

Quick and Easy Stream Changes!

Introduction: Since 2001, the use of Tunable Diode Lasers (TDL) has increased considerably on both regulated and unregulated lines and meter stations. The first measurements were for moisture in natural gas transmission lines and were used not only for tariff but to increase understanding of the chemistry in the line for less risky operation. Transmission gas is typically stable, clean and dry gas. Since then, TDL's have been integrated into a larger variety of upstream applications including unconventional sources. In many cases the composition of the gas can vary greatly from location to location. This means that an analyzer must be able to accommodate the full range of gas streams expected in the field.

Why are “**Quick and Easy Stream Changes**” important?

- Moisture analyzers are frequently moved to a different stream
- Spare analyzers are stored for use on variety of streams
- CO₂ or other components change due to process upsets, potentially causing large offsets in the reading.

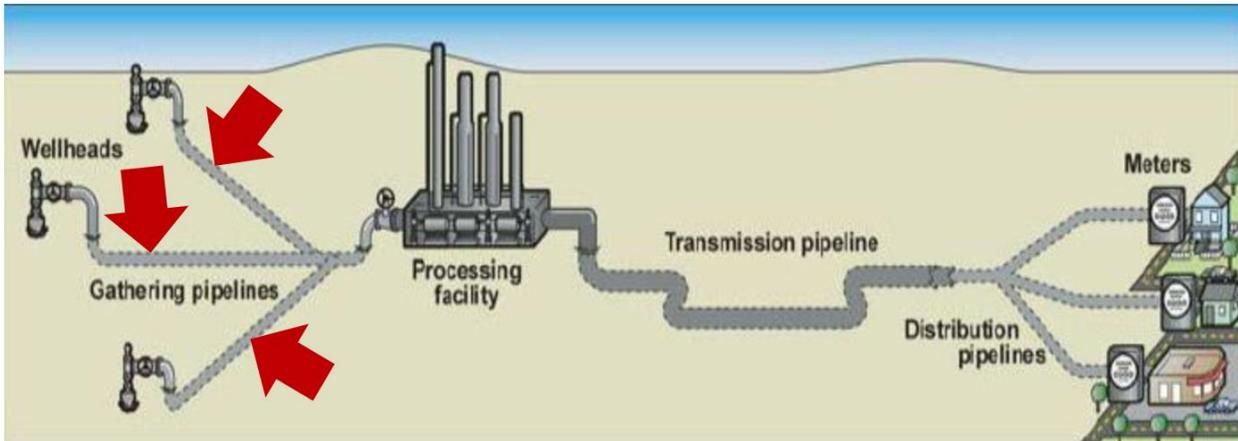
Fortunately, **Quick and Easy Stream Changes** are possible with a SpectraSensors moisture analyzer. The stream composition can be set up with live inputs or as static values which can be changed occasionally. “Quick and Easy Stream Change” allows the user to update the stream composition in the analyzer directly, or using a live update via modbus over RS232, RS485 or Ethernet (as applicable).

Benefits:

- The analyzer is not specific to one stream composition; the stream can be adjusted (limits apply – see below)
- Does not require recalibration when the stream changes over time, or when the analyzer is moved to a different stream
- One analyzer can be stocked to service several locations
- Ordering can be done without the exact composition upfront, reducing leadtimes

This capability resides in today's SpectraSensors SS500, SS2000, SS500e and SS2000e moisture analyzers (and product-family variants). The operator manual describes how it works and you can contact SpectraSensors service personnel for help.

Typical gathering system with multiple measurements points (red arrows):



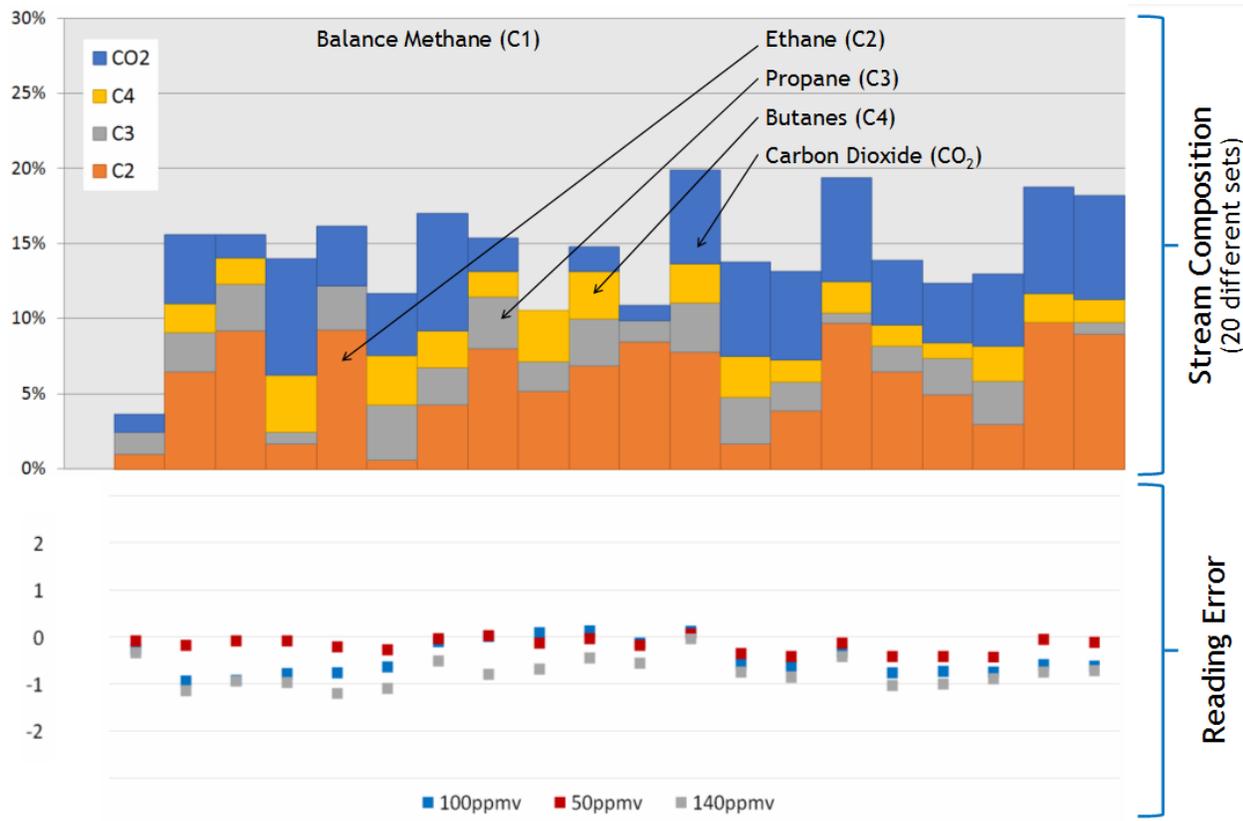
Moving a TDL moisture analyzer to a different stream? Buying a spare analyzer for use on a variety of streams? Experiencing CO₂ swings or other Major Stream Change events? Simple. Adjust in the field!

Stream Composition Range: The stream change compensation function works for any stream within the table below. However to obtain the best results, SpectraSensors recommends that the analyzer be calibrated in an “average” stream which is closest to the stream(s) in which the analyzer will be used.

Component Name	Abbreviation	Component Range
Methane	C ₁	50 - 100%
Ethane	C ₂	0 - 20%
Propane	C ₃	0 - 15%
Butanes	C ₄	Sum is 5 - 50%
Pentanes	C ₅	
Hexanes and Heavier	C ₆₊	
Carbon Dioxide	CO ₂	0 - 20%
Nitrogen and Other Inerts	N ₂	0 - 20%
Hydrogen Sulfide	H ₂ S	0 - 5%
Water	H ₂ O	0 - 5000ppmv ²

Example reading change for various streams:

The graph below shows 20 different streams with different compositions. The bottom section of the graph depicts the impact on the reading for each stream using the Quick and Easy Stream Change feature. As shown the error is less than 1% of the reading. In other words, it works well!



As stated above, new SpectraSensors analyzers are equipped with this feature. An existing analyzer can be upgraded in the field to take advantage of the “Quick and Easy Stream Changes” feature. To upgrade and recalibrate your analyzer, please contact with your local representative.

If you have any questions or comments about this, please do not hesitate to contact your SpectraSensors sales representative or SpectraSensors directly using the contact information below.

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