended by your team by visiting our site NNTPP, Neyveli for demonstrating the configuration of the various SMAR make transmitters (Approx 400 nos) for our 2 units of 500 MW lignite fired boilers.

ADGM/C&I/NNTPP
Addl.Dy.General Manager/C&I
NNTPP (2x500 MW)
NLC India Ltd., Neyveli-7

Raichur Power Corporation Limited
Yermarus & Edlapur Thermal Power Stations, Raichur District, Karnataka State
Ph: 08532- 286001 - Fax : 08532-286002 - e-mail : oeerpcl@gmail.com
CIN : U40101KA2009PLC049582

No:CE(E)RPCL/I&C/ 88
Date: 25-04-2019

Office of the
Chief Engineer(E)YT

TO WHOM SO EVER IT MAY CONCERN

This is to certify that M/s. SMAR make pressure and differential pressure transmitters supplied by M/s. SMAR through M/s. BHEL-EDN Bangalore, which are commissioned during Jan-2018 for Aux Boiler of 2X800 MW RPCL Yeramarus Thermal Power Plant are working satisfactorily till date. This certificate is issued on specific request of M/s. SMAR.

Yours faithfully
for Raichur Power Corporation Limited

Chief Engineer(E)YT
Chief Engineer (E) YT
Yermarus Thermal Power Station
Raichur Power Corporation Ltd.
YERMARUS, Raichur Dist. 584134

To:
BALDOTA CONTROL & EQUIPMENTS PVT. LTD.
Mumbai.

Regd. Office : No. 22/23, Sudarshan Complex, Sheshadri Road, Bangalore - 560 009
Tel : 080-22386517 - Fax : 22202916

AUTHORIZATION LETTERS

CERTIFICATE

This is to certify that

Baldota Control and Equipments Pvt. Ltd.
86, Universal Industrial Estate
I.B. Patel Road, Goregaon (East)
Mumbai – 400 063, India

is Valmet's Value Added Reseller partner and they are authorized to do automation business based on Valmet DNA technology for thermal power industry less than 135 MW, NINS applications for nuclear power industry and process industries in the territory of India.

Pekko Luumi
Valmet Automation Inc.
Director, Partner business
Energy & Process Business Unit
Automation Business Line

Valmet

AUTHORIZATION LETTERS

DOOSAN HF Controls

HF Controls Corporation ▪ 1624 W. Crosby Rd ▪ Suite 124 - Carrollton, TX 75005 ▪ Phone 469 568 6500 ▪ Fax 469 568 6599 ▪ www.hfcontrols.com

December 3, 2020
File Number: 20201203

BALDOTA CONTROL AND EQUIPMENTS (P) LIMITED
86, Universal Industrial Estate, I.B. Patel Road, Goregaon (East), Mumbai – 400 063, India

Attention: K. K. Shrivastava

Subject: BALDOTA CONTROL AND EQUIPMENTS (P) LIMITED is approved as Doosan HF Controls Corporation's qualified supplier

Dear Mr. Shrivastava,

We are pleased to inform you that BALDOTA CONTROL AND EQUIPMENTS (P) LIMITED has been approved as the Doosan HF Controls qualified supplier in accordance with our QA program (QPP 7.1, Supplier Selection, Qualification and Re-Evaluation).

With this approval, your company will be able to participate in projects bidding in your specialty areas, which may include but not limited to control system assembly, integration and testing.

Please note that, per our QA program, we may audit and / or reevaluate your company's QA program periodically for your company to maintain the qualified supplier status.

If I can provide any further information, please feel free to contact me.

Sincerely yours,

Steve Yang, PhD
Sr. Vice President

DOOSAN HF CONTROLS CORP. CORPORATE SEAL CARROLLTON, TEXAS

CC. Jongmin Kim. CEO/President

AUTHORIZATION LETTERS

UNICORN VALVES

LETTER OF AUTHORISATION

TO WHOM SO EVER IT MAY CONCERN

We, **Unicorn Valves Private Limited ("UVPL")**, a Control Valve manufacturing company, established in 2008, and located at SF No. 100/2B, Valukkuparai P.O, Marichettipally Road, Nachipalayam, Coimbatore – 641032 (India) here by authorise **M/s. Baldota Control and Equipments Pvt. Ltd.**, located at 86, Universal Industrial Estate, I. B. Patel Road, Goregaon (East), Mumbai – 400 063 (India) as our marketing Representative in India, for the following areas of business:

1) Promote UVPL products and services.
2) Take part in tenders for supply of Control Valves, Spares and Services in consultation with UVPL.
3) Participate in techno-commercial negotiations and conclude orders.
4) Provide aftersales services with the support of UVPL.

We hereby undertake to provide all the required support and assistance to **M/s. Baldota Control and Equipments Pvt. Ltd.**, as may be required in relation to the above listed activities pertaining to our products and services.

This authorisation is valid for 3 years from the date of signature of this letter unless otherwise agreed in writing by the parties.

For **UNICORN VALVES PVT. LTD.**

UNICORN VALVES PRIVATE LIMITED * CBE - 32 *

Manoj Vengasseril Kuriakose
Chairman

Date : 01-March-2021

Unicorn Valves Private Limited, SF No : 100/2B, Valukkuparai P.O., Marichettipathy Road, Nachipalayam, Madukkarai Taluk, Coimbatore – 641032, Tamil Nadu, India, Ph No. +91-422-2901322
www.unicorn-valves.com

OEMS WE REPRESENT

SMAR TECHNOLOGY COMPANY

DOOSAN HF CONTROL , USA

VALMET TECHNOLOGIES , FINLAND

ERMES, FRANCE

TECHNIP ENERGIES

SENSIA

VF NUCLEAR

UNICORN, COIMBATORE INDIA

LUMEL , POLAND

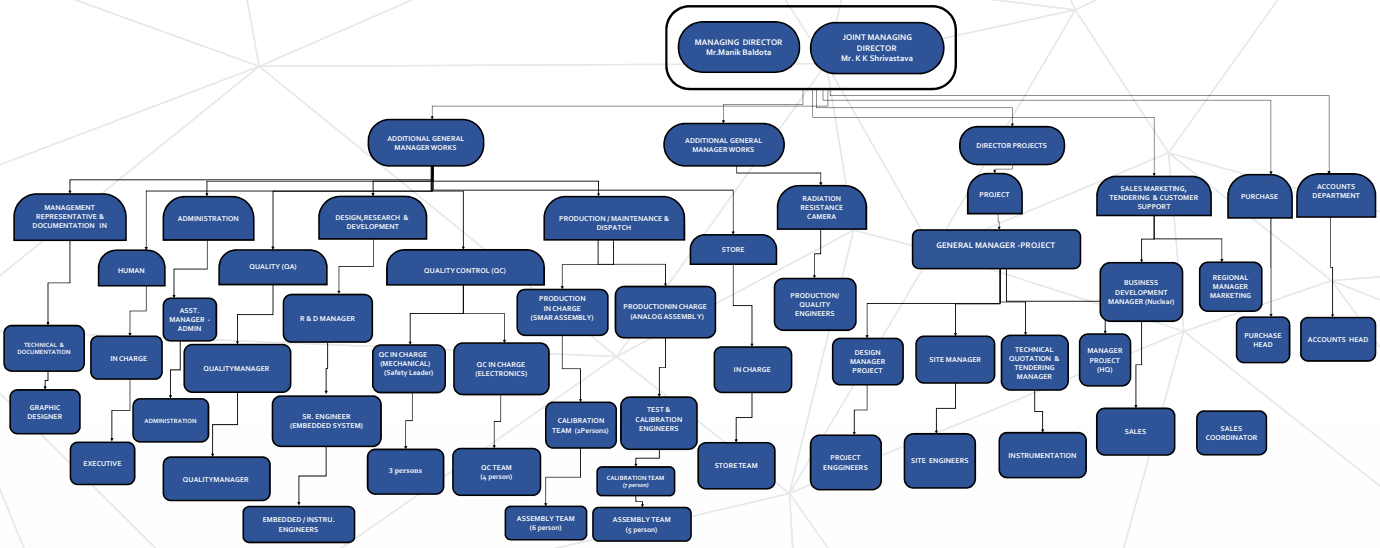
Best Innovation In Technology Award, Received At ISAPPPA MEET (2020)

Exhibition in BARC (2023)

Exhibition in BARC (2024)

ORGANIZATION CHART

BALDOTA CONTROL & EQUIPMENTS PVT. LTD.
ORGANIZATION CHART



NATURE OF ACTIVITIES :-

- Design Engineering
- Factory Acceptance
- Site Acceptance
- Erection Installation
- Commissioning of Electrical & Instrumentation
- Complete EPC job
- Instrument & Control Design
- Distributed Control Systems
- Programmable Logic Controllers
- Emergency Shut Down Systems
- Fire and Gas Detection System
- Control Valves, Flow Elements, Safety Valves, etc.
- Cable Selection and Scheduling
- Control Room Design including Panel and Console
- Cable Tray Layout and Conduit Routing

ENGINEERING SERVICES :-

- Supply, Erection, Testing, Pre-commissioning, Commissioning and Annual Maintenance Contracts.
- Annual Maintenance Contract, Overhaul and Maintenance of Instruments and Control Systems.

PRODUCTS :-

- Analog Transmitter up to 4.1 MRad TID
- Radiation Resistant Camera
- Distributed control system
- Programmable Logic Controller
- Pressure, Level and Flow Transmitters
- MANIFOLD- Manifold Valves for Pressure Transmitters
- Wireless HART®, SIS-Pressure, Level and Flow Transmitters
- Remote Seals
- Guided Wave Level Transmitter
- Smart Control Valve Positioner
- Pneumatic Cylindrical Actuator
- Smart Position Transmitter
- Smart Temperature Transmitters
- Wireless HART®, SIS-Smart Temperature Transmitter
- Eight Channels Temperature Transmitter
- Panel Mount 4 to 20 mA + HART® Smart Temperature Transmitter
- 4 to 20 mA + HART® Head Mount Smart Temperature Transmitter
- HART® Configurator
- Intelligent Density Transmitters
- Didactic Pilot Plant

- Multi-Loop Digital Controller
- Acoustic Pyrometer
- AuditFlow-Flow Measurement System
- AuditTank-Tank Measurement System
- Electro Magnetic Flow Meter
- Vortex Flow Meter
- Turbine Gas Flow Meter
- Metal Tube Rotameter
- Oval Gear Flow Meter
- Ultra Sonic Flow Meter
- Cone Flow Meter
- Flow Measurement and Throttling Device
- Radio Frequency Level transmitter
- Sonic Ultrasonic Level Transmitter
- Medium Length Chart Paperless Recorder
- Color Paperless Recorder
- Mono Color Paperless Recorder
- Smart Flow Totalizer
- Analyzer Panel and Accessories
- Whole Body counting System
- Waste Assay Monitor
- Hand and Feet Monitor
- Gamma Calibration set up
- Neutron calibration set up
- Contamination Monitors
- Portal Monitor
- Vehicle Contamination Monitor
- Nobel Gas Monitor
- Acoustic Pyrometer

PRESSURE + DIFFERENTIAL PRESSURE + LEVEL

LD300 SERIES
Pressure, Level And Flow Transmitters

The LD300 Series is a complete line of smart transmitters for differential, absolute, gauge, high static differential pressure and flow measurement as well as models for level, remote seal and sanitary applications. The LD300 Series is a robust and highly reliable solution for your process. For flow measurement, the transmitter offers user selectable square root function making it suitable for commonly used flow sensors. The large acceptance of the LD300 line is due to the use of a capacitive cell as pressure sensor, which keeps the digital signal from the pressure reading up to the transmitter output, increasing the device accuracy and stability. For applications requiring the highest accuracy, the LD300 series offer the model L1, with 0.04% accuracy. Three options of communications protocols for configuration, monitoring and diagnostic are available: HART®, FOUNDATION™ fieldbus and PROFIBUS-PA.

- ± 0.075% accuracy for standard models;
- ± 0.040% accuracy for L1 models (high performance);
- ± 0.2% of URL stability - Guarantee for 12 years;
- Wide range of pressures, up to 40 MPa (5800 psi);
- 120:1 rangeability;
- 100 ms total response time;
- PID control capability;
- Advanced diagnostics;
- Bi-directional flow measurement;
- Support for DD, EDDL and FDT/DTM;
- Built-in transient suppression;
- Low Total Probable Error;
- Multifunction rotary display;
- Simple (zero and span) and complete local adjustment;
- Weather proof, explosion proof and intrinsically safe.

LD400 HART®
Pressure, Level and Flow Transmitters

The LD400 Series is a complete line of smart transmitters for differential, absolute, gauge, high static differential pressure and flow measurement as well as models for level, remote seal and sanitary applications. LD400 offers the best solution for all field applications demanding the highest performance. It is a robust and highly reliable solution for pressure, level and flow measurement. It has high flexibility in applications due to use of a capacitive cell as pressure sensor, which keeps the digital signal from the pressure reading up to the transmitter output, increasing the device accuracy and stability. All the processing is made by the HT3012, a powerful mathematical co-processor and a 16-bit CPU that ensures a fast response time and high performance for the transmitter. The LD400 is SIL 2 and SIL 3 certified by TUV in compliance with the IEC 61508-2010 for using in Safety Instrumented Systems (SIS). LD400 is the best choice to increase productivity and ensure process reliability and safety.

- ± 0.045% accuracy;
- 200:1 rangeability;
- 35 ms total response time;
- Non-polarity power supply input;
- HART® Protocol;
- Suitable for installations requiring SIL2 and SIL3.

Note : * These features can also be found in LD400 HART® SIS.

LD400 *Wireless* HART™
Pressure, Level and Flow Transmitters

The LD400 WirelessHART™ Series is a complete line of smart transmitters for differential, absolute, gauge, high static differential pressure and flow measurement as well as models for level, remote seal and sanitary applications. LD400 WirelessHART™ offers the best solution for all field applications demanding data wireless transmission and highest performance. It is a robust and highly reliable solution for pressure, level and flow measurement. It works in mesh network that is self-organizing, has low power consumption and has long life battery power.

- ± 0.045% accuracy;
- ± 0.2% of URL Stability - Guarantee for 12 years;
- 200:1 rangeability;
- Advanced diagnostics;
- Support for DD, EDDL and FDT/DTM;
- Local adjustment (zero and span calibration) and complete;
- Low Total Probable Error;
- Repeater/router function in mesh network;
- "Burst Mode" for sending periodics statements;
- Battery operation for long duration;
- WirelessHART™ Protocol.

LD400G HART® and *Wireless*HART™

The LD400 Inline WirelessHART™ transmitter allow liquid, vapors and gas gage pressure measurement, or liquid level measurement in open or closed non-pressurized tanks. Several process connection options are available for installations directly on the pipe or tank, without impulse lines and bracketing in most installations.

- ± 0.075% accuracy;
- Wetted parts: AISI 316L or Hastelloy C276.

LD400I *Wireless* HART™

The LD400 Insertion WirelessHART™ level transmitter with extended probe is a simple option for measuring liquids in open tanks, closed non-pressurized tanks, channels, wells etc. Several types of bracketing enable a quick and fast installation on the top of the tank, for example, using existing manholes, to avoid tank drilling.

- ± 0.2% accuracy;
- Several probe lengths up to 3200 mm;
- Extended probe material: AISI304L or AISI316L;
- Diaphragm material: AISI316L or Hastelloy C276.

PRESSURE + LEVEL

LD290 SERIES
Gage Pressure Transmitter and Level

4-20 mA

HART COMMUNICATION PROTOCOL · FOUNDATION · PROFIBUS

The LD290M models are an economical alternative for gauge pressure and level transmitters. It is based on a field-proven capacitive sensor that provides reliable, safe operation and high performance. As there is no A/D conversion on pressure reading, errors and drifts during conversions are eliminated. A temperature sensor provides temperature compensations, which combined with the sensor precision, results in high accuracy and stability for the LD290 Series. This lightweight design can eliminate the need for mounting brackets. In many applications they can be attached directly to the process without the use of impulse lines. The coupling of remote seals and sanitary connections are also available for all of the LD290 Series.

4-20 mA

HART COMMUNICATION PROTOCOL · FOUNDATION · PROFIBUS

The LD290L models were designed to be a low cost alternative for level measurement in non-pressurized tanks. The process connection is a slip-on flange in Plated Cabon Steel, 304 SST or 316 SST. The LD290L (4-20 mA), LD291L (4-20 mA + HART®), LD292L (FOUNDATION™ fieldbus) and LD293L (PROFIBUS-PA) versions are available.

4-20 mA

HART COMMUNICATION PROTOCOL · FOUNDATION · PROFIBUS

The LD290I models are gauge pressure transmitter with an extended probe for level measurement in non-pressurized tanks. A probe, in several lengths, with a sensor in its ends, is immersed in the process fluid, providing the level of the liquid in the tank. Several process connections options are available.

The LD290 Series have the following characteristics:

- ± 0.2% accuracy;
- Several probe lenghts up to 3200 mm;
- Totally digital, including sensor, electronics and communication;
- Several options for process connections;
- Extended probe material: AISI304L or AISI316L;
- Simple (zero and span) and complete local adjustment;
- MTBF (Mean Time Between Failures) of 239 years;
- 40:1 rangeability;
- Configuration and remote diagnostics by HPC401, CONF401, DDCON 100 and FDT/DTM;
- Multifunction rotary display;
- Digital communication via HART®, FOUNDATION™ Fieldbus, and PROFIBUS-PA protocols;
- Weather proof, explosion proof and intrinsically safe;
- Built-in transient suppression.

LD1.0
Economic Capacitive Pressure Transmitter

The Smar LD1.0 is an Economic Capacitive Pressure Transmitter and was designed for liquid, gas and steam gauge pressure measurement in several industrial applications such as, industrial process measurement, pneumatic and hydraulic systems, pumps and compressors, machine and machining tools. This low price transmitter is the only one in its market category to use the capacitive sensor technology for pressure reading in a completely digital way, which provides excellent precision, repeatability and linearity for the measurement. The LD1.0 design features provide resistance to vibration, shock, great temperature variations, immunity to electromagnetic interference and other extreme environmental conditions that are typical in industrial applications. The LD1.0 is the transmitter in its class that offers the best cost/benefit.

- ± 0.2% accuracy;
- 4-20 mA output signal according to NAMUR NE43;
- HART® and PROFIBUS-PA Communication Protocols;
- Several Process Connections Options;
- Cabe Gland Electrical Connection - With no Polarity;
- Wide range of pressures, up to 150 bar;
- 50:1 Rangeability;
- Operation Temperature: - 40 to 85 ºC;
- Response time 200 ms;
- Zero and Span Local Adjustment;
- Configuration Protection with Password;
- Housing Material in 17-4PH / AISI316L;
- Diaphragm Material in Hastelloy C276;
- Fill fluid in Silicone;
- Configuration via the HPC401 and CONF401;
- Support for DD, EDDL and FDT/DTM;
- IP65 rated enclosure.

LD 1.0
Capacitive Economical Pressure Transmitters Type Flying Leads

The LD1.0 capacitive economical pressure transmitter was designed for measuring gauge pressure of liquids gases and vapors on many industrial applications. This low transmitter is the only one in the category that uses capacitive cell technology as pressure to read pressure in an entirely digital way. The Flying Leads connection assures a good electrical insulation, avoiding humidity problems related to terminal connectors.

- ± 0.25% accuracy;
- 4-20 mA output signal according to the NAMUR NE43;
- HART® V5 communication protocol;
- Several options of process connections;
- Flying Leads electrical connections - no polarity;
- Zero and spam local adjustments using magnetic tool;
- Configuration via HPC401, CONF401 and FDT/DTM;
- Weather protection IP66.

4-20 mA

PRESSURE + LEVEL

SR301 SERIES
Remote Seals

The SR301 series is a complete Remote Seal line, which is coupled on the pressure transmitters to meet different applications such as very high or very low temperatures, areas of difficult access or with too much vibration.

- SR301T: Flanged remote seal for general applications. The flush connection is optional.
- SR301E: Flanged remote seal with extension for general applications and it is very used when the tank wall is coated.
- SR301P: Pancake type remote seal especially used in applications with limited installation area. It may be supplied optionally with flush connection.
- SR301Q: Pancake remote seal with extension.
- SR301R: Threaded remote seal for general applications with a wide variety of threaded connections. Optionally it may be supplied with flush connection.
- SR301S: Sanitary remote seal especially designed for use in food industries and other applications where sanitary connections are required.

LEVEL

RD400
Guided Wave Level Transmitter

The RD400 uses TDR (Time Domain Reflectometry) principle for direct measurement of levels in industrial processes. By using a RF frequency generator, RD400 emits waves of low frequency which are guided through a probe in contact with the process. With a dedicated software, the RD400 continuously calculates the time difference between reflected waves and the actual process fluid level.

- Measurement is not affected by density and/or temperature variations;
- Not affected by viscosity, gravity, steam, gases or turbulence over the process;
- Medium accuracy of ±5 mm*;
- Configuration via local adjustment or HART® remote configuration tool;
- Volume calculation for non-standard tanks or irregular shaped tanks.

* The accuracy depends on the probe type, the area of contact between the product and the probe, and the process dielectric constant. Outside the dead zones, the RD400 can reach up to ±7 mm. For further information, consult our representatives.

POSITION

FY300 SERIES
Smart Control Valve Positioner

The FY300 Series converts the input signals to pressure values, for the valve actuator to move its stem to the more appropriate and accurate openings, in order to carry out adequately the process control strategies. The FY300 Series is available in 4-20 mA or HART®, FOUNDATION™ Fieldbus, and PROFIBUS-PA technologies. The valve position is measured by a magnetic sensor, without physical contact. The FY300 series presents a local magnetic sensor assembly, or remote mounting up to 20 m cable length for applications involving severe vibration, high temperatures or difficult access.

Appropriate for linear or rotary valve displacement, and for single action or double action valves. Automatic setup takes less than 3 minutes. Local adjustment without need to open the circuit housing. Universal mounting brackets for rotary or linear valves. Customized mounting brackets are available for different brands and models of control valves.

Connectivity with asset management and FDT/DTM (Field Device Tool/Device Type Manager) applications. The FY300 HART® can also be configured using third-party configuration tools, and also partially configured through local adjustment using the Smar magnetic tool. Provide important data for valve and actuator diagnostics, aimed at preventive and predictive actions. Smar offers PST (Partial Stroke Test) for free for the FY303.

- Travel: i) Linear Motion: 3 - 100 mm;
  ii) Rotary Motion: 30° - 120°;
- Air pressure supply: 1.4 - 7 bar (20 - 100 psi);
- Flow Characterization: Linear, Equal Percentage, Quick Opening or configurable;
- Aluminum or 316 SST;
- Indicator with 4½ - numerical digit and 5-character alphanumerical;
- Certifications for Hazardous Areas: explosion-proof and intrinsically safe;
- Special Option: With Position Transmitter built-in on the terminal block of FY301 positioner, through a 4-20 mA output signal.

BFY-CL
Coupling Device

BFY-CL is a coupling device for the FY family of Smar positioners, for final elements of control and with strokes longer that 100 mm. The operation principle of BFY-CL is based on the oblique split rule, reducing an original long stroke to a short one, orthogonal to the original travel. Designed for ISO 6431 series cylinders - SAE1020 carbon and stainless steel materials.

The BFY-CL is used with the FY300 Series and FY400 Smar positioners - presented in three technology options: HART®, FOUNDATION™ fieldbus, and PROFIBUS-PA.

- For use in ISO 6431 series cylinders;
- 100 mm to 1000 mm cylinder and ruler strokes;
- 63 mm to 160 mm cylinders diameters;
- Carbon and stainless steel materials.

POSITION

FY400 SERIES
Smart Valve Positioner

The FY400 Series is a device that converts an input electrical signal in position for control valve or other final control element with pneumatic actuator that receives signals in 4-20 mA current or in HART® protocol. Local configuration with magnetic tool, without need to open the housing, makes it suitable for applications in hazardous areas. The portable configurators based on the HART® protocol, such as the HPC401 HART® Configurator, enables full access to the configuration parameters. Interface with the CONF401 and DDCON 100 application software on desktop or laptop. The FY400 uses a non-contact position sensor. Optionally, the FY400 can be supplied with remote position sensor, available with up to 20 m cable length. The FY400 has advanced diagnostics for control valves, fully configurable. Settings can be made by application programs based on FDT/DTM standard or by AssetView (Smar Asset Management system).

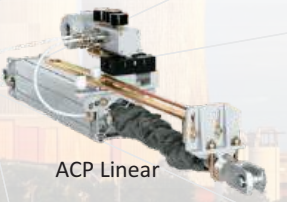
- Auto-tuning of the PID parameters;
- Partial Stroke test;
- Linear and rotary applications;
- Non-polarity power supply input;
- Travel: i) Linear Motion: 3 to 100 mm;
  ii) Rotary Motion: 30° to 120°;
- Pressure Supply: 1.4 - 7 bar (20 - 100 psi);
- Flow Characterization: Linear, Equal Percentage, Quick Opening or configurable;
- Aluminum or 316 SST;
- Indicator with 4½ - numerical digits and 5-alphanumeric characters;
- Certifications for Hazardous Areas: explosion-proof and intrinsically safe;
- More than 100 types of configurable parameters for diagnostic of control valve;

ACP300 Series
Pneumatic Cylindric Actuator

ACP Rotary

ACP300 Series actuators are devices that receive an electrical signal and position their stem in accordance with the received signal. Available in the 4-20 mA, HART®, FOUNDATION™ fieldbus, and PROFIBUS PA technology options for FY301, FY302, FY303 and FY400. Available in the linear version, for 100 to 1000 mm displacements, or the rotary version. The ACP300 cylinders are in compliance with the ISO 6431 standard, are self-lubricating, guide linkage, with magnetic piston for the purpose of using magnetic limit switches and double action with dampening. The configurations can be made locally or remotely, facilitated by different FY options, without need to open the electronic housing. Additionally, the ACP300 has the option for "remote position sensor", suitable for applications in high temperature, excessive vibration or even difficult local access.

- 20 to 100 psi pressure;
- Operation temperature: -20º to 80 ºC;
- Stroke available: 100 to 1000 mm;
- Diameters available: 63, 80, 100, 125 and 160 mm (consult Smar for other diameters options).
- Auto Setup;
- Bracket Material in Carbon Steel;
- Cylindrical material in cast aluminum with low copper percentage;



ACP Linear

POSITION

TP300 SERIES
Smart Position Transmitter

4-20 mA

The TP300 Series produces an output signal proportional to the displacement length of mechanical equipment. The TP300 Series is available in 4-20 mA, HART®, FOUNDATION™ fieldbus, and PROFIBUS-PA technology options. Additionally, the TP290 is available in 4-20 mA technology option. The TP300 can be used to measure linear or rotary displacements. The position sensor used in the TP300 family is based on the Hall Effect, without mechanical contact. Additionally, the TP300 has the option for remote sensor position with extension cables up to 20 m. Suitable for applications in high temperature, excessive vibration or difficult local access. The TP300 Position Transmitter can be configured locally with the Smar magnetic tool, without the need to open the electronic housing. Suitable for applications in hazardous area. In addition to local configuration, the TP300 Position Transmitter can be configured via HPC401 HART® Configurator manual or by any other manufacturer complying with HART® Foundation standards. It is also possible to configure and operate the Position Transmitter with applications based on desktops for HART®, FOUNDATION™ fieldbus and PROFIBUS-PA technology.

- Output signals: two-wire, 4-20 mA, HART®, FOUNDATION™ fieldbus or PROFIBUS-PA technology options;
- Linear stroke: 3 to 100 mm;
- Rotary stroke: 30º to 120º;
- Indication: Rotary display, with 4½-numerical digits and 5-alphanumeric characters;
- Material: Aluminum or 316 SST;
- Temperature Limits: i) Ambient: -40 to 85 °C (-40 to 185 ºF);
  ii) Process: -40 to 100 ºC (-40 to 212 ºF);
- Humidity Limits: 0 to 100 % RH;
- Certification for Hazardous Area: explosion-proof, weather-proof and intrinsically safe.

TP400 *Wireless*HART™
Position Transmitter

WirelessHART

The TP400 is a *Wireless*HART™ transmitter for position measurement and it is part of the family of Smar devices. It can measure displacement or movement of rotary or linear type based on Hall effect non-contact sensor. The digital technology and wireless communication provide an easy interface between the field and control room and several interesting features that considerably reduce the installation, operation and maintenance cost. The TP400 *Wireless*HART™ may be installed to monitor valves and actuators position or in any equipment with linear or rotary motion such as skylights, dampers, rollers spacing, crushers, etc. There is an option for remote sensor with cable length up to 20 m.

TEMPERATURE

TT300 SERIES
Smart Temperature Transmitters

The TT300 temperature transmitter line is a fully digital, accurate, and compact solution for temperature measurements. The TT300 transmitters accept different types of sensors with large measurement range, with 2, 3 and 4-wire connections. TT300 Series have several features that reduce the installation, operation and maintenance costs. They are suitable for direct field installation and are weather and explosion proof, and intrinsically safe for use in hazardous areas.

- ± 0.02% accuracy;
- Built-in thermocouples and RTD's linearization;
- True non-interactive zero and span;
- Remote configuration via the Hand-Held Terminal or the PC;
- Small and lightweight;
- Explosion proof and weather proof housing;
- EMC (Electromagnetic Compatibility) according to IEC standards;
- Write protection function;
- Intrinsically safe;
- Three technology options: HART®, FOUNDATION™ fieldbus, and PROFIBUS-PA;
- Support for DD/EDDL and FDT/DTM.

TT1.0
Economic Temperature Transmitter

The TT1.0 is a temperature transmitter extremely versatile, accepting several types of sensors, like load cells, etc. The same unit may be used for different measuring ranges and different types of sensors that include a wide variety of RTDs and thermocouples, besides the inputs for millivolt and resistance. Thus, the plant inventory can be standardized, as it can replace several types and models of conventional transmitters. The TT1.0 is the best cost/benefit in its class.

4-20 mA HART PROFIBUS

RP400
*Wireless*HART™ Repeater

The RP400 is a *Wireless*HART™ network dedicated device and its main function is to extend the network range working as a router manager, simplifying the design and implementation of a wireless network. The device is passive and has no actuation in the industrial process. The *Wireless*HART™ communication network is structured as a mash. The Mesh network allows the network nodes to communicate with each other establishing redundant paths to the gateway, increasing the network availability. This type of networks also allows scalability simply by adding additional nodes or the RP400 repeaters into the network. Another characteristic is that the bigger is the network, the more reliable it becomes because more alternative paths will be created.

- *Wireless*HART™ digital communication;
- Increase of communication routes, facilitating the *Wireless*HART™ network scalability;
- Availability increase through alternative paths in the Mesh network;
- Excellent payout solution;
- Lithium primary batteries (Li-SOCl2) lasting up to 6 years;
- Maximum use with the Smar gateway DF100.

WirelessHART

TT400 *Wireless*HART™
Smart wireless Temperature Transmitter

TT400 *Wireless*HART™ is used in all field applications demanding data wireless transmission. Smar TT400 *Wireless*HART™ is a transmitter mainly intended for temperature measuring using RTDs or thermocouples. This device can operate even with two sensors and in the following conditions:

- Simple measurement, by using only one sensor;
- Differential measurement, with two sensors (same type);
- Backup measurement, with two sensors (same type);
- Maximum, minimum or average measurement, two sensors (same type).
- 0.02% accuracy;
- Single unit and several options for sensors and connections;
- Advanced diagnostics;
- Support for DD/EDDL and FDT/DTM;
- Sensor backup.

WirelessHART

TT383
Eight Channels Temperature Transmitter

TT383 has independent channels to measure up to 8 (eight) different points. The temperature information is provided by the PROFIBUS-PA communication protocol and the measurement can be done via Thermocouples or RTD sensors. Some TT383 features:

- 8 (eight) temperature channels for several types of sensors;
- ± 0,03% accuracy;
- 2 or 3 wires sensor connections;
- Input signal isolation;
- DD/EDDL and FDT/DTM technologies based;
- Differential measurement;
- Sensor backup.

PROFIBUS

TT481 *Wireless*HART™
Multipoint Temperature Transmitter

The TT481 WirelessHART™ is a temperature transmitter for 4 or 8 inputs that simplifies the installation and provides a temperature measurement per point cheaper. Temperature information is available via WirelessHART™ digital communication protocol. The TT481 offers:

- ± 0.03% accuracy;
- RTDs and thermocouples linearization;
- Lightweight and compact;
- Simple or differential measuring;
- Several type of sensors, 2 or 3-wire;
- Supports DD/EDDL and FDT/DTM;
- Inputs accept 4-20 mA signal for easy integration between 4-20 mA devices to WirelessHART™ network.

WirelessHART

TEMPERATURE

TT 1.0P
Temperature Transmitter For Panel

The TT1.0P is a temperature transmitter extremely versatile, accepting several types of sensors, like load cells, etc. Additionally, it was designed to be panel mounted. The same unit may be used for different measuring ranges and different types of sensors that include a wide variety of RTDs and thermocouples, besides the inputs for millivolt and resistance. Thus, the plant inventory can be standardized, as it can replace several types and models of conventional transmitters. The TT1.0P is the best cost/benefit in its class.

4-20 mA HART

TT400 HART® SIS
Smart Temperature Transmitter

Safety Instrumented Systems are designed and used to prevent hazardous events, to protect people, the environment or prevent damage to process equipments. The SIS project is based on the damage that a failure can cause. The Smar TT400 HART® SIS is a transmitter mainly intended for temperature measuring using RTDs or thermocouples, and for SIL2 and SIL3 (redundancy) levels. This device can operate even with two sensors and in the following conditions:

- Simple measurement, only one sensor, providing a current output or via communication;
- Differential measurement, two sensors (same type), providing a current output or via communication;
- Backup measurement, two sensors (same type), providing a current output or via communication;
- Maximum, minimum or average measurement, two sensors (same type), providing a current output (only HART®).
- 0.02% accuracy;
- Single unit and several options for sensors and connections;
- Input signal isolation;
- Advanced diagnostics;
- Support for DD/EDDL and FDT/DTM;
- Sensor backup;
- Safety Certified to IEC 61508 by TÜV.

HART TÜV SÜD

TT421
4 to 20 mA + HART® Head Mount Smart Temperature transmitter

The TT421 is a temperature transmitter for head mounting, compatible with the HART® protocol. It works with several sensor types and represents an excellent cost/benefit solution. Lightweight, compact and extremely robust, it has an internal PID block that allows it operate as a controller. In addition, this equipment uses algorithms that ensure that the output signal works in linearity with the temperature.

- 0.02% accuracy;
- Input: a single input accepts signals from thermocouples, RTD's, differential RTD's, mV signals from radiation pyrometers, load cells, Ohm signals from position indicators, etc;
- Ambient temperature limit: -40 to 75 ºC (-40 to 167 ºF);
- Measurement types: Single Sensor: 2, 3, or 4 wire; 2-wire double sensor: Differential, Average; Maximum and Minimum;
- Configuration: via HART® configuration tool;
- Mounting: easy integration with industry-standard DIN Form B package, in pit and head.

TT411
Panel Mount 4 to 20 mA + HART® Smart Temperature transmitter

The TT411 is a panel mount temperature transmitter, compatible with the HART® protocol. It works with several types of sensors and is an excellent cost/benefit solution. Lightweight, compact and extremely robust, it has an internal PID block that allows it operate as a controller. In addition, this equipment uses algorithms that ensure that the output signal works in linearity with the temperature.

- 0.02% accuracy;
- Input: a single input accepts signals from thermocouples, RTDs, differential RTDs, mV signals from radiation pyrometers, load cells, ohm signals from position indicators, etc;
- Ambient temperature limit: -40 to 75 ºC (-40 to 167 ºF);
- Measurement types: single sensor: 2, 3, or 4-wire; 2-wire double sensor: Differential, Average, Maximum and Minimum;
- Configuration: via HART® configuration tool;
- Mounting: DIN rail type 'T' on panel installation.

CONFIGURATORS

CONF401
HART® Network Configuration Software

The CONF401 is powerful and user-friendly. It provides easy configuration and monitoring of field instruments plus the ability to analyze data and modify instrument performance.

- Turns your personal computer into a fast configuration platform for HART® devices;
- Fully compatible with Microsoft Windows 95, 98, 2000 and XP; Microsoft NT, and UNIX;
- Provides full support for HART® instruments;
- Configurations can be made off-line and stored for later use;
- Upgrade able to support additional devices;
- Supported Devices
  - o Smar : LD301/291, TT301, FY301, TP301, DT301(Version 2.00 and above), HCC301, TT411, TT421 and RD400;
  - o Rosemont : 3051C, 3144, and 3244MV;
  - o Yokogawa : EJA Series;
  - o Spirax Sarco : SP301;
  - o Other equipment on request.

HI311 / HI321
HART® Series/USB Interface

The HI311 (RS-232) and HI312 (USB) HART® Serial Interfaces are designed to provide a full physical link between a HART® field instruments and personal computers. They are fully self contained, and require no direct power supply. The HI311/HI321 are designed for use with Smar Research's CONF401 HART® Configuration Software and are compatible with HART® communication environments.

- Fully compatible with HART® products manufactured by SMAR and others;
- System powered: no need for external power supply;
- Tested isolation of 1500 Vdc between field instrument and RS-232 adaptor pins;
- Very low leakage current to the process network (Max 10 µA @35 Vdc);
- Standard USB or DB9 serial port connector.

CONFIGURATORS

DDCON100
HART® Network Configurator DDL Technology

DDCON 100 is a comprehensive communication and configuration tool package that is compatible with all HART® devices. Based on the recently ratified Device Description Language (DDL), DDCON 100 has the ability to work with any HART® device that has a manufacturer created Device Description (DD) file.

- Turns your PC or laptop into a universal HART® device configuration platform;
- Intuitive, easy to use graphical interface;
- Supports over 100 HART® devices;
- New devices can be downloaded via www.smarresearch.com and then easily added or removed directly within the software;
- Supports multidrop operations and off-line configurations that can be saved for later use;
- Bus monitoring via the integrated HART® serial monitor software.

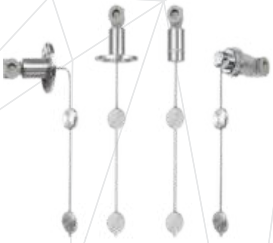
HPC401 Plus
HART® Configurator

The HPC401 Plus HART® Configuration turns the included Palm into a fast configuration and diagnostic platform for HART® instruments.

- Provides full support for HART® instruments based upon the manufacturers device description files (DD);
- New DD files can be downloaded and added from the Smar Research website;
- Faster and easier to use than other hand held alternatives;
- Support Multidrop operation for all 15 nodes allowed by the HART® protocol;
- Preinstalled software allows easy out-of-the-box operation;
- Data logging application allows logging of device variables over time for exporting to a computer.

DENSITY TRANSMITTERS/CONCENTRATION

DT300 SERIES
Smart Density Transmitters



The DT300 smart density transmitters line was designed for the continuous measurement of liquid density and concentration in industrial processes. The complete line is available in the 4-20 mA + HART®, FOUNDATION™ fieldbus, and PROFIBUS-PA technology options. These transmitters use an exclusive and patented technology to calculate the density, where a probe immersed in the process, with two pressure sensors and one temperature sensor, is connected to a capacitive sensor which calculates the ΔP between the pressure sensors. With the ΔP and temperature, a dedicated software calculates the density and concentration of the process fluid. This density/concentration may be expressed in g/cm³, kg/m³, lb/ft³, relative density, °Brix, °Bé, °INPM, °GL, °API, %Solids and %Concentration. The DT300 may be installed in a pipe or directly in the process tank. The DT300 Series may be applied in Sugar & Ethanol Plants, Food Industry, Beverage Industry, Chemical & Petrochemical Industries, Pulp & Paper Industries, Oil & Gas Industries and Mining.

- Accuracy ± 0.0004 g/cm³;
- Range 0.5 - 5 g/cm³;
- Standard industrial and sanitary (3A) process connection;
- Multifunction rotary display;
- Two-wire loop powered;
- Several different wetted materials;
- Single integrated unit, without moving parts;
- Factory calibration and self-calibration;
- In-field re-calibration:
  * No standard reference required;
  * No lab calibration required;
  * No process shutdown.
- Weather proof, explosion proof and intrinsically safe;
- Totally digital; including sensor, electronics and communication;
- Configurable via local adjustment (FOUNDATION™ fieldbus and PROFIBUS-PA);

DENSITY TRANSMITTERS/CONCENTRATION

DT400 *Wireless*HART™
*Wireless*HART™ Density Transmitter

The DT400 is a *Wireless*HART™ density transmitter with digital communication designed for the continuous online measurement of liquid density, directly in industrial process. The DT400 *Wireless*HART™ consists of a probe with two repeaters diaphragms immersed in the process. A temperature sensor located in the probe, between the two repeaters diaphragms automatically compensates temperature variations in the process. Special techniques in the production and assembly probe and temperature sensor ensure that small variations in the process temperature are quickly informed to the transmitter, which calculates the fluid density process accurately through dedicated software. Depending on the industrial process, density can be expressed in Density, Relative Density, °Brix, °Bé, °INPM, °GL, °API, %Solids and %Concentration. Locally, via HART® configurator, it is possible to perform calibration, monitoring and check diagnostics.

WirelessHART

EDT300
Alcoholic Degree Measurement System

The EDT300 is a great solution for continuous online measurement of alcoholic degree. The measurement can be expressed as alcohol by volume (°GL) or alcohol by weight (°INPM).The EDT provides high accuracy and repeatability, besides of easy installation and maintenance. The EDT300 can be installed, for example, in the output of the ethanol distillation column. It is not necessary to cool the fluid since the EDT can measure the ethanol at the process temperature. The automatic control of this process can be done based on the alcoholic degree, affording excellent results, such as increased productivity and better control of product specifications. The EDT300 has 4-20 mA + HART®, PROFIBUS-PA or FOUNDATION™ fieldbus communication protocol for configuration, monitoring and diagnostics.

- ± 0.05% °INPM accuracy;
- Measuring range: 0 to 100 °INPM;
- Operation temperature: 10 to 100 °C;
- Input and output process connections: flange ½" - ANSI B16.5.

4-20 mA HART COMMUNICATION PROTOCOL FOUNDATION

WirelessHART PROFIBUS

CONVERTERS

FP300 SERIES
Fieldbus Converter for Pressure

The FP300 Series pressure converters are designed as an interface for a FOUNDATION™ fieldbus or PROFIBUS-PA system, with a pneumatic actuator or a valve positioner. The FP300 series provides a pneumatic output signal proportional to an input received from a network FOUNDATION™ fieldbus or PROFIBUS-PA. The technology used in the FP300 Series allows easy interfacing between the field and the control room, and it has several interesting features that considerably reduce the installation, operation and maintenance costs. The function blocks concept has been introduced to make programming easier to users, who can now build and visualize complex control strategies. Present additional advantage in flexibility, once allow changing the control strategy without changing the wiring or any hardware. They can be locally configured using a magnetic tool, without having to open the device, eliminating the need for a configurator in many basic applications. The FP300 series is suitable for output pressures ranging from 3 psi to 15 psi or 3 psi to 30 psi extended range version. Besides the local settings, the FP300 Series can be configured remotely via the applications that meet the FOUNDATION™ fieldbus or PROFIBUS-PA standards. Smar makes available to its customers applications for both communication protocols, for where pneumatic actuators are indispensable or in plants that are still migrating from pneumatic to digital technology. The FP300 Series was designed to meet IP66 weather -proof requirements and has been submitted and approved for explosion-proof or intrinsically safe areas.

- Input: Digital only. FOUNDATION™ fieldbus or PROFIBUS-PA with bus power;
- Output: 3-15 psi (0.2-1.0 kg/cm²) or 3-30 psi (0.2-2.1 kg/cm²);
- Output capacity: 6.7 Nm³/h (4 scfm);
- Accuracy: 0.4 % of span;
- Bus powered: 9-32 Vdc;
- Quiescent current consumption: 12 mA.

FRI300
Fieldbus/Profibus Relay and Digital Input

The FRI300 Series makes it easier to integrate fieldbus and conventional signals, as solenoids, pumps, motors, alarm generation, etc. With two discrete inputs and two discrete outputs, the series can be mounted in the field without needing to extend the conventional cable to the control room. By using FOUNDATION™ fieldbus and PROFIBUS-PA Function Blocks, these inputs and outputs are easily integrated to the control loops.

- Discrete outputs and inputs connected directly to the fieldbus world;
- Input: Digital only. FOUNDATION™ fieldbus or PROFIBUS-PA bus-powered;
- Instantiable Function Blocks for FOUNDATION™ fieldbus on field regulatory and discrete control in the field;
- DI and DO Function Blocks on PROFIBUS-PA;
- Allows fieldbus connection to conventional discrete equipment;
- Reduces wiring costs;
- Backup master capability on the FOUNDATION™ fieldbus network;
- Supports EDDL and FDT/DTM.

IF300 SERIES
Triple Channel Current to Fieldbus Converter

The IF300 Series is a special group of devices for the transition of systems that still have conventional instrumentation with analog 4-20 mA or 0-20 mA signals. It allows up to 3 analog signals to be converted into fieldbus signals through fieldbus analog input function blocks. They are available in FOUNDATION™ fieldbus or PROFIBUS-PA technologies.

- Power supply (H1 bus): 12 mA @ 9 to 32 Vdc;
- Analog input signal accepts any values between 0-20 mA;
- Three 0/4-20 mA current inputs with external power supply;
- Accuracy: ±0.03%;
- Material: Aluminum with low copper content or 316 SST;
- Configuration through an engineering station or magnetic tool;
- Hazardous Area Certification: explosion proof, weather proof and intrinsically safe;
- Function Blocks:
- Up to 20 dynamically instantiable function blocks for the IF302 with backup master capacity (H1 network LAS);
- 1 Physical (PHY), 3 Transducers (TRD), 3 Analog Input (AI) and 3 Totalizers (TOT) for IF303;
- Fail safe functions.

FI300 SERIES
Triple Channel Fieldbus to Current Converter

The FI300 Series is a special group of devices for the transition of systems that still have conventional instrumentation with analog 4-20 mA signals. It allows up to 3 fieldbus control signals to be converted into 4-20 mA output current. They are available in FOUNDATION™ fieldbus or PROFIBUS-PA technologies.

The converted signals can be used for speed control in frequency converters, valve positioners, electric actuators and other 4-20 mA inputs devices.

- Power supply (H1 bus): 12 mA @ 9 to 32 Vdc;
- Digital input signal:
- FOUNDATION™ fieldbus (FI302);
- PROFIBUS-PA (FI303);
- Three 4-20 mA current outputs with external power supply;
- Accuracy: ±0.1%;
- Material: Aluminum with low copper content or 316 SST;
- Configuration through an engineering station or magnetic tool;
- Hazardous Area Certification: explosion proof, weather proof and intrinsically safe;
- Function Blocks:
- Up to 20 dynamically instantiable function blocks for the FI302 with backup master capacity (H1 network LAS);
- 1 Physical (PHY), 3 Transducers (TRD), 3 Analog outputs (AO) for FI303;
- Fail-safe functions.

CONVERTERS

HI302 N/I/O
HART® /FOUNDATION™ Fiedbus Interface

The HI302 is an innovative product that can be integrated in any FOUNDATION™ fieldbus host. Its main function is to serve as interface between HART® devices and FOUNDATION™ fieldbus systems, allowing the user to perform maintenance, calibration, and monitor sensor status and general device status, among other information.

- Interoperable with fieldbus systems from different manufacturers;
- Suitable for asset management systems, totally integrated to AssetView;
- Protects investment on HART® devices maintenance;
- Complete built-in configuration of Smar devices in the HI302 module;
- Allows that configuration of third-party devices also be embedded in the flash memory or added through FOUNDATION™ fieldbus function blocks;
- It has eight non-multiplexed and independent HART® master channels;
- One FOUNDATION™ fieldbus H1 channel;
- Supports up to eight peer-to-peer HART® devices;
- It has 4-20 mA input circuits on the HI302-I model (current to FOUNDATION™ fieldbus conversion);
- It has 4-20 mA output circuits on the HI302-O model (FOUNDATION™ fieldbus to current conversion).

HCC301
HART® to Current Converter

The HCC301 is a HART® Current Converter that transforms a digital variable obtained via HART® communication into an analog current signal, allowing this variable to be monitored or controlled.

- Two-wire, 4 to 20 mA output signal, in compliance with NAMUR NE43 specification, with super-imposed digital HART® Protocol communication;
- 1500 Vdc insulation;
- Power supply 12-45 Vdc;
- 0.04% Accuracy;
- 120 ms response time;
- HART® network primary master;
- Allows access to a secondary master.

CONTROLLERS

DC300
Fieldbus/ Profibus Remote Input And Output

Enables easy integration between discrete devices like pressure switches, button panels, On/ Off valves, pumps and conveyors and the FOUNDATION™ fieldbus and PROFIBUS-PA systems via H1 bus. It is a compact module with power supply, control and I/O integrated on a single equipment, making it easy to use and mount in comparison to other solutions in the market. The DC303 is integrated to the Smar SYSTEM302 and can also be easily integrated to third-party systems.

- Signals: 16 isolated inputs and 8 isolated outputs;
- Consumption: 150 mA and external power supply of 18-30Vcc;
- Supports up to 20 FOUNDATION™ fieldbus function blocks to implement control strategies on the field device;
- Supports the FOUNDATION™ fieldbus flexible logic block with 100 ms of independent cycle time on the H1 network macrocycle;
- Supports the PROFIBUS-PA flexible logic block with 60 ms of scan time;
- Backup master capability on the FOUNDATION™ fieldbus network;
- Supports EDDL and FDT/DTM;
- IP 20 protection, meets VBG4, and other European accident prevention requirements. It can optionally be supplied preinstalled in an enclosure ready for field mounting;
- DIN rail mounting.

CD600Plus
Multi-Loop Digital Controller

The CD600Plus is a versatile and reliable single module process controller. It is capable of simultaneously controlling up to 4 loops with up to 8 PIDs and sophisticated strategies with function blocks. It has a powerful multiple I/O channel hardware platform. In a single station, this high-end controller replaces as many as eight traditional controllers, numerous signal and wiring conditioning modules. The high reliability of the CD600 has earned a great reputation from a wide range of high-end users.

- Up to four independent control loops with up to eight PID functions;
- 8 analog inputs, 8 analog outputs, 8 discrete inputs and 8 discrete outputs;
- Built-in 24Vdc 200 mA power supply for up to 8 field devices;
- More than 120 function blocks are available for user programming;
- Adjustment of control options through the front panel;
- OPC server serial and/or Ethernet for HMI;
- Configuration tools available for download at no cost: CONF600PLUS, TAGLIST;
- Works with the ENET-710 for CDBUS/TCP communication.

SAFETY BARRIER

DF47-12/ DF47-17
Intrisic Safety Barrier With FOUNDATION™ Fiedbus & PROFIBUS PA Repeaters (1.2 W / 1.7 W)

The Intrinsically Safe (I.S) technology incorporated in the DF47-12 and DF47-17 totally isolates the control network from the hazardous area. The I.S. values of the power supply are designed for fieldbus devices, which are in compliance with the FISCO model. The incorporation of a fieldbus repeater, in compliance with IEC 61158-2, 31.25 kbps, essentially filters and boosts the incoming communication signal, transmitting it to the hazardous environment. The networks of the hazardous and safe sides of the DF47-12 and DF47-17 are completely independent from one another.

- Certified for IEC, FM & CENELEC intrinsic safety standards;
- In compliance with IEC 60079-27, FISCO and FNICO for power supplies;
- Dual marking in compliance with IEC 60079-11 and IEC 60079-27;
- Bus terminator on the hazardous side.

IMPEDANCE FOR POWER SUPPLY

DF53/DF98
Impedance for FOUNDATION™ fieldbus Power Supply

These modules were specially designed to provide appropriate impedance for H1 fieldbus networks in compliance with the IEC61158-2 standard in non-hazardous areas. The DF98 model has 2 ports and the DF53 has 4 ports. They have selectable bus terminators and control the network impedance in an active and non-isolated way for a broad frequency range.

- Input: 24 to 32 Vdc +/- 10%;
- Output: DF53: 340 mA per port;
  DF98: 500 mA per port;
- Maximum power dissipated: DF53: 2.26 W per port;
  DF98: 3.43 W per port;
- Ambient Temperature Limits: 0 to 60 ºC (32 to 140 ºF).

SERVICES AND SUPPORT

BALDOTA offers customers first-class technical support and services with a highly specialized, experienced team. We guarantee the maintenance of your system by supplying quality spare parts and services rapidly, in all stages of the project and plant maintenance.

ONLINE SUPPORT

We provide information and technical support via the Internet at www.baldota.co, where customers can find detailed information about BALDOTA products and services. Registered users may submit technical questions and visit the Most Frequent Asked Questions section. Responses are quick, usually in less than 24 hours, by chat, e-mail or telephone (except on weekends and holidays). Our support team is made up of qualified engineers and technicians who provide basic consultation and assistance for initial configurations and engineering.

TECHNICAL ASSISTANCE

BALDOTA provides a technical assistance. Requests can be submitted by telephone: (+91 22 49763124 and +91 22 45193124) or web support www.baldota.co.

The Technical Assistance and Support Departments provide the following services:

- Electrical installations and instrumentation projects;
- Execution or supervision of instrumentation and electrical installations;
- Certifications for installation of analog or digital instrumentation;
- Pre-commissioning and commissioning of systems;
- Plant start-up follow-up and support;
- Assistance to the project operation;
- Support during plant outages for corrective, preventive and predictive maintenance;
- Emergency device support and repairs.

They also offer preventive maintenance contracts for systems and field devices.

In order to better support the market, baldota policy is to maintain very close contact to customers and representative. Our product are marketed worldwide by a network of baldota subsidiaries and representatives. Baldota subsidiaries provide technical and commercial support to representative, and keep stock of transmitters and urgent requirements and service.

ASSEMBLY OF CONTROL CABINETS, COMMISSIONING AND START-UP

Today, there is a growing trend in the process industries to shorten the period required for executing projects and starting up plants. Experience shows that in the commissioning stage, it is common practice to involve several primary suppliers in discussions regarding project scope and responsibilities. Many times, however, the delivery, acceptance and approval of an automation system is impaired by the lack of definition of responsibilities.

The choice of an automation provider capable of supervising most of the project stages avoids potential disagreements that may endanger the success of the undertaking.

To avoid these difficulties, baldota offers expert Applications and Project Engineering Departments, as well as an Assembly Department that can design and build control cabinets on its own or based on the client's project. We provide complete documentation, including manuals, inspection procedures and checklist, with a view to the acceptance FAT, SAT and SIT tests, compliant to the IEC 62381 standard.

Customer benefits are even greater when you take into account the services provided by our Technical Assistance Department, such as electrical and mechanical installation for field equipment, communication networks, etc.

The high quality and reliability of SMAR products are demonstrated in our cabinet solutions. Our broad experience can be seen in thousands of cabinets in operation worldwide. Let us make your startup and maintenance faster, safer and more reliable.

ENGINEERING AND PROJECT

BALDOTA has several groups of specialized professionals offering valuable contributions to various types of process control. Our company, with its dual role as system provider and device manufacturer, has comprehensive knowledge about control system selection and installation. Our project teams also specialized in other aspects of systems engineering, such as computers, network infrastructure and wireless devices.

BUILDING YOUR OWN SYSTEM

In some cases, users prefer to develop their own automation system and keep their process secret. The high degree of openness and easy of use with SYSTEM302 enables the user to implement the system on their own with BALDOTA support. Under this scenario, the user acquires the confidence needed to carry out maintenance and future updates. They can also realize initial savings that may be expanded from time to time. Consequently, the user is better positioned to solve possible difficulties, always counting on BALDOTA's recognized technical assistance on a periodic basis.

ENGINEERING AND PROJECT

Most customers prefer a complete BALDOTA solution when acquiring their initial SYSTEM302. However, BALDOTA also partners with integrators in various regions throughout the world who can engineer and support SYSTEM302 installations on a local basis. In most cases, the best approach is to let BALDOTA's experienced team oversee the initial project and commissioning, while the customer handles system installation and maintenance.

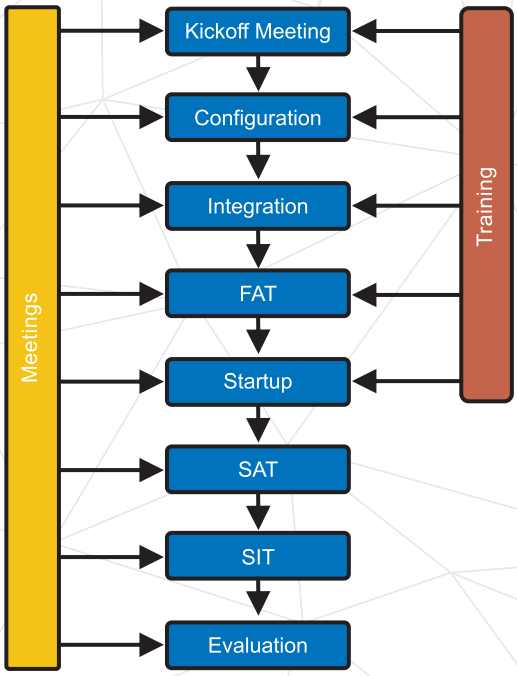
A BALDOTA project group can supervise the entire job, starting from the basic system engineering.

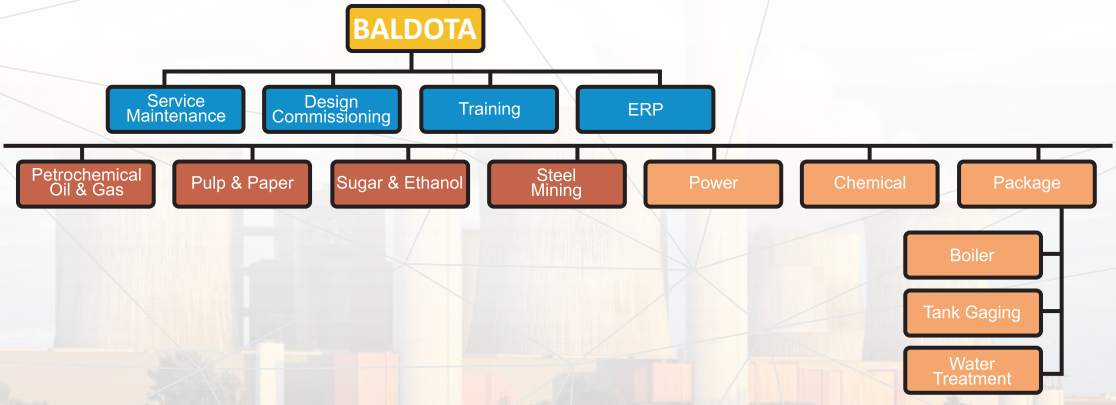
Preparation and configuration of operator workstations and the Factory Acceptance Test (FAT) can be done at a BALDOTA facility under the user's supervision. System Acceptance Tests (SAT) and Field Integration Tests with all the field devices are also available options.

OUR SYSTEMS

BALDOTA can develop program applications executing measurement, control, logic sequencing and functionality according to instructions provided in user documents. These may include flowcharts, logic diagrams, cause and effect tables, and other descriptive operational papers.

The projects managed by our company are supplied with the complete system documentation, including programs and configurations, connection schemes, cross-reference and manuals.





BALDOTA ANG 500 SERIES

Key Features

- Radiation up to 4.1 MRad TID
- 100 ms Reaponse Time
- Damping adjustable
- Explosion proof, IP67 Enclosure
- Accelerated Thermal Ageing Test
- Seismic Qualified
- LOCA/ MSLB/ Severe Accident qualified
- High Accuracy
- Span and zero continuous and adjustable
- Two -wire system 4-20 mA DC
- Over-pressure protection
- Conforming to IEEE-323 Environmental Conditions
- Conforming to IEEE-344 Seismic Conditions

Fully Qualified Radiation Grade Analog Pressure Transmitter ANG 500 is one of the example which is developed by BALDOTA R & D Team and has been successfully installed in almost all the NPCIL Nuclear Power Plant.

TLK-TT SERIES

TLK - TT305 TEMPERATURE TRANSMITTER

TLK-TT305 supports HART, FF, and PA protocols. It can be widely used in the petroleum, chemicals, electricity, and metallurgical industries, etc.

TLK-TT305 smart temperature transmitter, using the HART technology, is a new generation of smart fieldbus temperature transmitter and it is an indispensable field device for process control. TLK-TT305 transmitter integrates abundant function blocks and realizes not only general measurement function but also complicated control strategy.

- Configuration Environment
- Temperature transducer block parameter configuration
- PROFIBUS periodic data communication configuration
- PROFIBUS non-periodic data communication configuration
- Online, offline configuration function
- Sensor type configuration
- 2-wire zero point calibration configuration
- Enable cold-junction temperature compensation
- 5-point linearity calibration

TLK - TT306H-R TEMPERATURE TRANSMITTER

The TLK-TT306H-R is a HART enabled intelligent temperature transmitter made by Baldota. This device measures temperature using RTD's, thermocouples, resistance or mV input. The TLK-TT306H-R mounts on any industry standard "T" type DIN rail for easy integration with various sensors. The TLK-TT306H-R meets all HART Foundation physical layer requirements and is fully configurable through software.

- Smart two-wire, 4-20 mA loop power transmitter with HART communication
- Measures temperature using resistive sensors (RTD's), thermocouples, sensors with resistance or mV outputs
- Measurement Type
  - Single sensor; 2, 3, or 4 wire configurations
  - Dual Sensor
  * Differential
  * Average
  * Maximum
  * Minimum
- Low cost panel installation
- Configured to customer specifications prior to shipping

TLK - TT306H TEMPERATURE TRANSMITTER

TLK- TT306 series temperature transmitter supports HART, FF, and PA protocols. It can be widely used in the petroleum, chemicals, electricity, and metallurgical industries, etc. TLK- TT306H HART temperature transmitter, using the HART technology, is a new generation of smart HART temperature transmitter and it is an indispensable field device for process control. TLK- TT306H integrates abundant functions and realizes not only general measurement function but also complicated control strategy. TLK- TT306H uses digital technology, so it can connect with many types of thermocouple and thermo resistive sensors. It has wide range and simple interface between field and control room, which reduces the expense of installation, operation and maintenance.

- Damping: Range 0 to 32 seconds.
- Unit: The change of PV unit directly affects the variables associated with the unit, such as the upper and lower limits of the range, the upper and lower limits of the sensor, and so on. When modifying the unit, you cannot modify the upper and lower limits of the main variable range at the same time, and should be modified separately.
- The unit can be set to: °C, °F, R, K, mV, Ohm.
- Upper range: PV value corresponding to 20mA output current.
- Lower range: PV value corresponding to 4mA output current.
- Alarm type: high alarm and low alarm.
- Alarm value: When the alarm type is high alarm, it can be 21.75mA to 23.00mA.

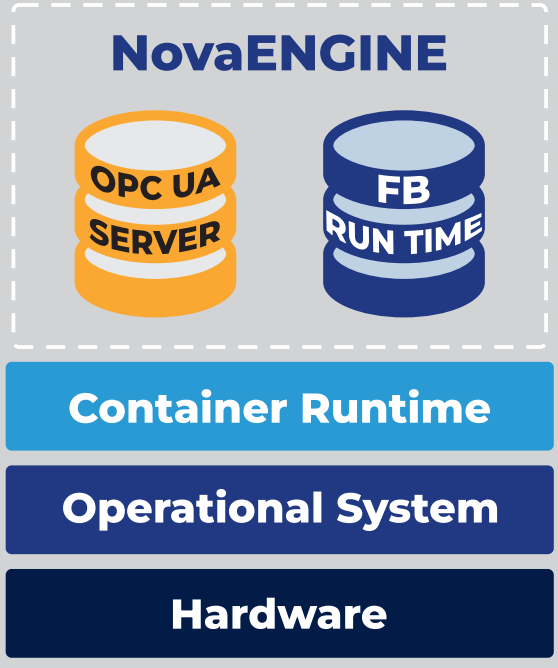

smar
Technology Company
NOVA
Line
Nova Smar makes available to the world automation market its new line of distributed control systems, the **Nova Line**, which implements the O-PAS technology, Open Process Automation Standard. The **Nova Line** is composed of several controllers' models called **DCNs, Distributed Control Nodes,** which provide access to the input and output signals Foundation fieldbus, Profibus, Modbus, HART, WirelessHART and conventional. The NovaCSB configuration tool is the main element of the system, allowing the creation of control strategies using the library of **O-PAS Technology** functional blocks.
BALDOTA

NovaENGINE

Containers are software units that package applications and their dependencies into a single package, simplifying the creation, deployment, and execution of applications in different environments. The NovaENGINEs are capable of running control logic on Docker platforms. In addition, the NovaENGINEs are independent and can be run on O-PAS compatible hardware, and the configuration is done using an XML file.

Makes up Smar NovaENGINE:

- OPC-UA server, responsible for container communication with the O-PAS network, providing the Information Model of applications and cyber-security.
- FB Run Time, responsible for the execution of control functions such as function blocks, sequential logic, IEC 61131-3 logic and IEC 61499 logic.



NovaDCN

A Distributed Control Node (DCN) is a component of a distributed system that describes a node or device that has the ability to control and **manage** other units and resources in the distributed environment. In a distributed system, multiple independent entities, such as computers, sensors, storage devices, actuators, and other network devices, are **interconnected and work together** to perform tasks or provide services.

Smar's NovaDCN was developed in partnership with **Intel®,** a company that is also part of the OPAF (Open Process Automation Forum). In this way, we bring to the world of industrial automation the **powerful processors** of the Intel family, designed for complete distributed control solutions in full **compliance with O-PAS.**

- Hardware developed in partnership with Intel;
- O-PAS Compatibility Certificate;
- Portability;
- Interconnectivity;
- Industrial installation;
- Intel Atom® x6200FE Processor;
- 4 Ethernet ports 1000 Mbps RJ45;
- OPC-UA communication;
- 24V power supply with 2A consumption
- USB 3.1 port;
- Debian Linux Operating System.

DCNs also act as a **gateway** to other networks or systems, such as **legacy systems,** wireless gateways, digital field networks, I/O, and DCS or PLC system controllers. The NovaDCN also has in its line Gateways that allow the **integration of System 302 with O-PAS;**

- Integrates the Legacy with the New Generation;
- Provides access to legacy systems through O-PAS Signal;
- Allows the use of HART, Profibus, Foundation fieldbus, Modbus and conventional I/O signals with O-PAS systems;
- AML description file.

system 302
Open Digital Ecosystem

PROFIBUS Modbus Fieldbus HART COMMUNICATION PROTOCOL

NovaFB

Open technologies make it possible for hardware and software components from **different manufacturers** to be used together in the **same application** or system. The data and communications structures used by function blocks are **standardized to ensure interoperability.** The full feature description allows different configuration software from different manufacturers to perform the configuration in a standardized way.

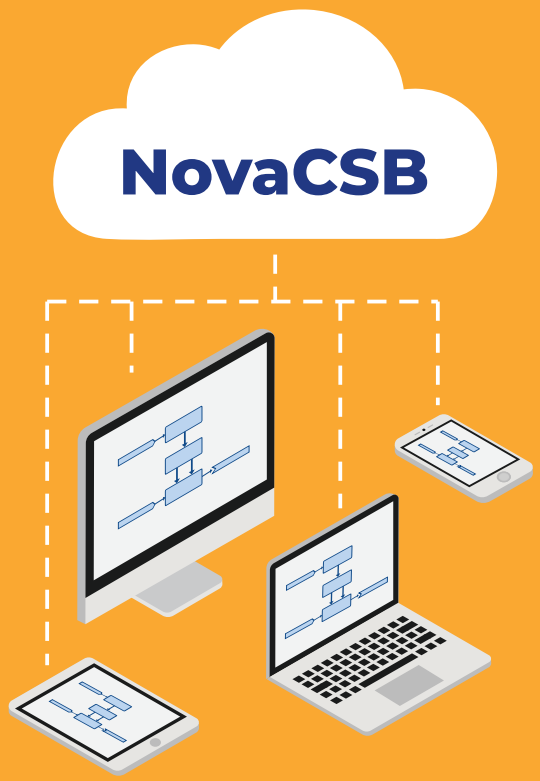
In this way, Smar seeks to strengthen the entire automation market, providing other companies and suppliers **with greater agility** in the development of solutions through the incorporation of proven technology into their products, while allowing **greater freedom** for users to select the hardware and software components best suited to their objectives.

- Functional Blocks developed based on a solution with more than 40 years of use in the field;
- Nodeset files;
- Structured text;
- It follows the Standard defined by O-PAS.

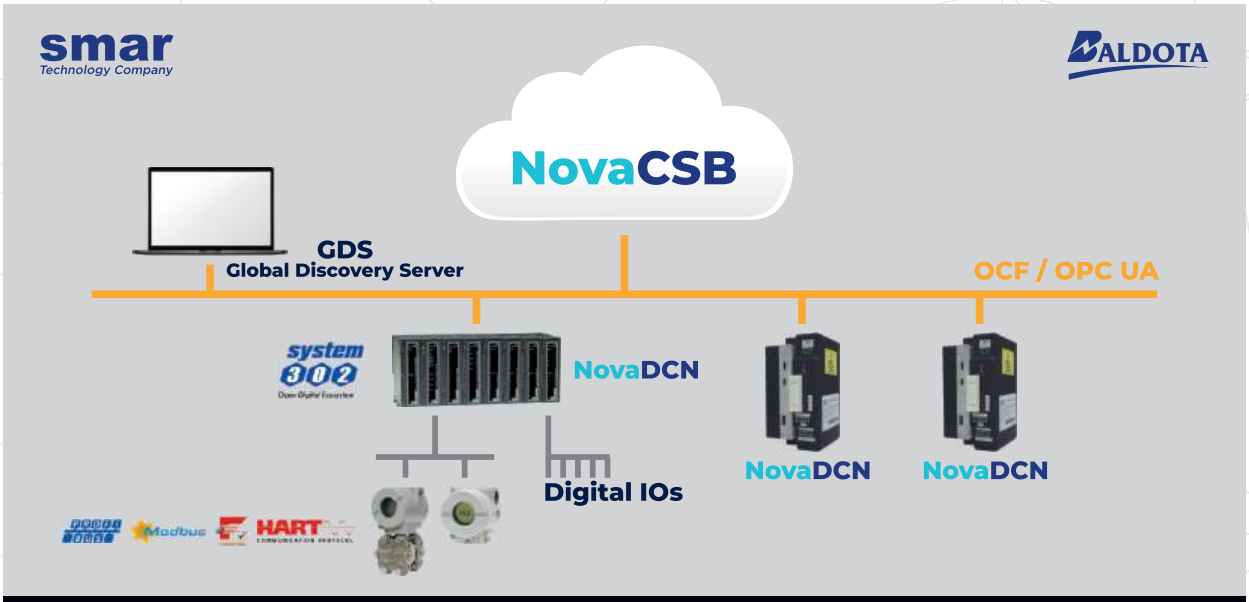
NovaCSB

With a **practical and intuitive** graphical interface, the NovaCSB (Nova Control Strategy Builder) allows the execution of the control strategy using block diagrams. As a **Web application,** it is not dependent on operating system and hardware, being **compatible with any and all devices,** regardless of manufacturer and operating system.

- Web Platform;
- Configuration by block diagram;
- Allows configuration, supervision and operation;
- Implementation in the cloud, via the internet;
- On-premises cloud deployment;
- Uses files defined by the O-PAS standard to describe the Information Model of the blocks;
- Uses AML files to describe DCN I/O;
- Generates AML file for configuration;
- Generates the .O-PAS file;
- Allows the use of third-party functional block libraries.



BALDOTA NOVA Line smar Technology Company



O-PAS
The Standard of Standards

THE OPEN GROUP OPEN PROCESS AUTOMATION™ FORUM

Currently the control systems are mostly closed and proprietary, making their maintenance and updating expensive, as well as being challenging to insert new technologies, especially from third parties. From this scenario and an end-customer initiative, the Open Process Automation™ Forum (OPAF) emerged, a consensus-based group of end users, suppliers, system integrators, standards organizations, and academic entities, which addresses technical and business issues for process automation.

OPAF aims to set standards for an open, interoperable, and secure process automation architecture. The standards defined by OPAF allow the development of products that, regardless of the manufacturer, are easily integrated through a modular architecture characterized by open standard interfaces. This group of standards defined by OPAF is called O-PAS, Open Process Automation™ Standard.

The OPAF does not aim at creating a new standard, the priority is to select standards from existing industrial technologies. The standardization work was developed considering the impact of 23 key quality attributes.

Quality Attributes

For more information access:
www.smar.com

RADIATION RESISTANT CAMERA

VIZA PTZ - RR CAMERA

VIZA PTZ - RR CAMERA

CAMERA CONTROL UNIT (CCU)

CONTROL & MONITORING

HIGH RADIATION RESISTANT COLOUR CAMERA

FEATURES :

- Up to 2 Mega Gray
- Motorised zoom
- Rotation speed adjustable
- SD/XD/ZD/HD: Color CMOS type
- Fully type tested

APPLICATION :

- Fuel assembly inspection
- Fuel assembly reference detection
- Reactor inspection
- Measurements
- Hot cell surveillance & operations
- Reactor and pipe inspection
- Waste and fuel characterization
- Reactor building surveillance
- Dismantling operations

TRANSFER OF TECHNOLOGY for radiation resistance camera manufacturing in india

CERTIFICATE

TRANSFER OF TECHNOLOGY

High Radiation Resistance(>10KGy) CMOS Hardened Technology Cameras.

Ref : Technology Transfer Agreement Dated 3rd June 2024

This is to certify that M/s Baldota Control and Equipment Pvt. Ltd. has procured our licensed technology which enables Baldota to become an autonomous Indian manufacturer and supplier of high radiation resistance cameras in the authorized territories which includes India, United Arab Emirates, Yeman, Oman, Saudi Arabia, Iraq, Qatar and Bangladesh. This license is granted on exclusive basic to Baldota for these countries.

ERMES

June 20th, 2024

Date

Signature

ERMES - Domaine Technologique de Saclay, 4 rue René Razel, 91400 Saclay- France
N° TVA: FR69 321 703 332 - RCS EVRY B 321 703 332 00056 - CODE NAF 3320C
Tél: +33 (0) 1 30 07 35 25 www.ermes-electronics.com

We are the first ever company in india to integrate radiation resistance cameras and qualified as a class approved vender

VZ-5 with External LED

VZ-7 with zoom x15 & external powerful Halogen

VZ-5 with Integrated LED

Camera Assembly

Camera Control Unit

Camera Assembly

We are the first company in India to successfully instal COLORED RADIATION RESISTANT CAMERA at NPCIL and have received the completion certificate from them.

न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड
NUCLEAR POWER CORPORATION OF INDIA LTD.
(भारत सरकार का उद्यम A Government of India Enterprise)
कैगा जेनरेटिंग स्टेशन 1&2 Kaiga Generating Station 1&2
ईंधन भरण अनुभाग FUEL HANDLING SECTION 1&2
कैगा स्थल, कैगा-581400, उत्तर कन्नड़ जिला, कर्नाटक Kaiga Site, Kaiga-581400, U.K. District, Karnataka

No.NPCIL/FHS 1&2/2025/04 दिनांक Date:12/02/2025

Work Completion Certificate

Subject: Work Completion Certificate against the P.O. No. CMM/OPS/57-63-9-3524/PO/0013 dated. 08/12/2023.

Description of work: Manufacture, Testing, Supply, Installation & Commissioning and Training of Radiation Resistance Camera System at Kaiga 1&2.

With reference to the subject and above mentioned Purchase order, we would like to confirm that M/s Baldota Control & Equipment's Pvt Ltd. has successfully completed the manufacturing, testing, supply, installation and commissioning of the Radiation Resistance Camera System at Kaiga Unit – 2 as per Sl No. 1.0 (one quantity) and training as per 2.0 of Section A-2. The overall performance of the system has been found satisfactory and meets our requirements. All the RR Cameras, RR Composite Cables, Power, RS-485, Co-axial, Lan cables and Fibre optic cable, Camera Control Units, Video switcher and control unit, work station, client PC, monitor, Joystick, Key board and associated accessories installed at KGS Unit-2 are functioning properly.

The team from M/s Baldota has done an outstanding job on this project, successfully completing all installations, commissioning, testing, and training during the biennial shutdown of KGS Unit-2. Their execution of work was commendable as they managed to complete all tasks before the end of the shutdown period of KGS-2 and handed over complete RR camera system of KGS-2 to Fuel Handling Section, Kaiga Generation Station 1&2 on 12th February 2025.

T Nagaraja SO/F, FHS, KGS 1 & 2	S.K.Das, SO/G, FHS, KGS 1 & 2	D Talukdar SME, FHS, KGS 1&2

RR CAMERA IMAGES

Colour Radiation Resistant Camera's Installed in NPCIL

Camera Images Displayed in Control Room

SUBSEA

Optimizing subsea fields from concept to project delivery and beyond

Creating sustainable change and transforming our clients' project economics

Our front-end team works with clients to understand their needs from an overall system perspective, and when we engage in the early phase of a project we have the greatest opportunity to reduce costs. We incorporate our own proprietary cost-saving solutions and capabilities as well as industry-leading products and technologies.

We are growing our integrated engineering, procurement, construction and installation (iEPCI™) capabilities and project portfolio as our clients continue showing interest and realizing sustainable cost savings. Our excellent project execution is driven by best-in-industry subsea products, systems, services and expertise.

Our integrated Life of Field (iLOF®) services also help clients realize costs savings and increase oil recovery and equipment uptime by offering a selection of superior field services.

SURFACE

Field-proven onshore and offshore technologies, services and integrated solutions

We exist to transform the oil and gas onshore market in order to provide customers with breakthrough reductions in cost and carbon intensity.

We serve the onshore and shallow water markets from well to export pipeline.

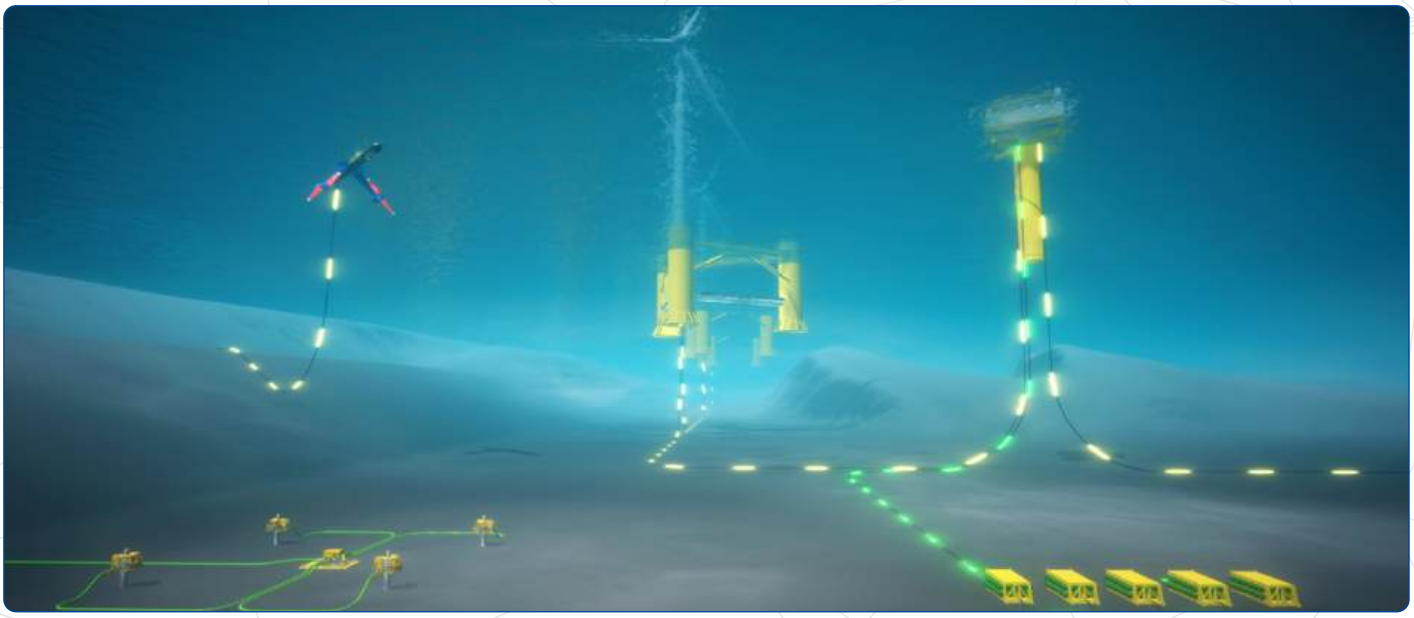
FLEET

Leading-edge vessels, crews and equipment to execute subsea operations

Industry-leading track record in delivering global operations

Our state-of-the-art vessels allow complete control of, and support for, a wide range of subsea project and field activities. The vessels can execute subsea pipelay, diving and construction activities, and have connected assets like Remotely Operated Vehicles (ROVs), construction and diving equipment, and mobile lay systems.

Our fleet management center of excellence has the resources and expertise to execute safe, reliable and cost-effective operations for our clients. In fact, we lead the industry in delivering global operations.



NEW ENERGY

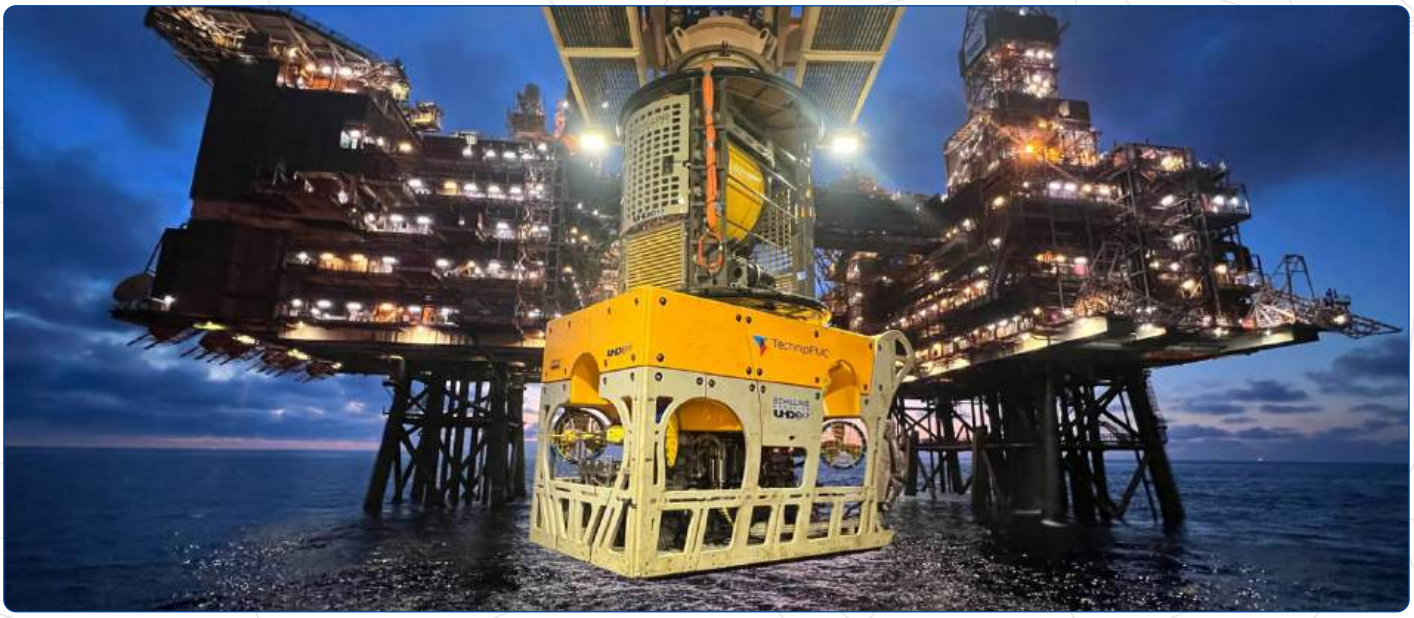
The future of energy is offshore

TechnipFMC believes that offshore will be the next frontier in the energy transition.

We are the energy architect – known for our ability to execute and integrate complex systems and projects. And we are bringing our energy to deliver the energy the world needs.

Our offshore and onshore expertise, collaborative and innovative mindset, and capabilities in project integration empower TechnipFMC to be a key enabler of the energy transition.

Through differentiated solutions that leverage our core competencies and existing resources, we will contribute through three main areas: greenhouse gas removal, offshore floating renewables, and hydrogen..



TECHNOLOGY AND INNOVATION

Our innovations are setting the industry's standards

Our cutting-edge technology sets us apart. As early adopters of digital transformation and integration, we drive clients' sustainable growth with sustainable solutions.

TechnipFMC is a leading technology provider in the energy industry, focusing on delivering integrated projects, products, and services. Their innovation efforts are centered around reducing costs and carbon intensity, leveraging digital transformation, and develop

DIGITAL TRANSFORMATION

We will enhance our products, services and projects by augmenting our knowledge and core offering with integrated digital solutions.

Our ambition is to provide hybrid solutions which combine our traditional offering with digital. Our skills and knowledge across energy domains put us in the unique position to create a hybrid offering which will bring value to our clients and our industry.

OIL AND GAS PRODUCTION

1) Avalon Digital Platform

Sensia is the one-stop-shop for executing an oil & gas digital strategy. Avalon enables you to introduce Intelligent Action into every component of oil & gas operations. In the field and in the office. On the pipeline. From the wellhead to the refinery. The producers of data connected to the consumers of data. No boundaries, no limits, no restrictions.

2) Artificial Lift Control Solutions

Automating lift for more cost-effective use of operational resources, assets and power, and enabling the most effective recovery at the lowest cost.

3) Digital Software Solutions

Sensia Digital Solutions improve oil & gas operations and engineering workflows by combining domain knowledge, market leading software, and proven automation systems for the most efficient, proactive management of your oil & gas assets.

4) Process Safety & Automation Solutions

Sensia process automation takes the latest control and information technologies available and combines them with the broad domain expertise, technology and product portfolio of Rockwell Automation and Schlumberger to provide state-of-the-art, digitally-enabled process control and safety solutions across the oil & gas value chain.

5) Measurement Products & Solutions

Measurement data is a vital input for any control, automation or optimization system. However, unlike many other processes, oil and gas measurement presents unique challenges that demand careful technology selection for the fluid conditions and application. Sensia Measurement Solutions provides proven flow measurement products, engineered systems and services specifically for the oil & gas industry. Our experts bring their specialist domain expertise to help select the right solution with performance appropriate for the application to ensure it meets your business, measurement and optimization goals.

SUSTAINABLE FPSO

1) Avalon Digital Platform

Sensia is the one-stop-shop for executing an oil & gas digital strategy. Avalon enables you to introduce Intelligent Action into every component of oil & gas operations. In the field and in the office. On the pipeline. From the wellhead to the refinery. The producers of data connected to the consumers of data. No boundaries, no limits, no restrictions.

2) Process Safety and Automation Solutions

It's not uncommon to discover a disconnect between process safety performance and day to day operations. Risk increases between planned hazard review periods can result in lagging safety indicators and increased safety risks. While competing pressures and priorities push operational needs and process safety practices even further apart.

By positioning process safety as a strategic resource – Sensia connects process safety and operational excellence to protect business performance, reputation, operational uptime and efficiency.

3) Measurement Product & Solutions

Measurement data is a vital input for any control, automation or optimization system. However, unlike many other processes, oil and gas measurement presents unique challenges that demand careful technology selection for the fluid conditions and application. Sensia Measurement Solutions provides proven flow measurement products, engineered systems and services specifically for the oil & gas industry. Our experts bring their specialist domain expertise to help select the right solution with performance appropriate for the application to ensure it meets your business, measurement and optimization goals.

Sensia measurement technology enables our customers to digitalize, automate and optimize the production, transportation and processing of oil and gas, as well as providing auditable and traceable measurements for fiscal, custody transfer and allocation management. Our solutions range from stand-alone flow meters to fully integrated systems that are compliant with any applicable standards and configured to meet the needs of your application whilst delivering a rapid return on investment.

Our large installed base of technology from market leading brands such as CALDON, JISKOOT, BARTON and NUFLO are field-proven and internationally recognized as best in class.

UNDERGROUND GAS STORAGE

1) Avalon Digital Platform

Sensia is the one-stop-shop for executing an oil & gas digital strategy. Avalon enables you to introduce Intelligent Action into every component of oil & gas operations. In the field and in the office. On the pipeline. From the wellhead to the refinery. The producers of data connected to the consumers of data. No boundaries, no limits, no restrictions.

2) Avocet Production Operations Software

In oil & gas production, you face many challenges in collecting and reporting data from the field. Delays, errors, and inconsistencies can affect your business processes and compliance. You need a solution that can handle various asset production requirements, data sources, standards, and regulations. You need a solution that can scale and adapt to your complex operations and specific needs. You need our solution, Avocet.

3) Orifice Flow Meters

With the increasing measurement accuracy achievable with today's flow computers, the importance of accuracy in primary measurement equipment like orifice plates has reached a new level of emphasis. Frequent inspection of orifice plates is necessary to ensure the plates are in a condition that will ensure a high level of measurement accuracy. Sensia's CLIF MOCK 5030 orifice fitting reduces the time and cost of inspecting and changing orifice plates, and helps ensure that the bore is properly centered in the meter tube.

4) Cone Flow Meters

The NUFLO measurement technology portfolio includes a differential pressure (DP) cone meter that provides accurate, repeatable, and cost-optimized flow measurement solutions. Designed to work in unprocessed and processed fluids, the NUFLO DP cone meter is ideal for upstream, midstream, and downstream applications that present a wide range of measurement challenges.

5) Flow Computers

The ability to match the optimal amount of sophistication and scalability to an application is a differentiated characteristic of Sensia. The accurate measurement and control of hydrocarbon flow is a key element to maintain operations profitability. Sensia has an extensive portfolio of devices to exactly meet your flow measurement and control requirements today but scalable to grow with your operations. A great example of this is the NUFLO Scanner 2000 Flow Computer that is renowned for its simplicity and efficiency as a chart recorder replacement and also its ability to self-network with a 3000 series QRATE Scanner Integrated Control Flow Computer to contribute to a multi-stream measurement and automation network. The portfolio also provides remote programmable controllers, like the QRATE iXC2 Edge Controller for applications requiring more complex control strategies and data acquisition operating in harsh and remote environments. Our family of controllers has extensive connectivity functionality for both legacy and IoT devices. All of our devices have flow measurement capabilities that are fully compliant with AGA 3,7 and 8, API 21.1 and many other measurement standards.

6) Metering Systems

As an original equipment manufacturer (OEM), Sensia offers single-sourced, customer-driven solutions for the transfer of ownership of hydrocarbons throughout the global oil and gas industry. With an unrivaled dedication to engineering excellence, Sensia provides field-proven, precise, and reliable measurement for some of the most challenging applications around the world.

7) Metering Supervisory and Uncertainity

Trust is a market-leading intuitive Metering Supervisory Computer for site engineers, operators and technicians that brings flow computer, PLC and CBM data together to deliver peerless real-time monitoring and fiscally accurate flow measurement. Designed, built and tested by our team of engineers, TruST is the result of our years of metering expertise and comes with our innovation and industry knowledge built-in. We are experts in this complex field, and our engineers are skilled in advising on suitable flow measurement technologies and optimum system architectures to ensure TruST provides our customers with a comprehensive, reliable and high-quality metering supervisory solution.

8) Custody Transfer and FiscalSampling

Sensia is a provider of metering systems, particularly those used for custody transfer in the oil and gas industry, where accurate measurement is critical for financial transactions. Their solutions include both standalone flow meters and fully integrated systems designed to meet specific application needs and regulatory compliance. They offer various types of flow meters, such as ultrasonic and Coriolis flow meters, for both liquid and gas hydrocarbons.

Refined product sampling for quality, fiscal or density measurement is governed by the ISO 3171, ASTM D 4177 and API 8.2 standards for automatic sampling of petroleum liquids in pipelines. sampling systems and products are designed and manufactured drawing on years of experience of liquid and gas hydrocarbon sampling. They offer you the peace of mind that the equipment that you use every day will fully comply with international best practice

9) Ultrasonic Flow Meters - Oil & Gas

High-performance CALDON LEFM Ultrasonic Flow Meters deliver a rapid ROI and increased uptime in custody transfer, allocation, and leak detection applications. The products' patented internal designs, measurement precision, compact footprint, and low pressure drop help operators reduce measurement uncertainty and operating costs.

CARBON CAPTURE & SEQUESTRATION

1) Avalon Digital Platform

Sensia is the one-stop-shop for executing an oil & gas digital strategy. Avalon enables you to introduce Intelligent Action into every component of oil & gas operations. In the field and in the office. On the pipeline. From the wellhead to the refinery. The producers of data connected to the consumers of data. No boundaries, no limits, no restrictions.

2) Avocet Production Operations Software

In oil & gas production, you face many challenges in collecting and reporting data from the field. Delays, errors, and inconsistencies can affect your business processes and compliance. You need a solution that can handle various asset production requirements, data sources, standards, and regulations. You need a solution that can scale and adapt to your complex operations and specific needs. You need our solution, Avocet.

3) Ultrasonic Flow Meters - Caldon

The Caldon 500 Series delivers reliable, accurate measurement for CO2 in the liquid and dense supercritical regions for use within the Carbon Capture, Utilisation and Sequestration (CCUS) chain. The 500 series is available in multiple configurations depending on the challenges of your application. Our USM technology can offer significant operational advantages for CCUS applications through its ability to reduce system complexity whilst addressing areas of concern, whether that may be mitigating CO2 equivalence through pressure loss, removal of potential leak points, and avoiding pipeline depressurisation..

4) Cone Flow Meters

The NUFLO measurement technology portfolio includes a differential pressure (DP) cone meter that provides accurate, repeatable, and cost-optimized flow measurement solutions. Designed to work in unprocessed and processed fluids, the NUFLO DP cone meter is ideal for upstream, midstream, and downstream applications that present a wide range of measurement challenges.

5) Flow Computers

The ability to match the optimal amount of sophistication and scalability to an application is a differentiated characteristic of Sensia. The accurate measurement and control of hydrocarbon flow is a key element to maintain operations profitability. Sensia has an extensive portfolio of devices to exactly meet your flow measurement and control requirements today but scalable to grow with your operations. A great example of this is the NUFLO Scanner 2000 Flow Computer that is renowned for its simplicity and efficiency as a chart recorder replacement and also its ability to self-network with a 3000 series QRATE Scanner Integrated Control Flow Computer to contribute to a multi-stream measurement and automation network. The portfolio also provides remote programmable controllers, like the QRATE iXC2 Edge Controller for applications requiring more complex control strategies and data acquisition operating in harsh and remote environments. Our family of controllers has extensive connectivity functionality for both legacy and IoT devices. All of our devices have flow measurement capabilities that are fully compliant with AGA 3,7 and 8, API 21.1 and many other measurement standards.

6) Metering Systems

As an original equipment manufacturer (OEM), Sensia offers single-sourced, customer-driven solutions for the transfer of ownership of hydrocarbons throughout the global oil and gas industry. With an unrivaled dedication to engineering excellence, Sensia provides field-proven, precise, and reliable measurement for some of the most challenging applications around the world.

7) Metering Supervisory and Uncertainity

Trust is a market-leading intuitive Metering Supervisory Computer for site engineers, operators and technicians that brings flow computer, PLC and CBM data together to deliver peerless real-time monitoring and fiscally accurate flow measurement. Designed, built and tested by our team of engineers, TruST is the result of our years of metering expertise and comes with our innovation and industry knowledge built-in. We are experts in this complex field, and our engineers are skilled in advising on suitable flow measurement technologies and optimum system architectures to ensure TruST provides our customers with a comprehensive, reliable and high-quality metering supervisory solution.

NUCLEAR FEEDWATER MEASUREMENT

1) Ultrasonic Flow Meters - Nuclear

The first CALDON LEFM (Leading Edge Flow Measurement) specifically for Power Uprate in nuclear power plants was launched in 1997, and in the years since has built a phenomenal list of credentials with benefits across the industry. This technology enables nuclear power plant owners to provide reliable, verifiable information to regulators, as well as increasing revenue, efficiency and safety.

GEOTHERMAL STEAM MANAGEMENT & ESPs

1) Avocet Production Operations Software

In oil & gas production, you face many challenges in collecting and reporting data from the field. Delays, errors, and inconsistencies can affect your business processes and compliance. You need a solution that can handle various asset production requirements, data sources, standards, and regulations. You need a solution that can scale and adapt to your complex operations and specific needs. You need our solution, Avocet.

Avocet provides a scalable and configurable production management solution that enable customers to more effectively & safely manage production operations to deliver maximum value for all types of assets, including onshore, offshore, conventional, or unconventional. Avocet does this by combining field data capture, operations management, production accounting and reporting capabilities built on top of an extensible software foundation that allows it to adapt to your operations minimizing deployment costs.

RADIATION MONITORING AND MEASUREMENT SOLUTIONS

"Baldota offers comprehensive solutions for radiation monitoring and measurement."

1) PERSONNEL EXIT MONITOR: EXITSCAN-2

Whole body contamination monitor for personnel leaving radiation controlled areas. It monitors the presence of alpha, beta, and gamma radionuclides, as required.

The ExitScan-2 is available in these 2 configurations:

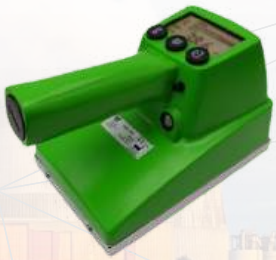
- FULL with 26 detectors
- OPTIMA with 18 detectors
- Detector type: Scintillator

2) HAND-FOOT CONTAMINATION MONITOR

The HF-4 series hand-foot contamination monitors are intended for the measurement of surface contamination by alpha, beta and gamma emitting radionuclides on hands, feet, and clothing.

- Gas-less smart scintillation detectors
- Optimized number of detectors (two hands, two feet)
- Two-step measurement of hands (palms and backs)
- A detachable hand detector for frisking

3) PORTABLE ACTIVITY METER



Portable handheld devices intended for the surface activity measurement of alpha, beta, and gamma emitting radionuclides.

- Gasless scintillation detector
- Compact, lightweight and resistant design
- High sensitivity, uniform response
- Optional measurement of the dose rate

4) PORTABLE NEUTRON METER

Portable monitor intended for measuring the dose equivalent rate H*(10) in neutron radiation fields.

- Measuring Range: From 1E-7 to 0.1 Sv/h
- Sensitivity: 4 cps / µSv
- Response to gamma: 2E-3 cps/(mSv/h)
- Optional detector for simultaneous gamma dose equivalent rate measurement

5) AREA GAMMA MONITOR

Compact monitor for the measurement of gamma dose equivalent rate with an integrated display.

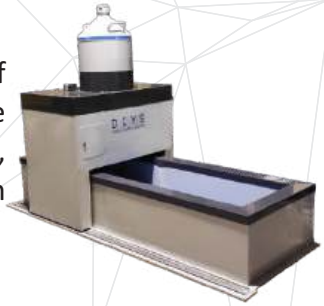
- Detector type: Geiger-Muller tube
- Measuring Range: from 5E-8 to 2.5E-1 Sv
- Energy range: 35Kev to 2 MeV
- Compact monitor with integrated display and audible alarms
- Two adjustable alarm levels

6) WHOLE BODY COUNTING SYSTEM FOR INTERNAL DOSIMETRY

Designed to complement any health physics program. The "Quicky" is used to rapidly screen personnel or it can be used with a fixed counting time to obtain more precise results. The printed results provide the documentation for subject identification, counting time and date. Results are reported in Becquerel or Nano curies. The "Quicky" can reduce your regular counting requirements and costs significantly.

- Detectors:
  2 o r3units of NaI(Tl) of 4"x4"x16". (Optional HPGe)
  MDA (one minute counting): Co-60 (1173,1332 KeV) ≤ 150 Bq.
  Resolution less than 7.5% at 662 KeV.
- Data Acquisition, continuous spectral display.
- Data Analysis with graphs of original data and residuals.
- Calibrations: Energy vs. Channel and Efficiency.
- Parameter Modification for complete control: acquisition, analysis & miscellaneous parameters.

7) BED TYPE WHOLE BODY COUNTER FOR INTERNAL DOSIMETRY



Dhe "Do-It-Yourself Whole Body Counter" measures the total body burden of gamma emitters and also approximates where the emitters are deposited within the body. The Helgeson "Do-It-Yourself Whole Body Counter" employs a scanning geometry, long recognized as the geometry which produces the lowest errors due to non-uniform source distribution. Its positional response is far superior to any chair or organ counter.

- A true Whole Body Counter.
- Based on Classic Shadow Shield, but compact, fits in small rooms.
- Quantitative and Qualitative analysis.
- **Detectors**

  Option 1: NaI(Tl), 20x10 cm (DxH)
  Option 2: HPGe + NaI(Tl) 3x3"
  Option 3: 4 x NaI(Tl) 10x10.

8) WASTE CHARACTERIZATION SYSTEM FOR DRUMS

Evaluating the activity distribution. The HS-DRUM is a waste scanning system dedicated to evaluating the activity distribution within waste drums. It is equipped with several detectors and friskers to perform the most complete characterization of the waste.

Detectors

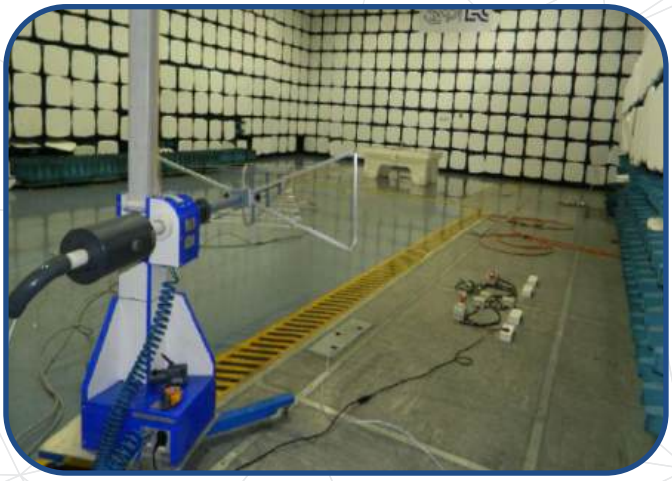
- HPGe
- NaI
- Dose rate meter
- Elevation system
- Rotation system for 360º measurement-
- Drums and barrels acceptance: from 220 L up to 480 L
- Waste capacity up to 700 kg (more also possible under demand)
- Can be designed for other waste formats like containers, bags, etc.
- Collimation system automatically adjustable- Collimation window adjustable
- Spectrometry system: HPGe (nitrogen or electrically cooled), NaI, LaBr, CZT, etc.
- Gross counts: plastic scintillators- Robotic arm for the handling of GM probes
- Robotic arm for the handling and obtention of "frotis" samples

TESTING & CALIBRATION FACILITY

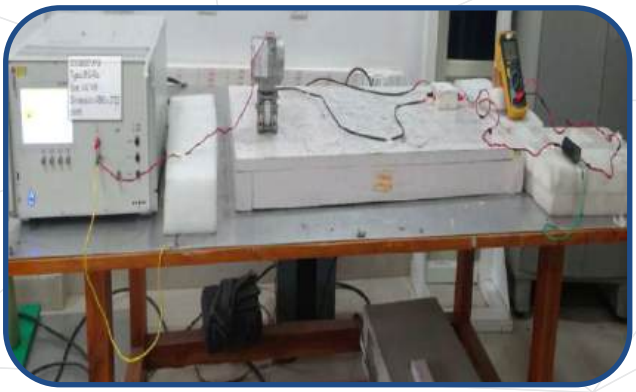
TESTING ON NUCLEAR GRADE ANALOG TRANSMITTERS

EMI / EMC TEST AT ECIL

CISPR CE Test Setup High Side

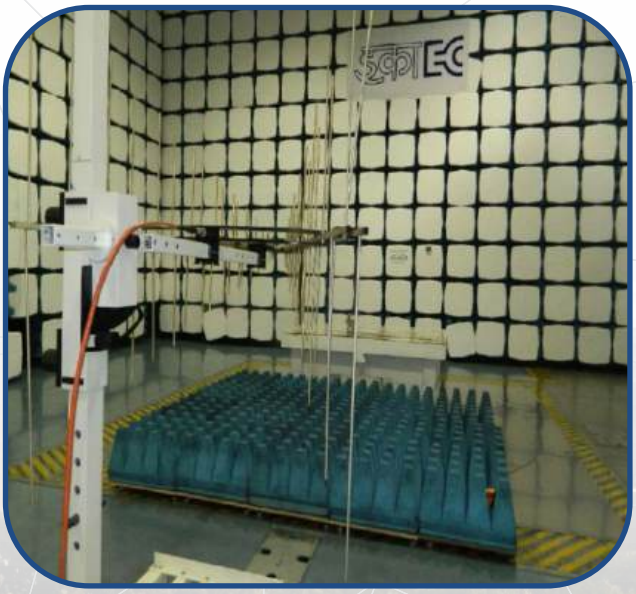


Biconilog Antenna (30MHz-1 GHz)
Note:- turntable angle^{o} at 0



Test setup for IEC 61000-4-5 on shielded signal line

Radiated Emission test setup



IEC 61000-4-3 Test Setup
(80 MHZ -1 GHz)

IEC 61000-4-3 Test Setup
(1 Ghz -3 GHz)

LOCA TEST AT FCRI

ASSEMBLY LINE

CONTROL SYSTEM SERVICES

With highly driven ethnically excellence, our organization is actively committed to offer a qualitative Control System Engineering Commissioning Service. The offered service is widely appreciated by our precious clients owing to its perfect execution and flawlessness features. To perform this service, our professionals use premium grade tools and latest technology. We also have Dedicated FAT Facility for Integration /FAT Facility for 80 Panels single staging regular project and 12 Panel at a time for testing with Un-interrupted UPS Power supply , dedicated Signal Simulator to simulate signal in groups. Our FAT facility is completely equipped with PLC test setup , Multimeter and Calibrators , Relay board , 24 VDC power supplies , PC , Insulation Testers , Elcometers.

Helium & Other Testing Facility

FAT FACILITY

With highly driven ethnically excellence, our organization is actively committed to offer a qualitative Control System Engineering Commissioning Service. The offered service is widely appreciated by our precious clients owing to its perfect execution and flawlessness features. To perform this service, our professionals use premium grade tools and latest technology. We also have Dedicated FAT Facility for Integration /FAT Facility for 80 Panels single staging regular project and 12 Panel at a time for testing with Un-interrupted UPS Power supply , dedicated Signal Simulator to simulate signal in groups. Our FAT facility is completely equipped with PLC test setup , Multimeter and Calibrators , Relay board , 24 VDC power supplies , PC , Insulation Testers , Elcometers.


VMC MACHINE FOR
RADIATION
RESISTANCE CAMERA


TSUGAMI
CNC MACHINE FOR
RADIATION
RESISTANCE CAMERA


Radiation Resistance
Camera Designing team


Radiation Resistance
Camera Designing team
OPPO F21 Pro

BALDOTA CONTROL & EQUIPMENTS PVT. LTD.

A Total Solution Provider in Instrumentation & Control Systems

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BARC

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BHEL

IndianOil

ONGC MRPL

इकाएफ

GAIL (India) Limited

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A Total Solution Provider in Instrumentation & Control Systems

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