AT9000 Advanced Transmitter
Model GTX

Yamatake Europe

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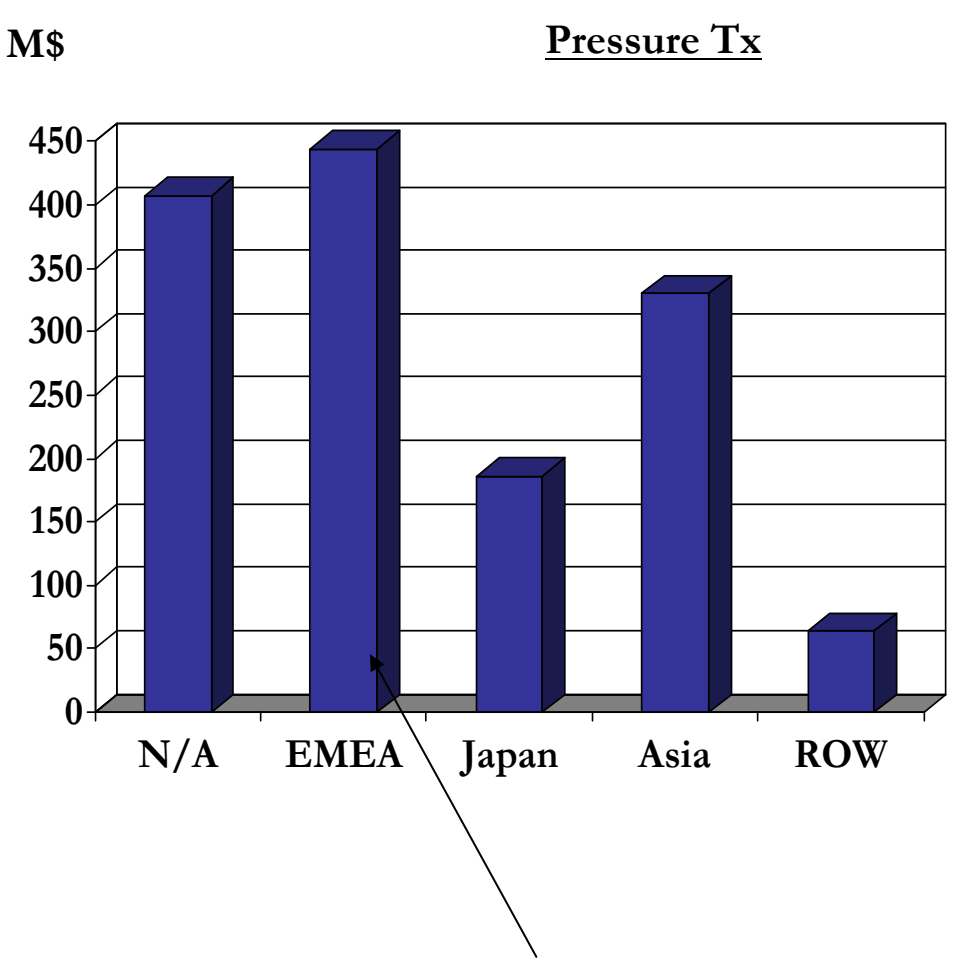
Yamatake position in the world

Shares %

Unitts	WW $1807.2M 1950k	NA 453.4M 489.2k	EMEA $591.1M 637.8k	Asia $674.4M 727.7k	LA $88.3M 95.2k
Emerson	43.9	50.7	55.0	28.2	53.9
Yokogawa	21.9	9.6	11.7	40.0	15.7
F+H	7.3	6.5	12.1	3.0	12.1
ABB	6.6	6.6	10.0	4.2	2.2
Fuji	3.8	4.7	2.8	4.7	-
Honeywell	3.4	6.4	2.4	2.2	4.3
Invensys	3.1	6.7	-	2.0	3.8
Yamatake	2.9	-	-	7.6	-
SMAR	2.4	6.2	-	-	3.9
Siemens	2.4	-	3.0	2.6	2.3

ARC Report 2007,WW

European positioning



Yamatake Mark et Share: very low

Customer needs in the production system

1. Safety plant operation to avoid accidents
   - Reliability on field devices
   - Safety approvals of devices
2. Stable plant operation to maintain high product quality controlling and high productivity.
   - Reliability on field devices
   - Stability on field devices
   - No clogging in the process line
3. Reducing a implementation and running cost
   - Want to reduce the device cost and maintaining reliability at a same time
   - Want to reduce construction cost
4. Reducing plant down time to maintain stable productivity
   - Gather a variable data from device for predictive maintenance.
   - Analyze the causes of a trouble and immediately discover trouble shooting method
   - Punctual delivery

SIL certification

Safety Integrity Level (SIL)

Safety integrity level	Probability of failure on demand (PFD), average (Low Demand mode of operation)	Risk Reduction Factor
SIL-1	$>=10^{-2}$ to $<10^{-1}$	100 to 10
SIL-2	$>=10^{-3}$ to $<10^{-2}$	1000 to 100
SIL-3	$>=10^{-4}$ to $<10^{-3}$	10000 to 1000
SIL-4	$>=10^{-5}$ to $<10^{-4}$	10000 to 1000

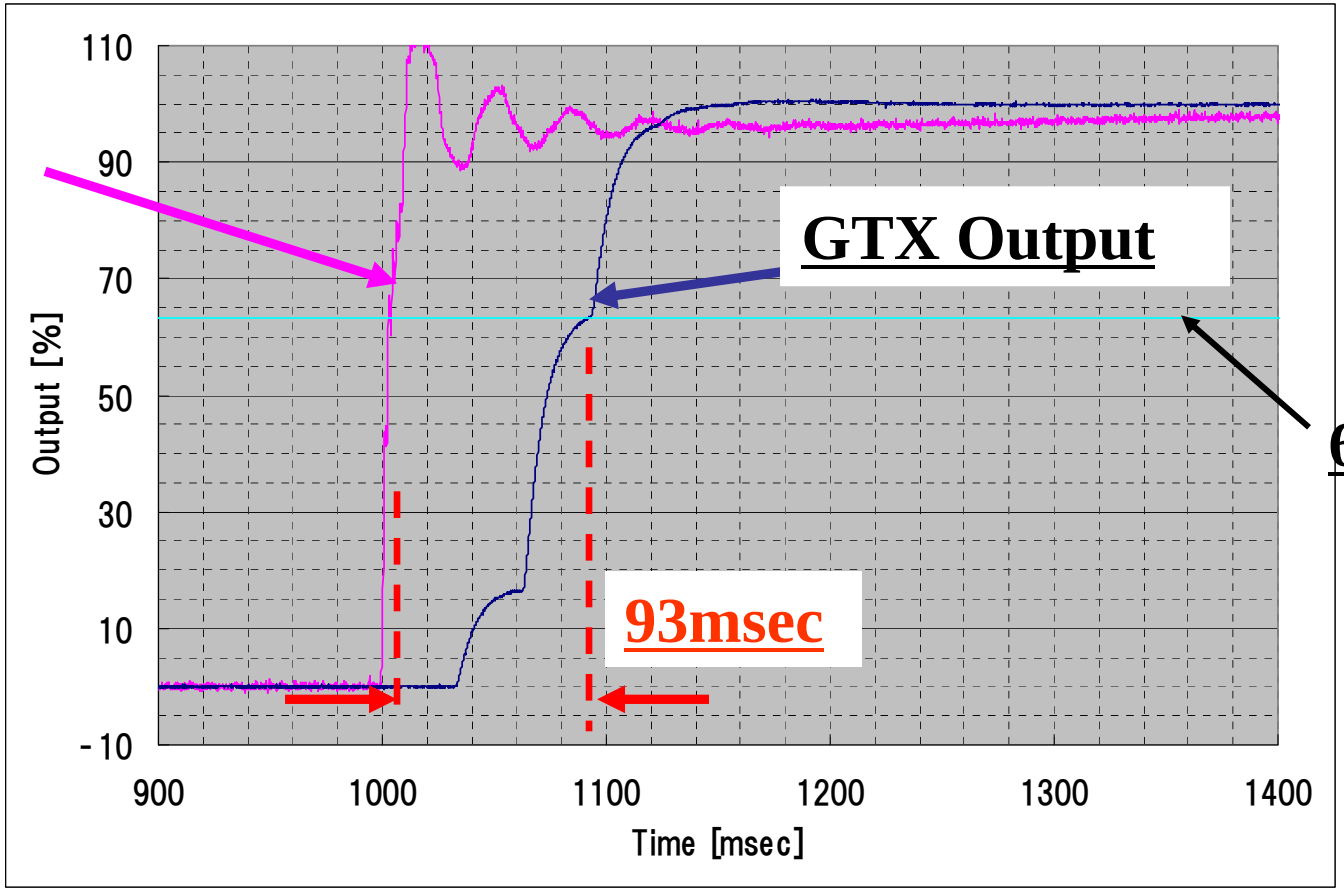
- **SIL is determined by Probability of Failure on Demand (PFD)**
- **Plant users have requested the safety instrument complying with SIL-2**
- **When customers constructs the SIS, GTX meet the requirement.**

Reliability:
Best in World Class Performance

- High Accuracy
  - +/- 0.04%F.S.
- Faster in response
  - Below 100msec
- High stability
  - +/- 0.1%F.S. for ten-years

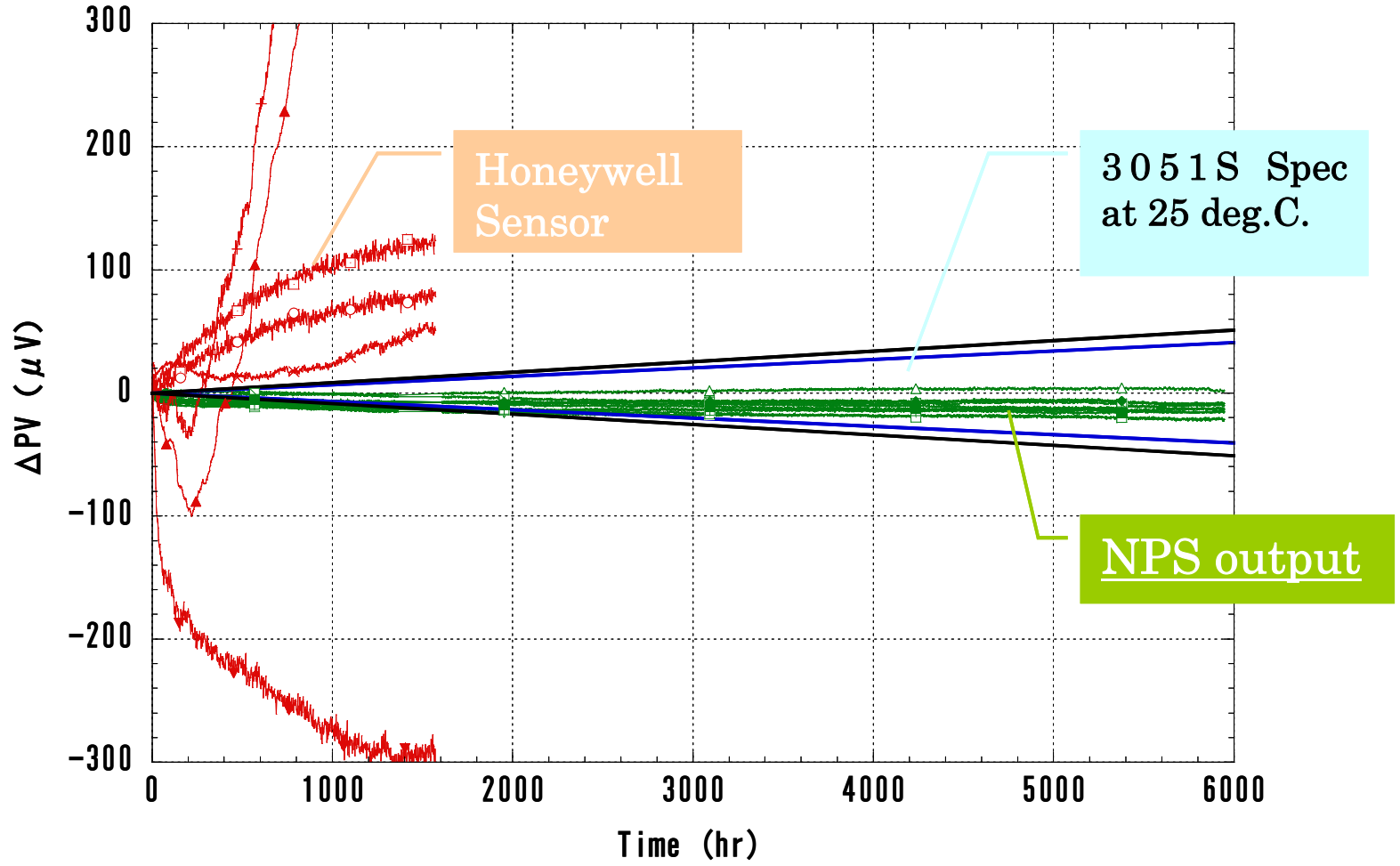
Faster in Response

- Response time: Below 100msec



High Stability

- **Zero drift at 125℃**



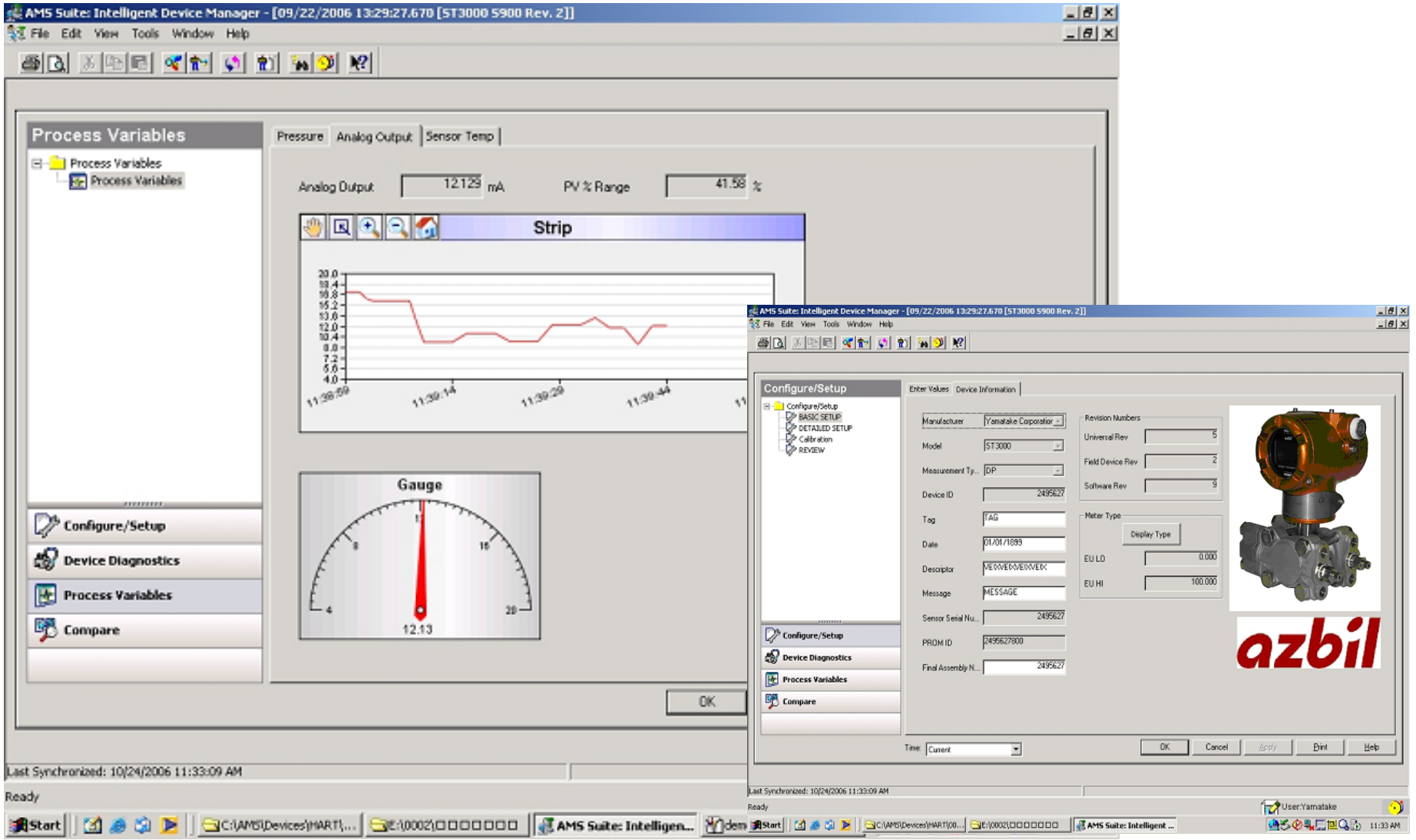
High Quality

- All technologies are based on over 1,000,000 units field proven technology.
  - Sensor
  - Characterization System
  - Meter Body

Availability: Network

- Protocol
  - Analog
    - HART
    - SFN communication (CommPad)
  - Foundation Fieldbus
  - DE protocol
- EDDL
  - AMS Aware
- DTM

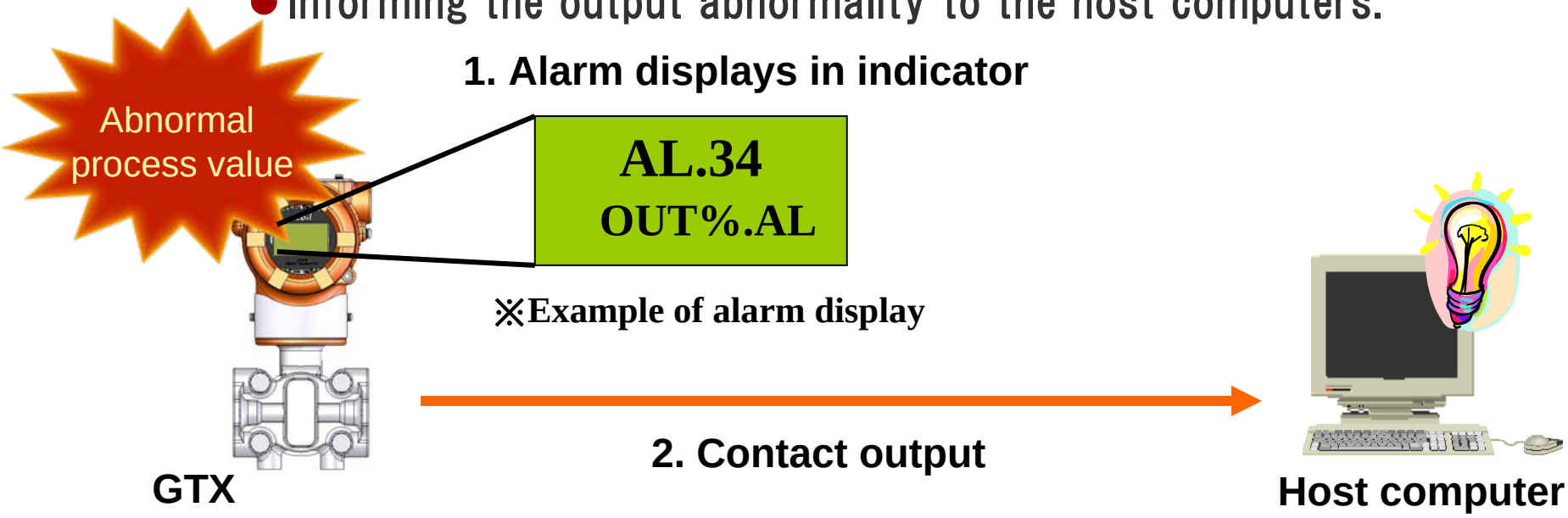
EDDL display



Trouble shooting

a. Alarm displays & contact output

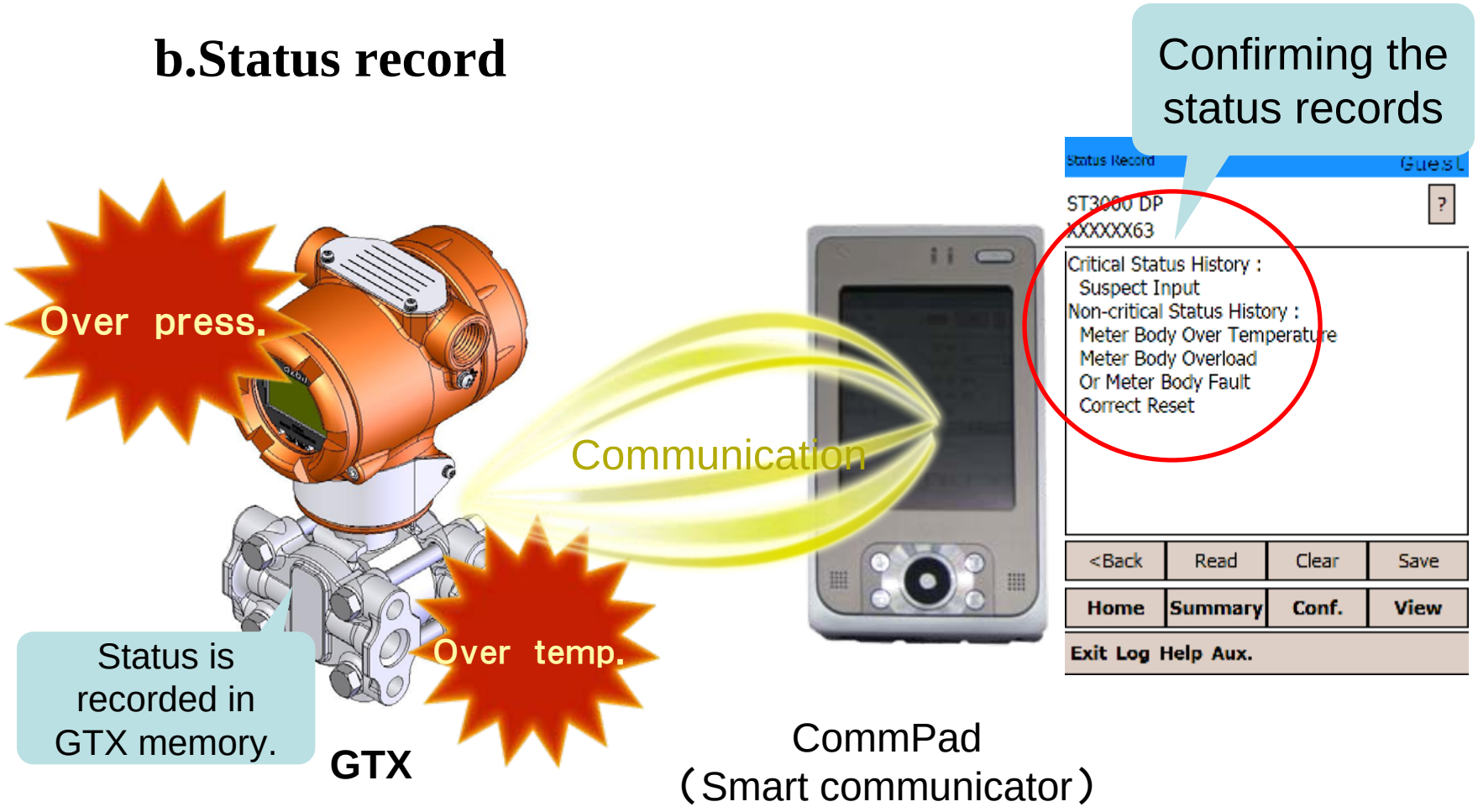
- In case of abnormal process value, give the early alarming information.
  - Confirming the alarm status displayed in the indicator.
  - Informing the output abnormality to the host computers.



Customer can detect the abnormal process value quickly

Trouble shooting

b.Status record



Using CommPad, customers can confirm the status in the past.

Comparison with S900

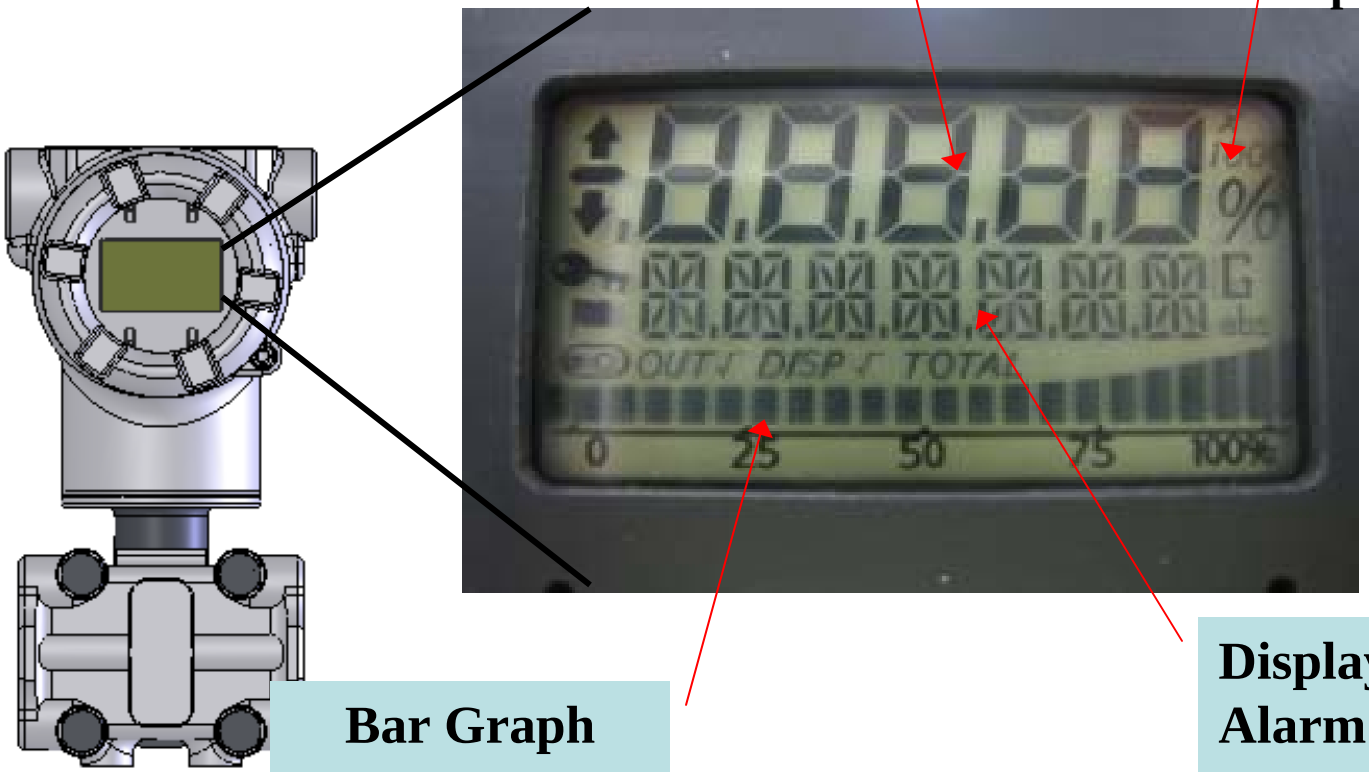
Series Name	ST9000 Model GTX	ST3000 Series 900
Model NO.	GTX31D	STD920
Sensor	NPS(Yamatake Original Sensor)	ED(Honeywell Sensor)
Measuring Span	0.5 to 100kPa {2 to 400 inchH2O}	0.75 to 100kPa {3 to 400 inchH2O}
Accuracy(Linear Output) Analog mode	+/-0.04% for X>10 +/-(0.008+0.032*10/x)% for X<10	±0.075% For X≥50kPa ±0.1% For 5kPa≤X<50kPa ±{0.025+0.075*5kPa/X)}% For X<5kPa
Zero Stability	+/- 0.1%/ 10years	+/- 0.1%/ 1year
Response time	below 100msec	Approx. 400msec
Indicator	5 digit, Eng. units indication	4.5 digit
Write protection	Standard (Hard switch, software)	Standard (Hard switch)
Contact output	Available in Option	Not available
Weight	Approx. 3.4kg	Approx. 4.1kg
Safety approvals	SIL2	Not available
Characterization data store	Characterization data in SPM (No need to change electrical board when you change MB)	Charactarization data in PROM that located on the main electrical board
Diagnostics	Self diagnostic	Self diagnostic
	Status record	Not available
	Zero drift recode	Not available

-Possibility to change meter body without electrical board.

High-performance indicator

PV：5 digits

%
G:Gage pressure
abs：Absolute pressure

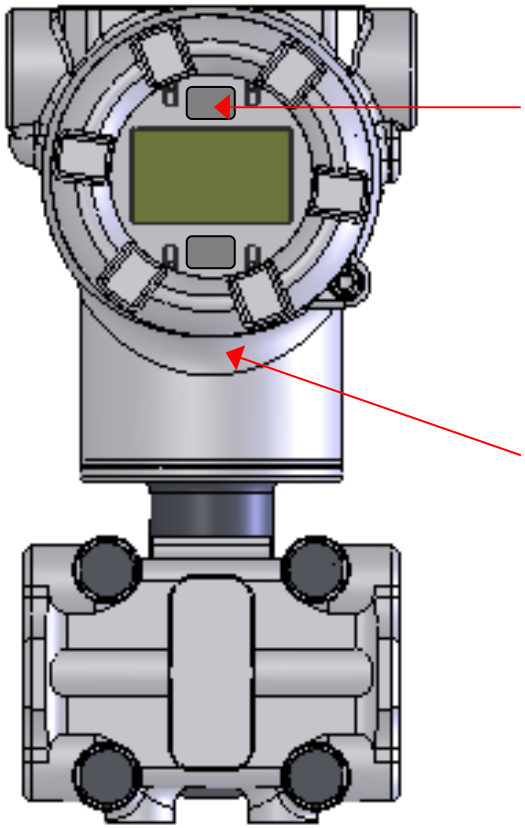


Bar Graph

Displays pressure unit/ Alarm status.

- Easily Viewable.
- Alarm status also can be confirmed

External zero/span adjustment switch



External span adjustment switch

External zero adjustment switch

Easy to adjustment to touch with magnetic stick without opening the case-cover.

Characterization

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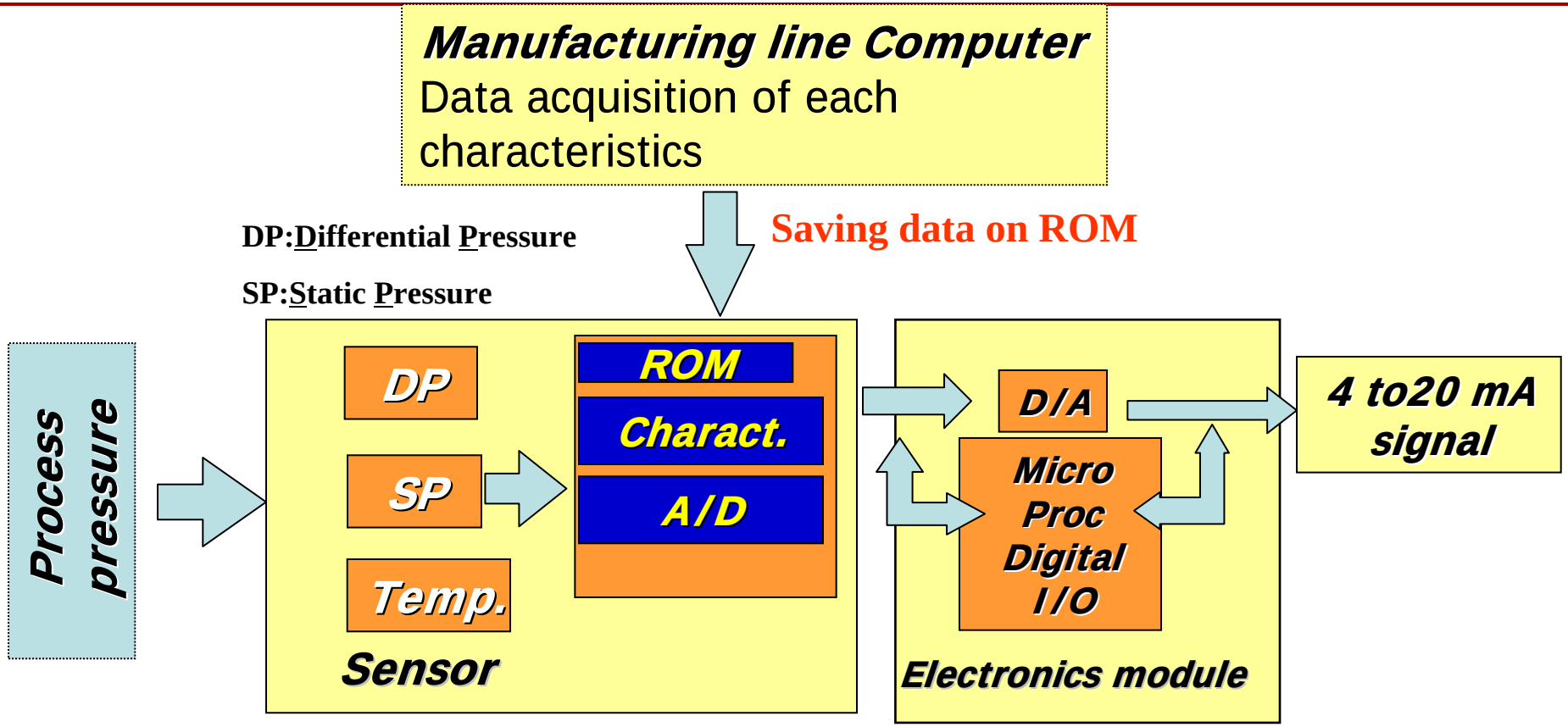

- GTX realized high accuracy and high stability owing to compensation called "Characterization."
- It enable to reduce the influence of ambient temperature and process pressure changes on GTX output.