Sparklike Laser Integrated™ Technical specification

Sparklike Laser Integrated™ is a device to measure non-destructively gas concentration inside an insulating glass unit by means of a semi-conductor laser with 760 / 763 nm wavelength range (TDLAS technology). The measuring is fully automated with integrated communication with an IG line. The device can measure insulating gas concentration within double-glazed and triple-glazed (both cavities indivually) units but also measures glass and cavity thicknesses. The measurement can be done through laminated glasses and high majority of coated glasses.

Scope of supply (Sparklike):

- Sparklike Laser Integrated™ measuring head
- Sparklike Laser Integrated™ main control unit
- Y-Z-movement system for the measuring head
- Installation platform, brackets, cable raceways and supports needed
- User interface, alarms, communication interface to the IG-line
- Emergency stop circuit for CE conformity
- Safety covers for CE conformity
- Softwares and their applicable licenses

Scope of supply (Buyer):

- Supplies: electricity, argon for flushing (0.2 liters/min, 99.99%)
- Availability of the IG-line for set-up and testing
- Technical support for installation
- IG-line mechanical modifications
- IG-line software modifications in cooperation with IG line manufacturer

Measuring process description

The equipment consists of set of components, movement system and software installed into a typical insulating glass production line. After gas press an IGU will stop to a pre-defined location and linear movement takes the measuring head of Laser Integrated™ to the preset height and moves horizontaly against the IGU surface which after the measurement takes place.

A laser beam is transmitted through the IGU and reflection from the glass surface(s) is received and converted to oxygen content. From

oxygen content the device automatically calculates the insulating gas (argon, krypton, xenon, etc.) amount in percentage.

After the IGU is measured, the glass can be moved forward. The results are stored and can be communicated with an external system. The operation of the Sparklike Laser Integrated™ will be integrated to the insulating glass line cycle and operation.

IGU stop time ranges for the measuring process (Depending on needed Z and Y movement)	IGU dimensions received from the IG line	IGU dimensions not received from the IG line
DGU	9 – 22 s	25 – 38 s
TGU	13 – 26 s	31 - 44 s

Measurement range

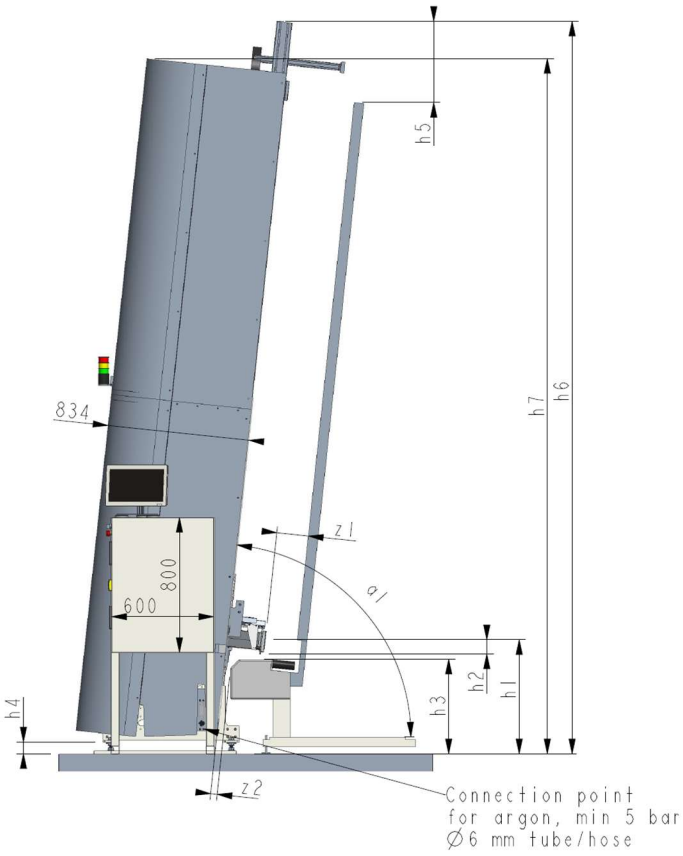
With manual presets or information received from th IG line	
Glass thickness	2 – 23 mm
Cavity width	6 – 40 mm
Without presets nor information received from th IG line	
Glass thickness	3 – 13 mm
Cavity width	6 – 24 mm
IGU height	Max. 3200 mm
IGU thickness	Max 51 mm (from surface 1 to 3 in DGU and 1 to 5 in TGU)
Thickness measurement accuracy	± 50 µm *
Repeatability of the gas measurements	± 2 % *, **
Insulating gas filling rate	1...95 % Argon

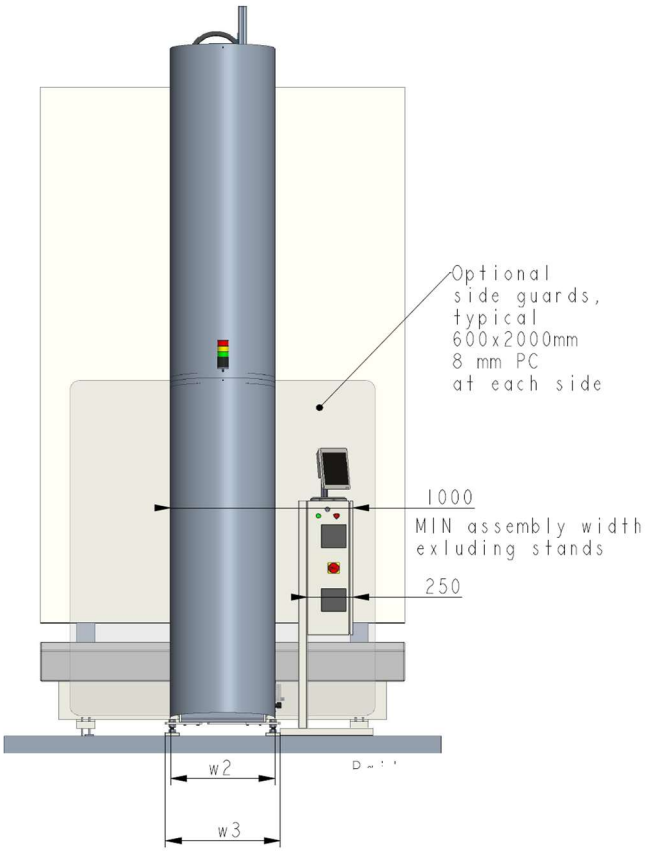
* Typical construction of the insulating glass unit
** At least 30 measurements are needed that 95 % confidence interval is valid

Calibration interval for the specified repeatability is max. 12 months.

Device details:	
Footprint	700 x 1300 mm
Height	Max. 4340 mm
Weight	Approx. 350 kg
Operating Conditions	
Temperature	10-40°C
Humidity	20-80%
Supplies	
Main Power Supply	110–120 / 220–240 VAC 50/60 Hz, PE
Connected Power	1600W
Connectors	Ethernet, USB 2.0, VAC Power, Argon supply with 6mm tube
Software	Custom made Sparklike Laser Integrated™ SW running on Windows 10 LTSP platform
Data Logging Capability	SSD Storage (128 GB), USB/Network transfer

MAIN DIMENSIONS

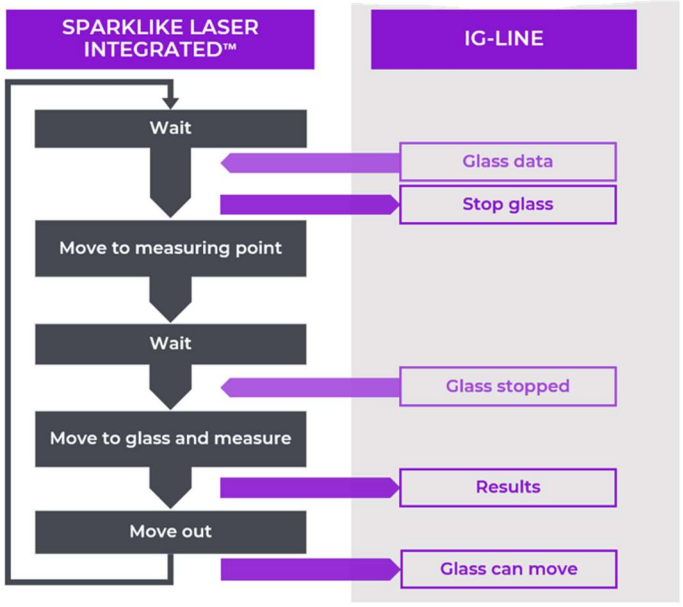




Dim.	Range	Note
a1	78..88°	Tilt angle
h1	645..3728 mm	Measuring height
h2	85 mm	Measuring head below measuring point
h3	585 mm	Max table height when using lowest measuring height
h4	60-70 mm	Typical mounting height from factory floor using standard adjusting bolts
h5	480 mm	Typical height above glass line top
h6	4340	Typical total height at highest mounting screw setting
h7	4120	Typical total height without laser beam extension
z1	15-210 mm	Default measurement head distance range
z2	min 30 mm	Minimum clearance between glass-line and Online
w1	1670 mm	Total width with access shields
w2	572 mm	Tower body width
w3	630 mm	Minimum required mounting width on floor

INTEGRATION SCHEMES

SPARKLIKE LASER INTEGRATED™ FLOW CHART – FULL INTEGRATION



SPARKLIKE LASER INTEGRATED™ FLOW CHART – BASIC INTEGRATION