Process Data Assessment & Reconciliation (ProDAR)

Data Validation & Reconciliation for Oil & Gas, Energy & Power
Introduction
Modern industrial systems are built to ensure safe and profitable process operations. A critical component in sustaining high quality performance is the information obtained from field instrumentation. This information is used for process control, quality assurance, production accounting, and performance monitoring by operators, engineers, planners, and management. Unfortunately, even the most accurate instruments remain vulnerable to random and gross (systematic) errors, which may result in unsafe or inefficient operation of the plant.

Why correct errors in measurements?
When erroneous measurement data, mass and energy are not in balance at a plant. This data can yield distorted technical analyses and decisions, resulting in production and financial losses. In some cases it can even cause failures and incidents resulting in personnel or environmental casualties.

INTECH’s Process Data Assessment & Reconciliation (ProDAR)
The core component of INTECH’s ProDAR solution is based on data validation and reconciliation (DVR) techniques to correct errors in measurements while adhering to mass and energy conservation laws. Our data validation includes gross/systematic errors identification that may result from performance degradation and their exclusion to increase the reliability of data. We use data reconciliation to minimize the effect of random errors that ensures consistency in process data.

When do you need DVR?
If your plant or facility frequently exhibits some of these behaviors, even if your operators believe it is normal:
- Mass and energy balances are inconsistent
- Gross errors and uncertainties exist in measurements
- Unmeasured or missing data for process variables
- Physical measurements of parameters are not feasible
- Commingled ownership of process materials
- Material losses are observed

Key features of INTECH’s ProDAR
- Identification and elimination of gross errors in input data
- Identification of faulty instruments and ease in pinpointing the degradation of equipment and plant performance by plant operators
- Comprehensive reporting for use in daily operations analysis, engineering applications, and financial and managerial assessments
- Identification and elimination of gross errors in input data
- Identification of faulty instruments and ease in pinpointing the degradation of equipment and plant performance by plant operators
- Comprehensive reporting for use in daily operations analysis, engineering applications, and financial & managerial assessments
- Utilization of raw measurements, lab analysis, and first principle modeling to develop data redundancy
- Configurable and easy-to-monitor mathematical error minimization techniques
- Commingled ownership of process materials
- Material losses are observed

Why choose INTECH
- INTECH has 25+ years experience in Oil & Gas operations & maintenance
- Our technology partner (Betsim) has 25+ years of experience in developing DVR-based solutions and technology
- INTECH uses Betsim’s software Vali, which is compliant with VDI 2048 standard, and flexible to use in Oil & Gas, Energy, and Chemical/Petrochemical industries
- 150+ Vali installations worldwide at some of the world’s largest producers of energy, Oil & Gas and petrochemicals
- With thorough expertise in control system automation, INTECH can deliver an end-to-end solution complete with instrumentation and hardware/software changes where needed

Incentives for Choosing ProDAR in Industrial Plants
- Optimize processes despite measurement noise
- Condition-based maintenance
- Production accounting
- Accurate yield accounting
- Internal cost distribution per unit
- Loss management
- Energy management system
- Provides a clear view of energy balances of an entire industrial site by monitoring
- Efficiency of process units
- Emissions

UPSTREAM
- High accuracy values for unmeasured data
- Reduction of uncertainties
- Back allocation
- Detection of losses and water/gas breakthrough
- Sensor monitoring
- Tuning
- Reconciled values are used to fine-tune data-driven models

MIDSTREAM
- Batch management system
- Tank management
- Uncertainty reduction in measurements of the gathering network system
- Inventory control

DOWNSTREAM
- Performance monitoring
- Accurate yield accounting
- Internal cost distribution per unit
- Loss management
- Energy management system
- Provides a clear view of energy balances of an entire industrial site by monitoring
- Efficiency of process units
- Emissions
Notice: All registered logotypes, trademarks, brands, product and services marks used in this document are acknowledged as properties of their respective companies/owners and such companies/owners have not consented to their use by INTECH (Term INTECH is used for INTECH Process Automation Inc. and its affiliates). INTECH is not affiliated with these logotypes, trademarks, brands, product and services marks and any use by INTECH should not be construed as an endorsement of INTECH or its services. The services described herein are provided solely by INTECH. © 2017. All rights reserved by INTECH Process Automation Inc.