

How to Conduct a Thorough Price/Performance Analysis

of pressure transducers

OVERVIEW

This guide is designed to help you to fully analyze the price/performance of competing pressure transducers. Maintaining a complete product comparison guide would be a nightmare, and we know from experience that the diligent engineer would (should) independently verify such information provided by any vendor.

This guide can help you compare any of Setra's products, or compare our competitors to each other if you feel one of our products is not a fit for your application. It is designed to be used as a checklist; thus, we have included actual checklists in the appendix of this document.

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- Purchase Price versus Cost of Ownership
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Section I

Primary Performance Measurements and Considerations

General considerations include:

- Pressure range to be measured
- Compatibility of device to the contact media that's being measured
- Accuracy (What type of linearity?)
- Desired Output
- Compensated Temperature range
- Response time

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- Proof Pressure range
- Burst Pressure range
- Cycle life
- Compensated/Operating temperature ranges

Environmental Considerations:

- Moisture/humidity ingress protection
- Corrosion resistance
- Electrical immunity
- Size restrictions or limitations
- Footprint and form factor (Drop-in replacement capability)
- Intrinsically safe requirement
- Over-voltage protection
- Reverse polarity protection

Section II

Peripheral Performance Measurements and Considerations

Peripheral performance considerations are mostly the intangibles that inevitably impact your bottom line, but are often not directly considered when comparing products from different manufacturers.

For example, a company that sells, but doesn't manufacture their own products may offer better pricing, but can't customize products or orders to fit your specific application requirements. These resellers often won't provide the level of support available from the product manufacturers, and lack the in-depth product knowledge that ensures you get the *right product* for your specific application.

A challenge every pressure sensor manufacturer faces is the complexity of selecting the *right* transducer for the application. For example, several transducers may work within your required pressure range, but one or two may offer superior accuracy within that range. Knowing which sensor works best in which application requires a level of knowledge few, if any, online resellers will have.

Peripheral Considerations Include:

- **Who has control of the manufacturing process?** Setra, for example, has complete control over all our manufacturing processes. This ensures tight quality control and the application of ongoing continuous improvement projects within the manufacturing facility.

- **Are the support people or application engineers tied to one manufacturer, or must they know a little about many different manufacturers?** Setra application engineers know Setra's products at a deeply intimate level. They'll know which of several products works *best* with your specific application.
- **Who handles support?** What if you begin experiencing transducer failures in the field? Compare and contrast the level of support you'll receive from the manufacturer, including time-to-resolution and product replacement support.

Section III

Purchase Price versus Cost of Ownership

One of the primary reasons for the failure of pressure transducers in the field is that it was the wrong transducer for the application. The total cost of ownership should include things like the reliability of the products, environmental protection capabilities, stability of the products in harsh conditions, and the cost to replace transducers in the field.

Form factor, ingress protection, cycle life, and vibration protection all come into play when doing a thorough price/performance comparison, but often go overlooked. In general, you're evaluating the costs associated with a transducer failure in your equipment or product. What does it cost you when a transducer fails?

Thus, selecting the best transducer for your application and a transducer that offers superior reliability *in the specific environment in which it will be placed* is a critical component of a thorough price/performance analysis.

Cost Considerations:

- In-field replacement costs (travel, payroll, time to work on new business opportunities, etc...)
- Cycle life as related to unit cost (replacement cost over the life of your equipment/product)
- Reputation – making sure that your current customers remain customers because of your product reliability and performance

Other Considerations Related to Cost of Ownership:

- Warranty time period as compared to Cycle Life

- Form Factor flexibility
- Ease of / Opportunity to recalibrate in the field.
- Ease of installation
- Environmental protection capabilities related to the specific application (media type, physical environment, etc.)

Section IV

Comparing Apples to Apples

To truly compare one product to a competing product, you'll need to know:

- **Does the manufacturer say this is the *best product* for your specific application?** Be careful that the seller isn't selling you a less expensive, but less capable product in order to get your order.
- **Do all the specifications match?** This includes both the general specifications and specifications that are relevant to your unique application: Accuracy, ingress protection; wetted material; EMC immunity; vibration; proof and burst pressure, etc. One product may state similar accuracy specifications, but they may use a different method of calculating non-linearity; i.e. "Best Fit Straight Line" vs. "Endpoint".
- **Have you added in cost-of-ownership considerations?** How do the products compare in terms of reliability? What's the level of manufacturer support you'll receive? What's the product warranty?
- **Do you have local support?** Will the seller stand behind their product, taking the time to discover the root cause of your failure; or, will they only send out a replacement unit?
- **What is the lead time for new product or replacements?** Will the manufacturer be able to meet or exceed your timetable for product delivery?

Summary

If selecting a pressure transducer were as simple as choosing your toothpaste, there would be no need for design or application engineers and knowledgeable manufacturer's representatives. Unfortunately, not all pressure transducers are created equal, and even transducers that

“meet” your specifications may not be the best choice for your specific application and environment.

Consequently, conducting a thorough price/performance comparison of competing products is an enormous challenge. You’ll never get it perfect, but if you use this guide and the checklists in the appendix, you’ll have much greater certainty that you’re making the best possible choice.

Appendix

Consideration/Criteria	Company/Product 1	Company/Product 2
Primary Considerations		
Pressure range to be measured		
Compatibility of device to the contact media that’s being measured		
Accuracy (What type of linearity?)		
Desired Output		
Compensated Temperature range		
Response time		
Proof Pressure range		
Burst Pressure range		
Cycle life		
Compensated/Operating temperature ranges		
Environmental Considerations		
Moisture/humidity ingress protection		
Corrosion resistance		
Electrical immunity		
Size restrictions or limitations		
Footprint and form factor (Drop-in replacement capability)		
Intrinsically safe requirement		
Over-voltage protection		
Reverse polarity protection		
Peripheral/Other Considerations		
Who has control of the manufacturing process?		
Are the support people or application engineers tied to one manufacturer, or must they know a little about many different manufacturers?		

Who handles support?		
Cost Considerations		
In-field replacement costs (travel, payroll, time to work on new business opportunities, etc...)		
Cycle life as related to unit cost (replacement cost over the life of your equipment/product)		
Reputation – making sure that your current customers remain customers because of your product reliability and performance		
Warranty time period as compared to Cycle Life		
Form Factor flexibility		
Ease of / Opportunity to recalibrate in the field.		
Ease of installation		
Environmental protection capabilities related to the specific application (media type, physical environment, etc.)		
Comparison Considerations		
Does the manufacturer say this is the best product for your specific application?		
Do all the specifications match?		
Have you added in cost-of- ownership considerations?		
How do the products compare in terms of reliability?		
What's the level of manufacturer support you'll receive?		
What's the product warranty?		
Do you have local support?		
What is the lead time for new product or replacements?		



Setra Systems is a leading global designer and manufacturer of pressure sensors, and transducers, humidity transmitters, current switches, current transducers, and calibration equipment for the HVAC and Industrial markets