



**AusIMM**  
Courses

# HOW TO OPTIMISE INSTRUMENT LOCATION AND INSTALLATION FOR **BETTER DATA COLLECTION** IN METAL ACCOUNTING

Based on material from the **Metal Accounting Professional Certificate**  
For full details visit [www.ausimm.com/courses](http://www.ausimm.com/courses)

THIS RESOURCE IS BASED ON MATERIAL  
FROM MODULE 3 OF THE

# Metal Accounting

PROFESSIONAL CERTIFICATE



**John Jessop**  
Managing Director  
Think Advisory Pty  
Ltd



**Karen McCaffery**  
Principal,  
Tastufo  
Consulting



**Gail Gnoinski**  
Geologist and  
geochemist

[LEARN MORE](#)

# How to optimise instrument location and installation for better data collection in metal accounting

Proper instrument placement is crucial. Consider the configuration of the conveyor, pipe diameter, and flow direction. Follow the manufacturer's recommendations for installation to ensure accurate measurements. Additionally, place instruments close to other measurements or samples required for conversions (e.g., density measurements) to minimise errors introduced during the process.

Some key considerations for instrument location and installation:

**Flow Path Configuration:** The configuration of the flow path, whether it's a conveyor, pipeline, or other transport system, is critical. Measurement instruments should be strategically placed in sections of the flow path that provide consistent and representative material movement. Avoid areas with turbulence, bends, or irregularities that could affect the measurement.

**Vertical and Horizontal Positioning:** The orientation of the measurement instrument is crucial. For instance, beltway scales that measure materials on conveyors should ideally be installed on horizontal sections of the conveyor. This allows for consistent belt tensions and minimises potential measurement errors caused by belt movement.

## **Consider Interference and Material Buildup**

Instruments should be placed away from potential sources of interference such as wind, rain, vibration, and electromagnetic fields. Additionally, consider the possibility of material buildup on the instrument itself, as this can impact accuracy. For example, material accumulation on a weighing scale can result in over-reported weight.

## **Access for Maintenance and Inspection**

Design the installation in a way that allows for easy access to the measurement instrument for routine maintenance, calibration, and inspections. If maintenance is time-consuming or difficult due to poor access, it might lead to neglecting necessary upkeep, potentially affecting accuracy over time.

## **Collaboration with Vendors**

Reputable instrument vendors and manufacturers often provide installation guidelines to ensure accurate measurements. Follow these guidelines closely to achieve optimal results. Engage with vendors during the planning stage to address any specific requirements or challenges related to instrument placement.

## **Proximity to Other Measurements**

Place the measurement instrument close to other required measurements or samples that contribute to data conversion. For example, if density measurements are needed to convert volumetric flow to mass flow, ensure that the instruments are located in proximity to each other. This minimises errors introduced during data transformation.





## Monitoring and Redundancy

Ideally, the measurement instrument should be positioned where its performance can be easily monitored against other measurements. Implementing redundancy, where duplicate measurement systems are installed, provides an additional layer of accuracy verification. Redundancy helps identify discrepancies and ensures that accurate data is available even if one system malfunctions.

In conclusion, optimising the instrument's location and installation is vital for accurate mass flow measurements. Careful consideration of flow path configuration, orientation, access for maintenance, interference factors, and collaboration with vendors contributes to reliable and precise measurements.

By strategically placing instruments and following best practices during installation, you can ensure that the measurement system performs consistently and provides trustworthy data for your metallurgical accounting processes.

THIS RESOURCE IS BASED ON MATERIAL  
FROM MODULE 3 OF THE

# Metal Accounting

PROFESSIONAL CERTIFICATE



**John Jessop**  
Managing Director  
Think Advisory Pty  
Ltd



**Karen McCaffery**  
Principal,  
Tastufo  
Consulting



**Gail Gnoinski**  
Geologist and  
geochemist

Learn how to accurately track and estimate metal production from delivery into the process plant through to saleable product

[LEARN MORE](#)