

# **AT9000 Advanced Transmitter Model GTX**



**Yamatake corporation  
June 6, 2008**

***azbil***

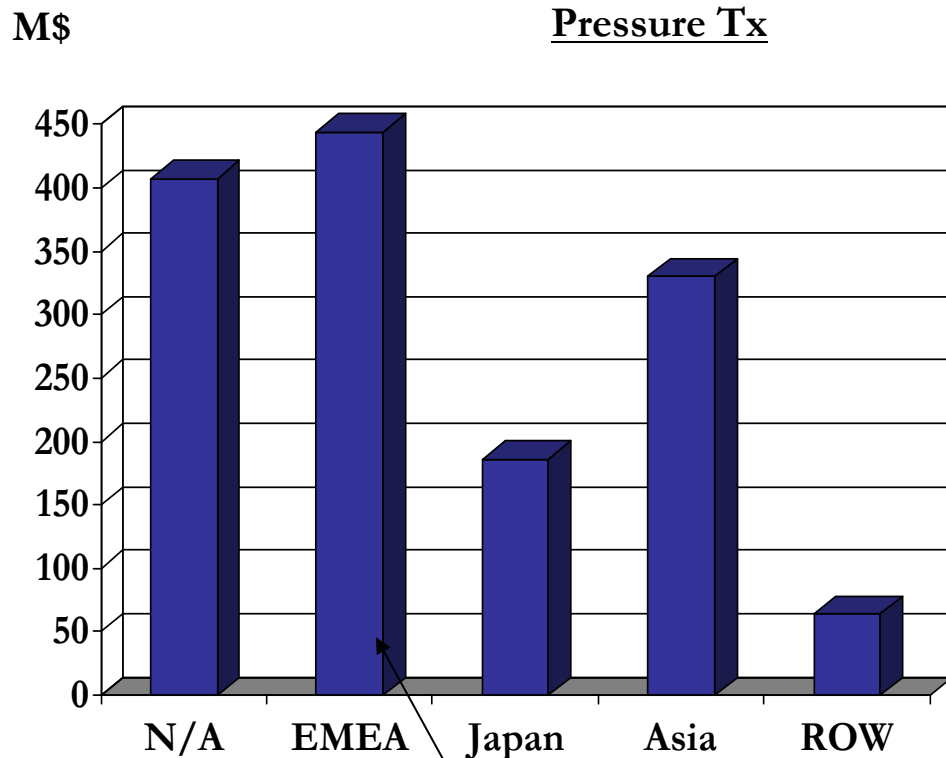
# Yamatake position in the world



Shares	%				
	WW	NA	FMEA	Asia	LA
Units	\$1807.2M 1950k	453.4M 489.2k	\$591.1M 637.8k	\$674.4M 727.7k	\$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: 0.03%**



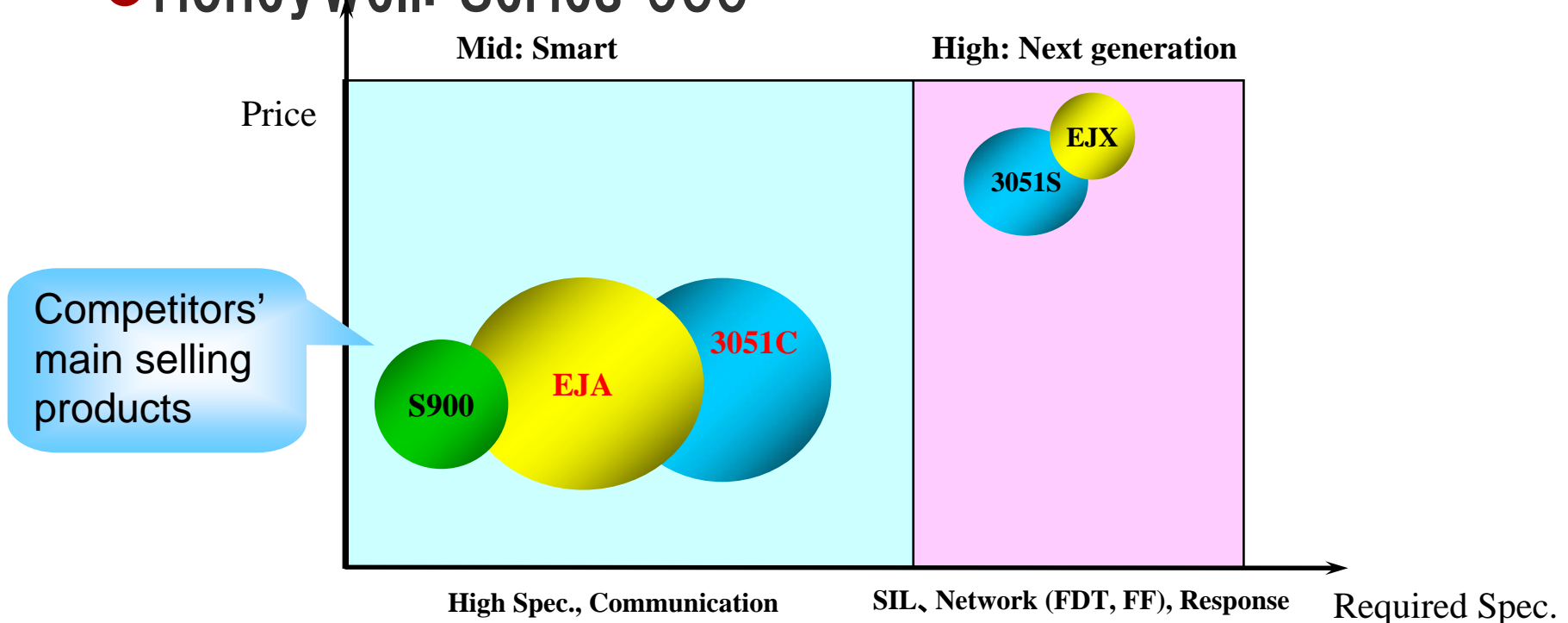
1. **Safety plant operation** to avoid accidents
  - Reliability on field devices
  - Safety approvals of devices
2. **Stable plant operation** to maintain high product quality controlling and high productivity.
  - Reliability on field devices
  - Stability on field devices
  - No clogging in the process 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

## Safety Integrity Level (SIL)

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

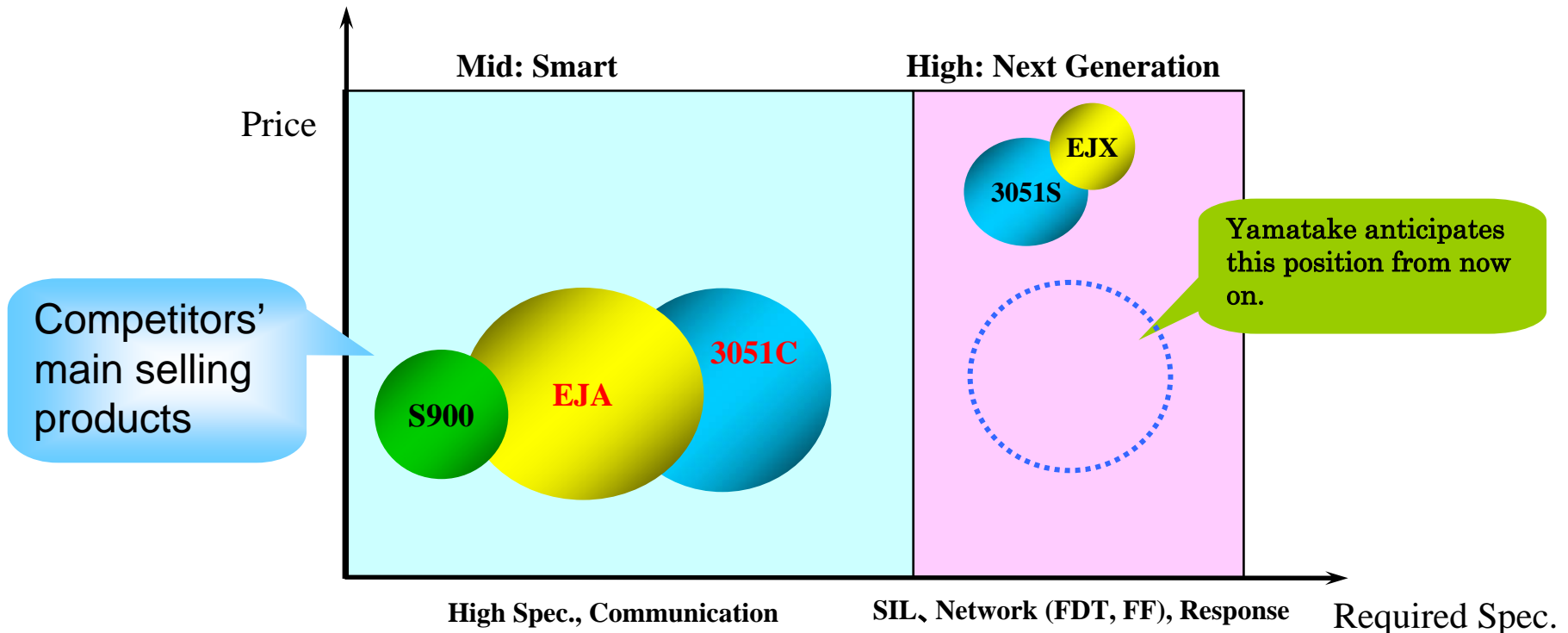
- **SIL is determined by Probability of Failure on Demand (PFD)**
- **Plant users have requested the safety instrument complying with SIL-2**
- **When customers constructs the SIS, GTX meet the requirement.**

- Target competitors and products
  - Yokogawa: EJA
  - Emerson: 3051C
  - Honeywell: Series 900



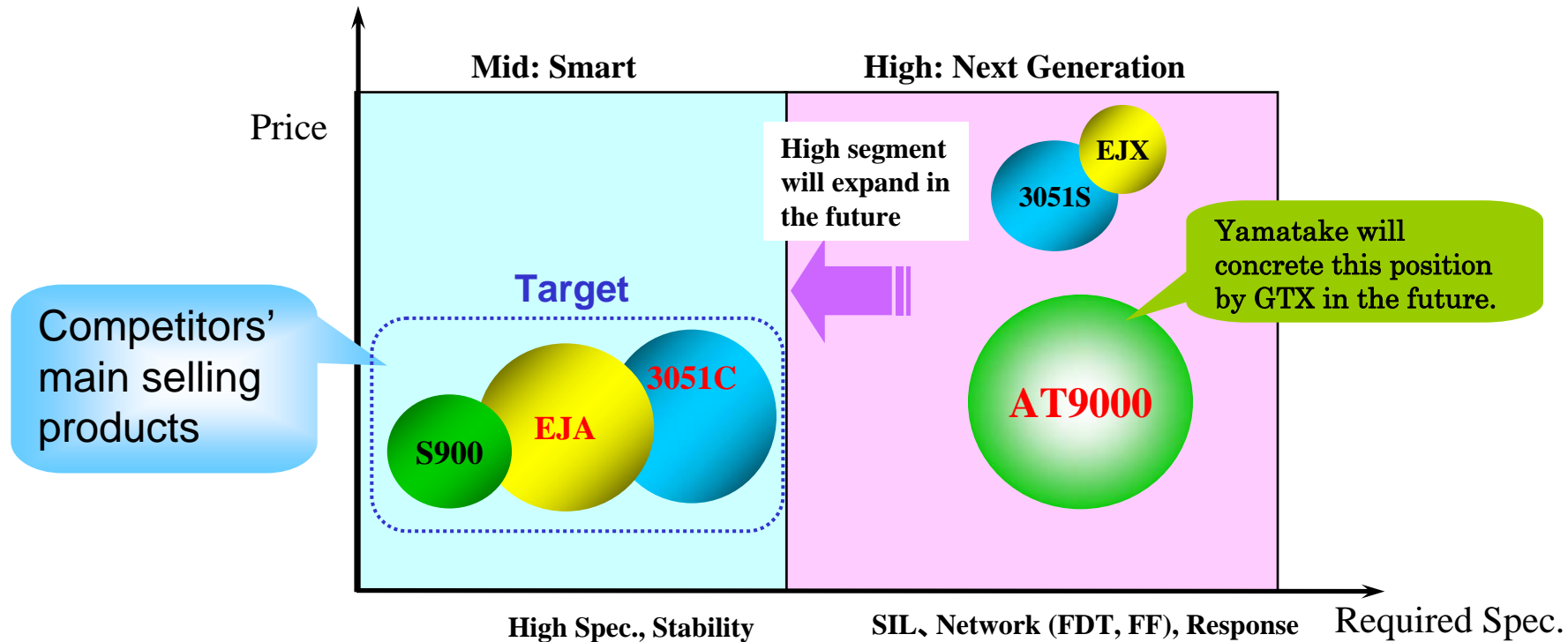
## Safety instrumentation with GTX at an attractive price.

Differentiation from competitors;  
Yamatake provides high quality and high performance **safety transmitter** with attractive price.



## Safety instrumentation with GTX at an attractive price.

Differentiation from competitors;  
Yamatake provides high quality and high performance **safety transmitter** with attractive price.



# Reliability: Best in World Class Performance

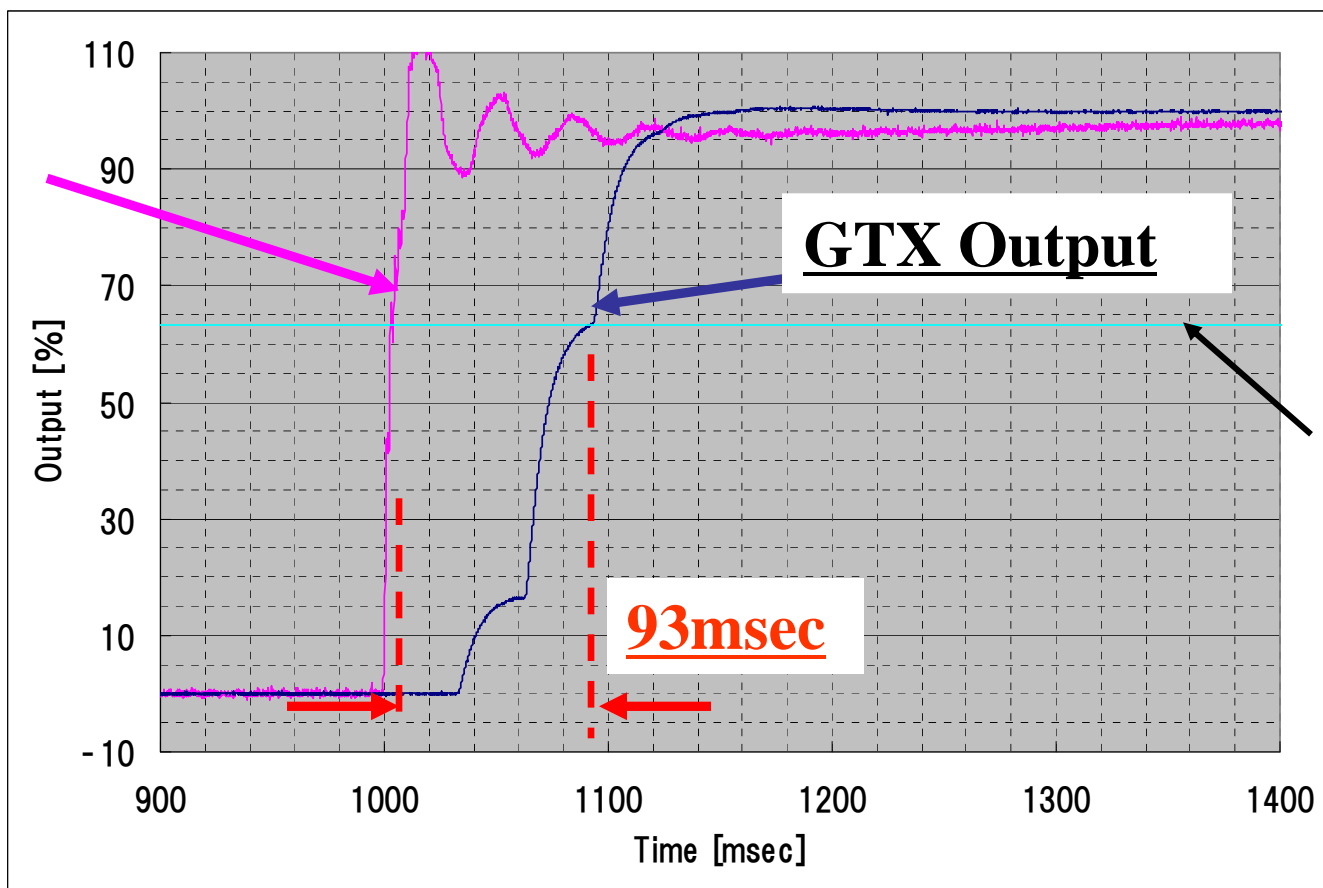


- High Accuracy
  - +/- 0.04%F.S.
- Faster in response
  - Below 100msec
- High stability
  - +/- 0.1%F.S. for ten-years

# Faster in Response

- Response time: Below 100msec

Input

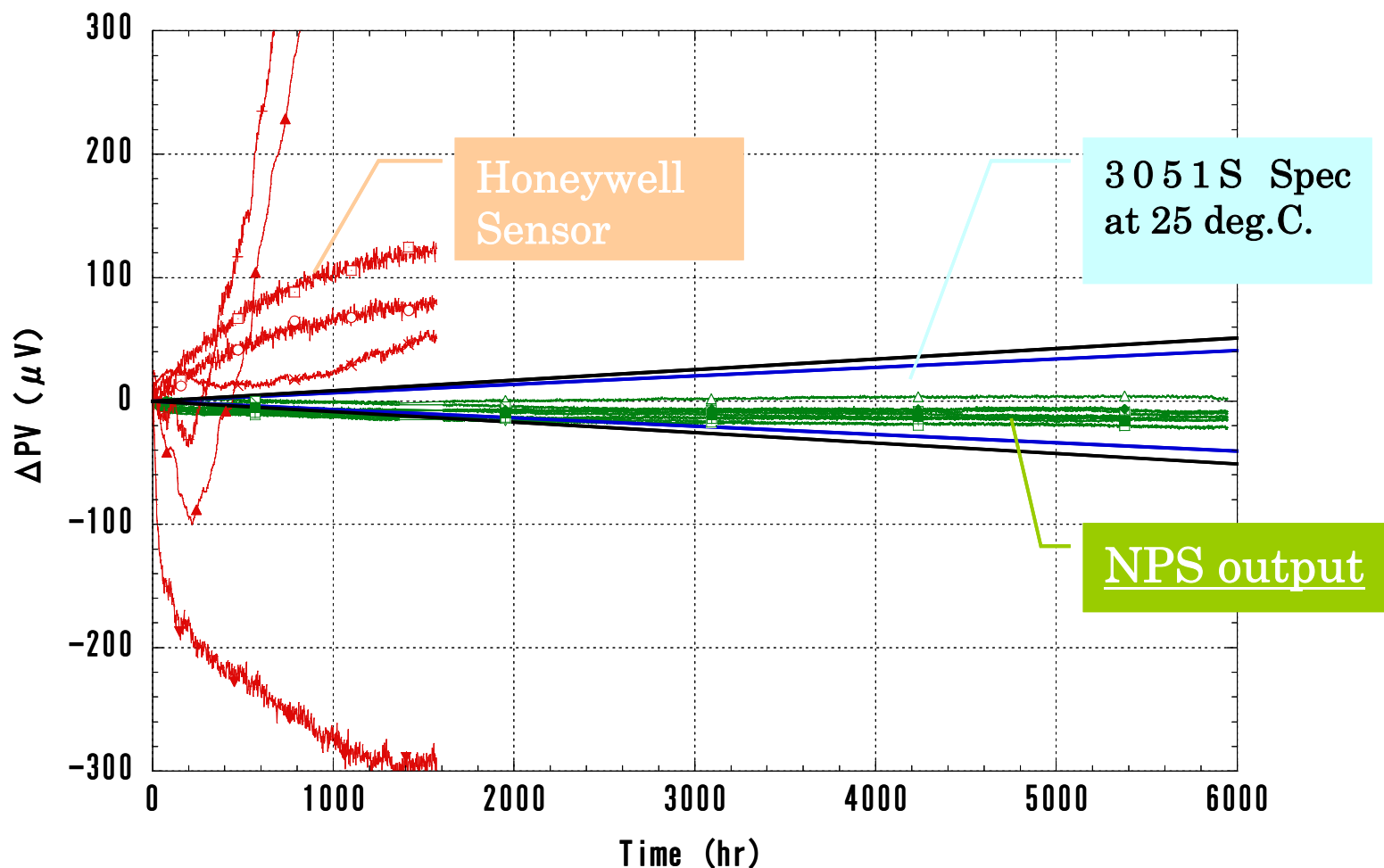


GTX Output

63.2%

93msec

## ● Zero drift at 125°C



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

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

# EDDL display



The screenshot displays the AMS Suite: Intelligent Device Manager software interface. The main window shows process variables for a device, including a line graph for 'Strip' and a gauge for 'Gauge'. The 'Strip' graph shows a value fluctuating between approximately 8.0 and 12.0 over time. The 'Gauge' shows a reading of 12.13. A configuration window is open, displaying device information and settings.

**Process Variables**

- Pressure
- Analog Output
- Sensor Temp

Analog Output: 12.129 mA      PV % Range: 41.58 %

**Strip**

Y-axis: 4.0 to 20.0  
X-axis: 11:30:00 to 11:30:44

**Gauge**

Reading: 12.13

**Configure/Setup**

- Configure/Setup
  - BASIC SETUP
  - DETAILED SETUP
  - Calibration
  - REVIEW
- Device Diagnostics
- Process Variables
- Compare

**Enter Values / Device Information**

Manufacturer	Yamatake Copporator	Revision Numbers	Universal Rev	5
Model	ST3000	Field Device Rev	2	
Measurement Ty.	DP	Software Rev	3	
Device ID	2495627	Meter Type	Display Type	
Tag	TAG	EU LO	0.000	
Date	01/01/1993	EU HI	100.000	
Descriptor	REMOVED/REMOVED			
Message	MESSAGE			
Sensor Serial Nu.	2495627			
PROM ID	2495627800			
Final Assembly N.	2495627			

Time: Current

OK Cancel Apply Print Help

Last Synchronized: 10/24/2006 11:33:09 AM

Ready

User: Yamatake

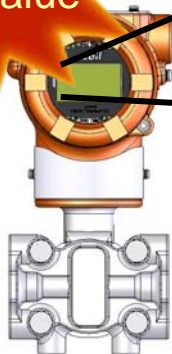
11:33 AM

## 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.

### 1. Alarm displays in indicator

Abnormal process value



GTX

AL.34  
OUT%.AL

※Example of alarm display

### 2. Contact output

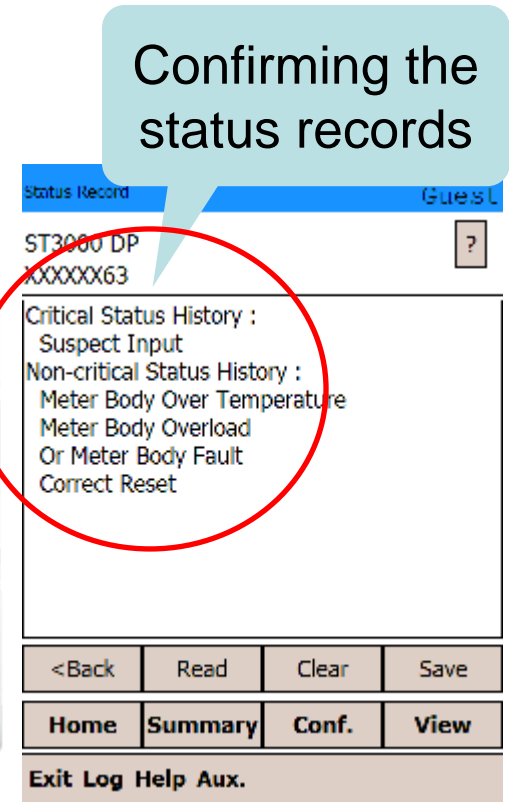
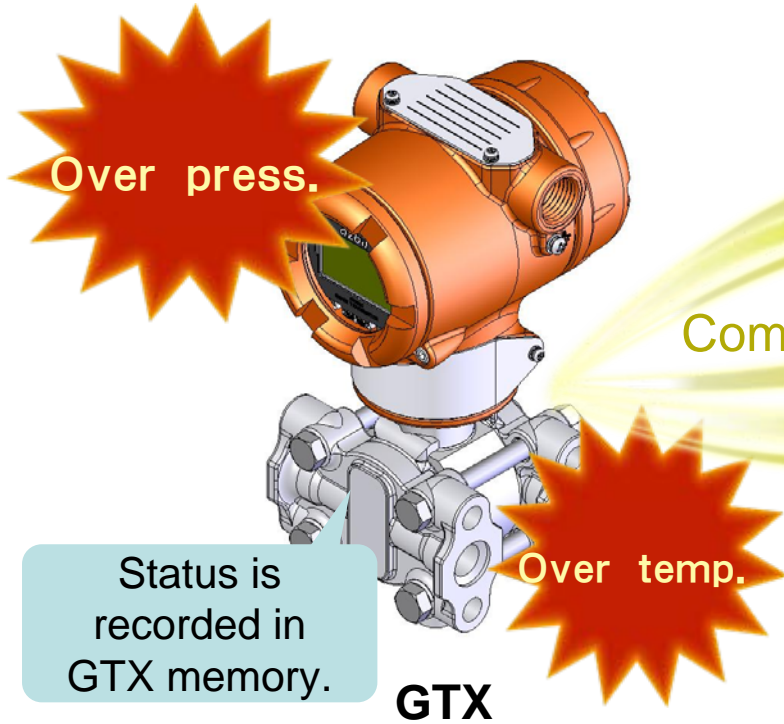


Host computer

**Customer can detect the abnormal process value quickly**

# Trouble shooting

## b. Status record



CommPad  
(Smart communicator)

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

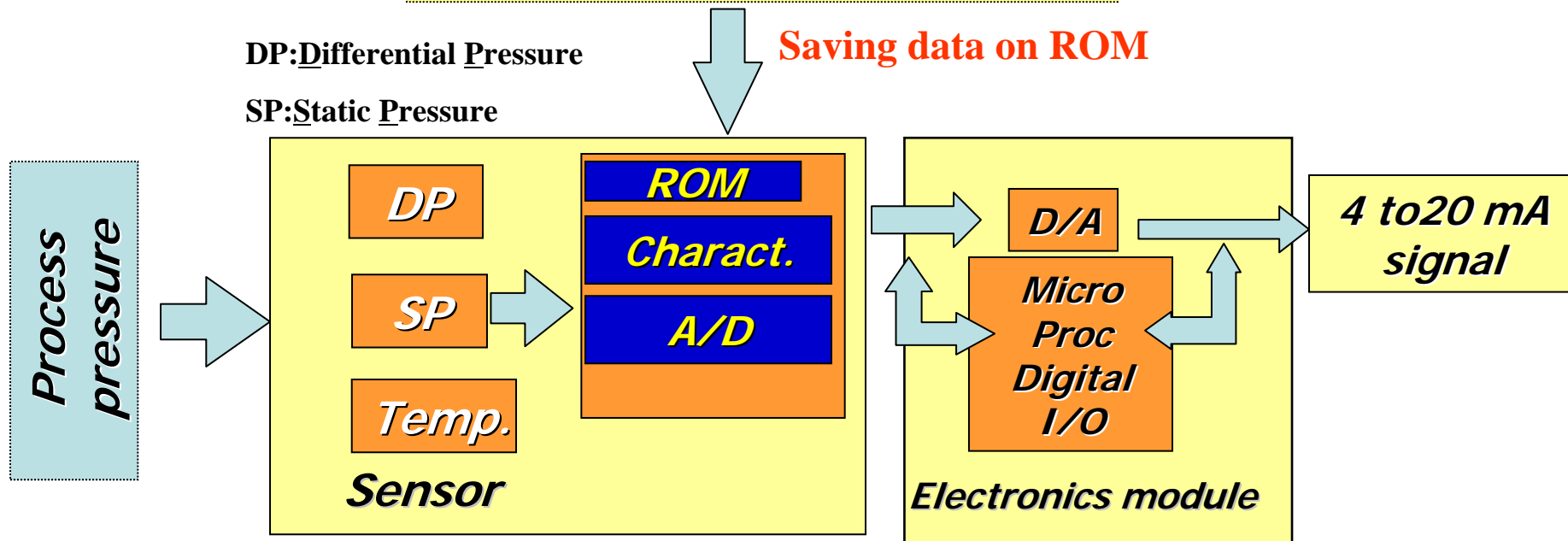
# Comparison with S900



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 <sub>≥</sub> 50kPa ±0.1% For 5kPa <sub>≤</sub> 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 )	Characterization data in PROM that located on the main electrical board
Diagnostics	Self diagnostic	Self diagnostic
	Status record	Not available
	Zero drift recode	Not available

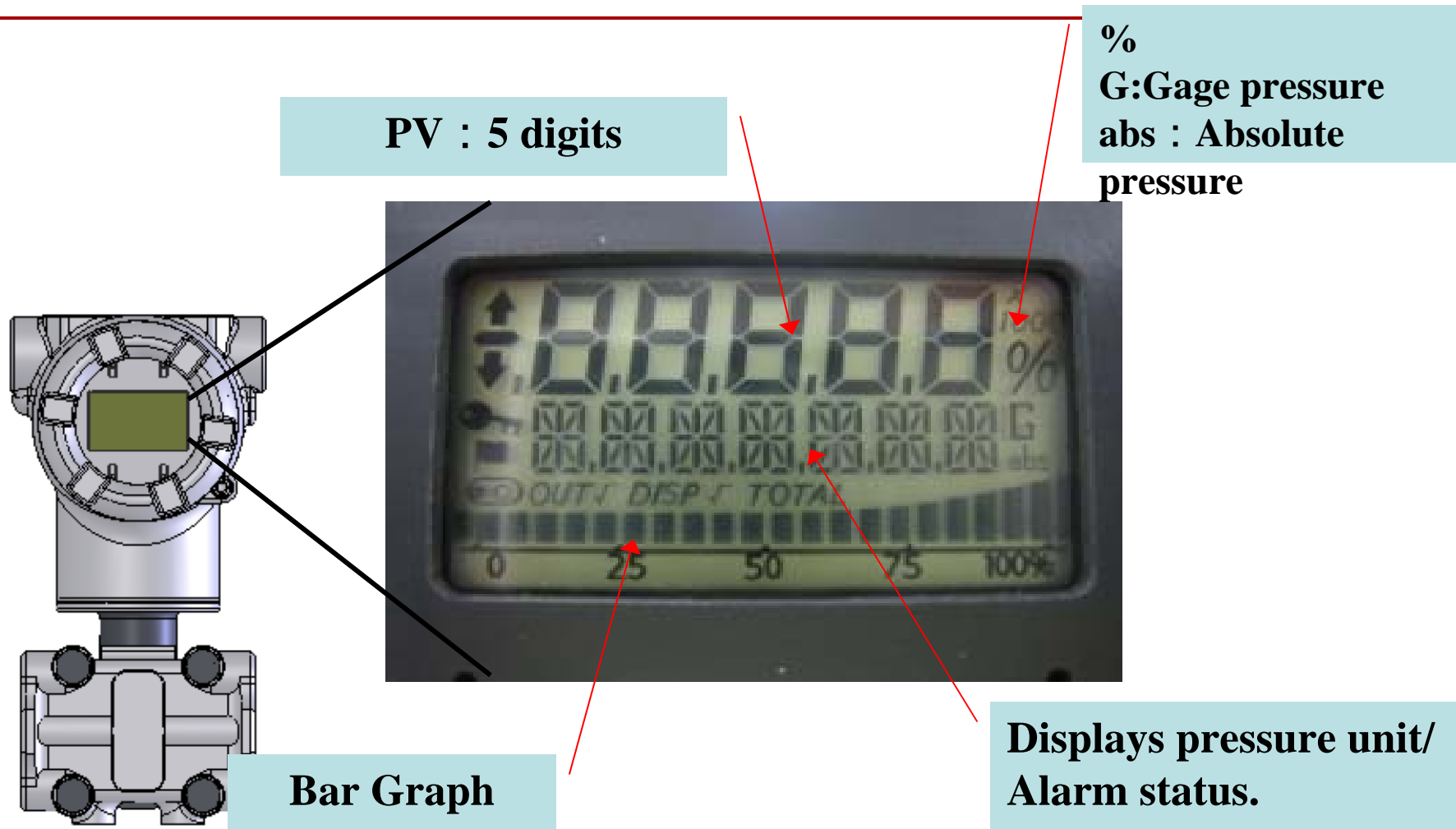
**-Possibility to change meter body without electrical board.**

*Manufacturing line Computer*  
Data acquisition of each characteristics



- 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.

# High-performance indicator



PV : 5 digits

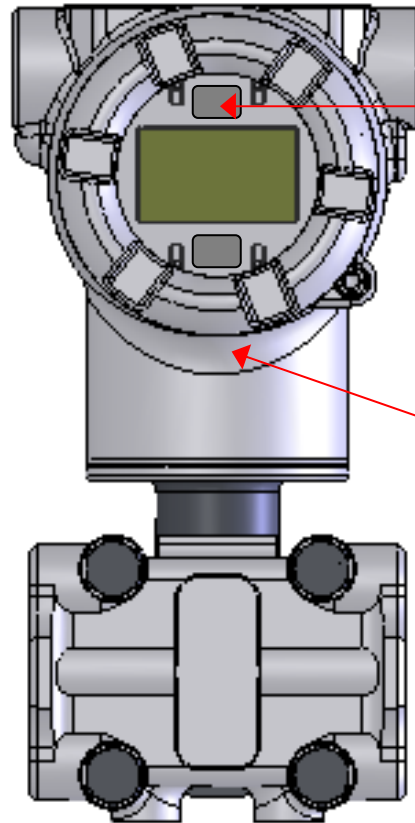
%  
G:Gage pressure  
abs : Absolute  
pressure

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.