

Precision Sensors

for

Smarter Growing



Simple installation PLUG & PLAY

Accurate & reliable DUTCH MADE

Wireless LoRaWAN

What's inside

From root to plant zone and microclimate measurements.

Explore one of the broadest ranges on the market below,
entirely Dutch made. Quality that lasts.

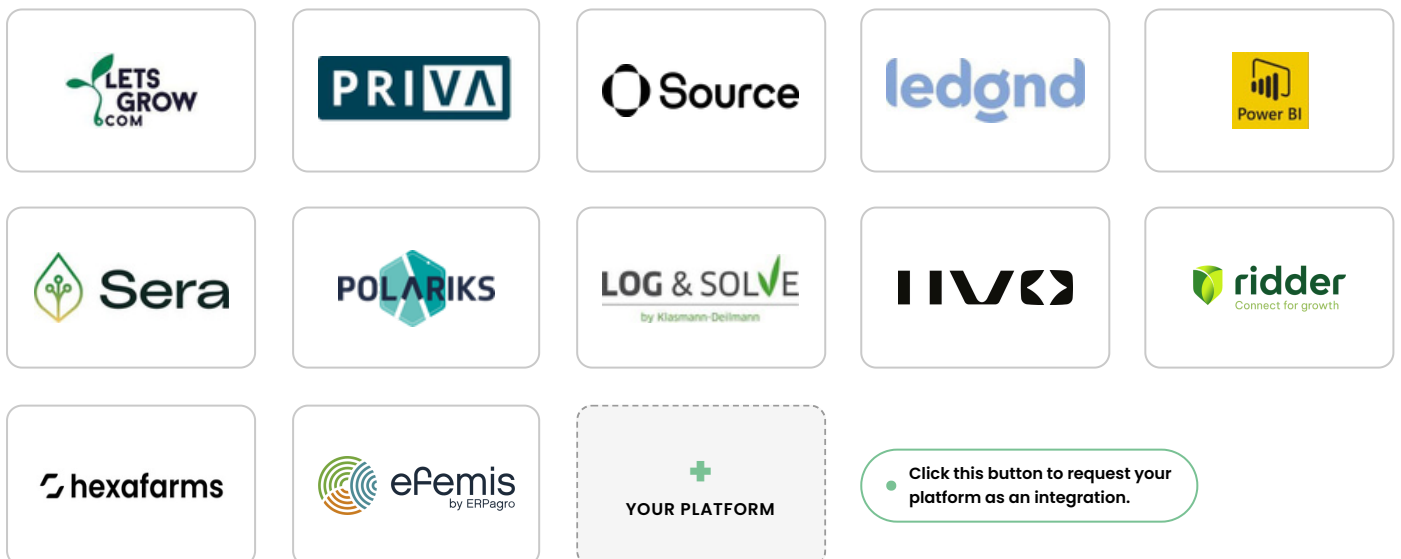
01	How it works the system and its components	03
02	Nodes Our nodes & sensor nodes, the base of the system	04
03	Root zone Moisture, EC, temperature, weight and more	05
04	Plant zone Leaf and fruit temperature, crop weight and more.	05
05	Fertigation Dripper and drain volume, flow, EC, pressure and more	07
06	Climate Air temperature, humidity, light, CO ₂ , weather and more.	09
07	Connectivity Gateways that link your sensors and sensor data to the cloud.	10
08	Accessories Clips, holders, chargers and calibration extras.	11
09	Software & data services Q-InSight, API access and integrations.	14

How it works

Quantified sensor nodes connect wirelessly and automatically to a (LoRaWAN) gateway, the gateway forwards the encrypted data to the secure **cloud**. Data can be accessed via web-based platforms (see below), and mobile phone.



Connect to the platform you already use



Nodes

A node is the wireless connected device: it powers and connects the sensors attached to it.

A sensor node measures as well: connectivity and measurement in one device.

FireFly — the FireFly is a sensor node: it powers connectivity & measurements in one device.



1 Rugged housing

Water and dust resistant (IP67) housing with a rechargeable battery inside. Built for greenhouse conditions.

2 Measurement modules on board

Order the sensor node with options like: PAR/Temperature/Relative Humidity/Barometric Pressure/GPS.

3 Options for external sensors

The connector links the FireFly to any external Quantified sensor: the FireFly recognises the sensor and includes the measurements in the data stream.

Rechargeable

The rechargeable battery lasts more than 12 months. LoRa carries the data through glass, concrete and screens, without cabling.

Up to 75 nodes per gateway

Grow from a single trial section to a full site without adding infrastructure.

One node, changing sensors

Unplug one sensor, plug in another. The same node keeps measuring somewhere else next season.

Mounted where the crop is

Clip the node to the wire, the gutter, a pot or a post. No control box, no drilling, no wiring.

SENSOR NODES



[Read more](#)

FireFly sensor node

ARTICLE CODE: FF

- Wireless sensor node that carries the measurement modules and external sensors of your choice.
- Add PAR, temperature, relative humidity, barometric pressure or GPS modules, and connect any external Quantified sensor to the connector.
- **Rechargeable** battery lasting over 12 months, IP67 housing, 127 g.

DIMENSIONS
3.5 × 4.0 × 11.0 cm
BATTERY
>12 months

WEIGHT
127 g
IP RATING
IP67

DEPENDENCY
 **Gateway**

HOW IT WORKS · START HERE



[Read more](#)

Starter Kit

ARTICLE CODE: FFSK

- The simplest way to start with Quantified: a complete wireless sensor system, ready for use straight away.
- Two FireFly sensors, a gateway, mounting clips and a charger, delivered pre-configured.
- Includes one year of Q-InSight software and Insight-Connect data.

SENSORS

2× FireFly

SOFTWARE

1 yr Q-InSight Green

GATEWAY

Gout (DLOS8)

DATA

1 yr Insight-Connect

Root zone Moisture, EC, temperature, weight and more

1 product



[Read more](#)

Poseidon WET Sensor

ARTICLE CODE: FFWETPos

- Measures moisture, electrical conductivity (EC) and temperature in soil or substrate.
- A 7 cm TDR probe (50 MHz) in the root zone, with one to three measuring heads per FireFly for depth profiles or repeat positions. Works in substrate and in soil, so one sensor covers glasshouse, tunnel and field trials.
- EC range 0–20 dS/m at $\pm 3\%$ accuracy, IP67. Fixed in a stable, undisturbed position it gives the most accurate root-zone reading of the range.

EC RANGE

0–20 dS/m

PROBE LENGTH

7 cm

EC ACCURACY

$\pm 3\%$

IP RATING

IP67

COMPATIBILITY



DEPENDENCY



Plant zone Leaf and fruit temperature, crop weight and more.

7 products



[Read more](#)

Infrared Thermometer

ARTICLE CODE: FFIRT

- Measures leaf (or fruit) temperature, the basis for the plant's actual vapour pressure deficit (VPD).
- Contact-free infrared measurement aimed at the crop, on a 350 mm arm; nothing is attached to the plant. Combined with the air temperature and humidity of a Medusa it gives VPD-Plant.
- $\pm 0.3\text{ }^{\circ}\text{C}$ between 22 and 40 $^{\circ}\text{C}$. When VPD-Plant rises too far the stomata close and leaf temperature rises before any wilting is visible, and cold or hot spots that air sensors average out become visible.

RANGE

–70–200 $^{\circ}\text{C}$

LENGTH

350 mm

ACCURACY

$\pm 0.3\text{ }^{\circ}\text{C}$ (22–40 $^{\circ}\text{C}$)

IP RATING

IP51

COMPATIBILITY



DEPENDENCY



PLANT ZONE, CONTINUED

Crop Weight Monitor

 ARTICLE CODE: **FFCropMon**


- Accurately weighs high-wire crops such as tomato, pepper and cucumber.
- Hanging scale in a 2-wire or 4-wire version, 1 to 8 wires per slab, following biomass gain and truss load continuously.
- 40 kg standard load at $\pm 0.04\%$ accuracy. Combined with the Smart Gutter it gives the most precise picture of crop growth.

STANDARD LOAD

40 kg

ACCURACY

 $\pm 0.04\%$

LENGTH

1.35 m

IP RATING

IP61

COMPATIBILITY



DEPENDENCY


[Read more](#)

T-Frame Scale

 ARTICLE CODE: **FFTF**


- Weighs trays and small to medium pots to optimise irrigation.
- Stainless steel frame on a 1-point loadcell, tared remotely or manually through the FireFly.
- Custom sizes can be made for you on request.

CONFIGURATION

1-point

STANDARD LOAD

12 kg

STANDARD DIM.

400 × 700 mm

IP RATING

IP65

COMPATIBILITY



DEPENDENCY


[Read more](#)

H-Frame Scale

 ARTICLE CODE: **FFHF**


- Weighs trays and small to medium pots for the gravimetric water balance of the crop.
- Stainless steel frame on a 4-point loadcell, tared remotely or manually through the FireFly.
- Custom sizes can be made for you on request.

CONFIGURATION

4-point

STANDARD LOAD

12, 40, 80 kg

STANDARD DIM.

614 × 524 mm

IP RATING

IP65

COMPATIBILITY



DEPENDENCY


[Read more](#)

Standing Scale

 ARTICLE CODE: **FFSS**


- Weighs medium to large pots, supporting irrigation and biomass assessment.
- Square (small) or round (large) platform with remote tare through the FireFly.
- $\pm 0.04\%$ accuracy, IP65.

SMALL (SQUARE)

250 × 250 × 50 mm

LARGE (ROUND)

h 80 × Ø 300 mm

ACCURACY

 $\pm 0.04\%$

IP RATING

IP65

COMPATIBILITY



DEPENDENCY


[Read more](#)

PLANT ZONE, CONTINUED



[Read more](#)

Hanging Scale

ARTICLE CODE: FFSH

- Weighs suspended loads such as growing gutters or crop wires to follow water uptake.
- Hangs in line with the load, with single, double or quadruple load cells; wireless tare through a FireFly reset.
- 30 or 100 kg load, IP65.

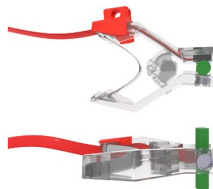
LOAD
30, 100 kg

IP RATING
IP65

COMPATIBILITY



DEPENDENCY



[Read more](#)

Phytoclip

ARTICLE CODE:

- The 2Grow Phytoclip measures very small changes in leaf thickness or stem diameter, providing insights into plant water status, plant response and growth.
- Available in three measurement options: leaf, leaf-stem and stem. Clips can be combined.
- Phytoclips connect in pairs to a PhytoConnect.

LEAF
0–2 mm

STEM
8–18 mm

LEAF-STEM
2–6 mm

CONNECTIVITY
PhytoConnect

Fertigation

Dripper and drain volume, flow, EC, pressure and more

6 products



[Read more](#)

Smart Gutter

ARTICLE CODE: FFSG-mass

- Measures substrate weight, drain volume, drain EC and drain temperature.
- A gutter under the slab collects the drain; options for mass, volume, EC and temperature.
- Drain EC is read in the last 5 ml, so no dilution curve.

STANDARD LOAD
40 kg

INNER DIMENSION
1,350 × 200 × 42 mm

MAX. FLOW
2 ml/s

IP RATING
IP61

COMPATIBILITY



DEPENDENCY



[Read more](#)

Smart Gutter, Single Pot

ARTICLE CODE: FFSGSP

- Optimises fertigation for single pots up to 31 cm in diameter.
- Measures substrate weight, drain volume, EC and temperature every 5 minutes, EC per 5 ml of drain.
- No dilution curve.

STANDARD LOAD
30 kg

DIMENSIONS
Ø 310 × h 450 mm

MAX. FLOW
2 ml/s

IP RATING
IP61

COMPATIBILITY



DEPENDENCY



FERTIGATION, CONTINUED


[Read more](#)

Dripper Sensor

ARTICLE CODE: FFDS

- Validates your fertigation, zone by zone.
- Flow measurement per 5 ml is standard; EC and temperature are available as options.
- Reveals clogging, pressure loss and valve faults downstream.

 MAX. FLOW
2 ml/s

 DIMENSIONS
40 × 125 × 120 mm

 IP RATING
IP61

COMPATIBILITY



DEPENDENCY


[Read more](#)

Drain XXL

ARTICLE CODE: FFDXXL

- Measures drain volumes beyond gutter capacity, up to 25 l/min.
- Tipping bucket, available with a 0.5 l or 1 l bucket.
- 1,000 ml resolution, IP61.

 MAX. FLOW
25 l/min

 RESOLUTION
1,000 ml

 DIMENSIONS
400 × 200 × 360 mm

 IP RATING
IP61

COMPATIBILITY



DEPENDENCY


[Read more](#)

Pulse Counter

ARTICLE CODE: FFPu1s

- Brings any existing flow meter into the Quantified system.
- Counts the pulse output of one flow meter over a 0.5 m cable (meter not included).
- IP67, operating from 0 to 50 °C.

 CABLE
0.5 m

 TEMP. RANGE
0 – 50 °C

 CONNECTS
1 flow meter

 IP RATING
IP67

COMPATIBILITY



DEPENDENCY


[Read more](#)

Fluid / gas Pressure Sensor

ARTICLE CODE: FFPS

- Measures line pressure in CO₂ air or water pipes.
- Stainless steel sensor with a straight male thread (G ½ B).
- 0–10 bar at ±2 % accuracy, IP67.

 RANGE
0–10 bar

 ACCURACY
±2 %

 CONNECTION
G ½ B

 IP RATING
IP67

COMPATIBILITY



DEPENDENCY



Climate Air temperature, humidity, light, CO₂, weather and more.

6 products



[Read more](#)

FireFly sensor node

ARTICLE CODE: FF

- Wireless sensor node that carries the measurement modules and external sensors of your choice.
- Add PAR, temperature, relative humidity, barometric pressure or GPS modules, and connect any external Quantified sensor to the connector.
- **Rechargeable** battery lasting over 12 months, IP67 housing, 127 g.

DIMENSIONS
3.5 × 4.0 × 11.0 cm

BATTERY
>12 months

WEIGHT
127 g

IP RATING
IP67

DEPENDENCY



[Read more](#)

CO₂ Sensor

ARTICLE CODE: FFC02

- Measures the CO₂ concentration in ambient air, showing enrichment efficiency and depletion during photosynthesis.
- Compensated for changes in temperature and pressure, with automatic (default) or manual calibration.
- 0–5,000 ppm at ±50 ppm + 2.5 %, IP44.

RANGE
0–5,000 ppm

DIMENSIONS
63 × 20 mm · 40 g

ACCURACY
±50 ppm + 2.5 %

IP RATING
IP44

COMPATIBILITY



DEPENDENCY



[Read more](#)

Solar Chimney

ARTICLE CODE: MSC

- Shields the FireFly so temperature and humidity stay accurate in high-radiation environments.
- Passively ventilated housing, cable-tie mounted, with the FireFly held by the FFSCMSC clip.
- Reliable under direct sunlight or grow light; 250 g.

DIMENSIONS
h × Ø: 350 × 125 mm

MOUNTING
Cable tie

WEIGHT
250 g

INSIDE
FireFly + FFSCMSC clip

COMPATIBILITY



CLIMATE, CONTINUED



[Read more](#)

Medusa, Microclimate T/rH

ARTICLE CODE: **FFMedusa**

- Measures temperature and relative humidity at canopy level, the basis for an accurate VPD.
- A 48 cm sensor arm; combined with our solar chimney it becomes a passively ventilated ambient climate sensor.
- 0–65 °C, rH accuracy ± 1.5 %, IP61.

TEMP. RANGE
0–65 °C

LENGTH
48 cm

RH ACCURACY
 ± 1.5 %

IP RATING
IP61

COMPATIBILITY



Gateway



Solar Chimney

DEPENDENCY



[Read more](#)

Solar Chimney

ARTICLE CODE: **Medusa SC**

- Keeps the Medusa's readings free of radiation error.
- Passive chimney effect, mounted with rope (option A) or rod/wire clip (option B, see Accessories).
- Designed specifically for the FFMedusa sensor.

FOR SENSOR
FFMedusa

VENTILATION
Passive (chimney effect)

OPTIONS
Rope or clip mounting

COMPATIBILITY



FFMedusa



[Read more](#)

Weather Station

ARTICLE CODE: **FFWs**

- Measures outdoor weather: wind speed and direction, precipitation, air temperature, relative humidity, barometric pressure and GPS.
- Complete outdoor station with FireFly included; mast not supplied.
- Wind speed up to 300 km/h over 8 quadrants, IP67. The outdoor reference for ventilation and screening decisions.

WIND SPEED
up to 300 km/h

DIAMETER
 ± 30 cm

WIND DIRECTION
8 quadrants

IP RATING
IP67

COMPATIBILITY



FireFly



Gateway

Connectivity

Gateways that link your sensors and sensor data to the cloud.

3 products



[Read more](#)

Gateway Gout IP65

ARTICLE CODE: **G65-4G**

- Connects up to 100 FireFlies to the cloud.
- Outdoor LoRa gateway over 4G and/or Ethernet, mains powered at 230 V.
- IP65; LoRa antenna, adapter and mast mounting set included.

CAPACITY
up to 100 sensor nodes

NETWORK
LTE Cat 4 + HSPA+ + Ethernet

IP RATING
IP65

CONNECTIVITY, CONTINUED



[Read more](#)

Gateway Gout IP67

ARTICLE CODE: **RAK-4G**

- Connects up to 100 FireFlies to the cloud in demanding conditions.
- Industrial outdoor LoRa gateway over 4G and/or Ethernet, mains powered at 110–230 V.
- IP67; LoRa antenna, adapter and mast mounting set included.

CAPACITY
up to 100 sensor nodes

NETWORK
LTE Cat 4 (4G) + HSPA+ (3G)

IP RATING
IP67



[Read more](#)

GoutSolar, off-grid solar gateway

ARTICLE CODE: **SG (45W) - 4G**

- Connects up to 75 FireFlies to the cloud where there is no mains power.
- 45 W solar panels with a 25,000 mAh battery, 4G LTE Cat 1 + GSM with Nano-SIM.
- Seasonal to year-round use depending on latitude, IP67.

CAPACITY
up to 75 sensor nodes

BATTERY
25,000 mAh

SOLAR PANEL
45 W

IP RATING
IP67

Accessories

Clips, holders, chargers and calibration extras.

10 products



Smart Clip, magnetic

ARTICLE CODE: **CMagnetic**

- Attaches the FireFly to steel or iron objects.
- An integrated magnet holds the node, no tools needed.
- Repositioned in seconds.

USE
Mounting on steel/iron

COMPATIBILITY
 FireFly



Smart Clip, wire / stick

ARTICLE CODE: **Cang**

- Mounts the FireFly on a wire or a stick.
- Clip fits wire of 2–3.5 mm or stick of 6–7 mm diameter.
- Holds the node steady in the crop.

WIRE DIA.
2–3.5 mm STICK DIA.
6–7 mm

COMPATIBILITY
 FireFly

ACCESSORIES, CONTINUED



Smart Clip, vertical

ARTICLE CODE: CMSC

- Mounts the FireFly vertically on a wire up to 6 mm.
- Vertical clip, also used to mount the FireFly inside the Macro Solar Chimney.
- Keeps the node upright for accurate readings.

WIRE DIA.
up to 6 mm

COMPATIBILITY



Smart Clip, wall

ARTICLE CODE: Cwm

- Mounts the FireFly on a vertical wall.
- Screwed in place, screw hole diameter 6 mm.
- A fixed position for long-term measurement.

SCREW HOLE
6 mm

COMPATIBILITY



Tripod with spirit level

ARTICLE CODE: FFSTripod

- Levels the FireFly for more accurate derived PAR light measurements.
- Tripod with an integrated spirit level.
- A level sensor gives reliable PAR values.

LEVELLING
Spirit level

COMPATIBILITY



FireFly USB charger

ARTICLE CODE: FFCh

- Charges the FireFly battery.
- Through a USB adapter, at a charging current below 0.5 A.
- Full in about 7 hours, between +10 and +30 °C.

CHARGING TIME
~7 hours

CURRENT
<0.5 A

TEMP. RANGE
+10 ... +30 °C

IP RATING
IP50

COMPATIBILITY



ACCESSORIES, CONTINUED



Reset magnet (lanyard)

ARTICLE CODE: **RP**

- Resets the FireFly sensor.
- A magnet on a Quantified lanyard, held against the housing.
- Always at hand in the greenhouse.

USE

Resetting the FireFly

COMPATIBILITY



Footrest, fibreglass-rod base

ARTICLE CODE: **FFPB**

- Holds a fibreglass rod upright for mounting the FireFly.
- Plastic base of 15 × 10 cm, rod position centre or end, 35 cm rod included.
- Use with the FFSCang Smart Clip.

DIMENSIONS	ROD DIA.	ROD INCLUDED
15 × 10 cm	6 mm	35 cm

COMPATIBILITY



Fibreglass rod 75 cm

ARTICLE CODE: **FGR75**

- Carries the FireFly at crop height.
- White fibreglass rod of 0.75 m, diameter 6 mm, used with an FFSCang Smart Clip.
- Light, rigid and neutral in the crop.

LENGTH	DIAMETER
0.75 m	6 mm

COMPATIBILITY



Protection sleeve

ARTICLE CODE: **Protflex**

- Protects the Poseidon cable.
- A flexible sleeve around the cable.
- Prevents damage during handling in the crop.

USE

Cable protection

COMPATIBILITY



Software & data storage

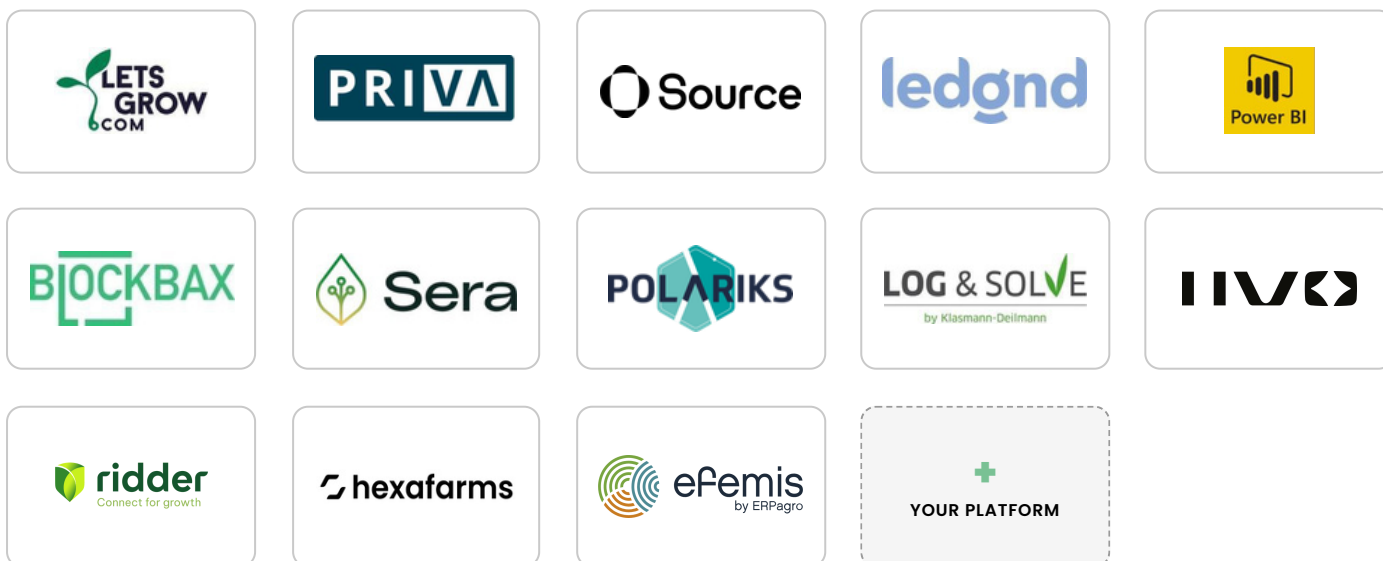
Q-InSight visualisation, Insight-Connect data storage, API access and gateway SIM. Choose the subscriptions that suit your business and scale up whenever you want.

Q-INSIGHT	BASIC	MOST CHOSEN GREEN	SILVER
FireFlies	Up to 5	Up to 100	Up to 250
Users	Up to 5	Up to 10	Up to 25
Data storage	–	9 months	24 months
Web + API + mobile app	✓	✓	✓
Push notifications	–	–	Up to 500/day

API	BASIC	GREEN	SILVER
API access only	✓	✓	✓
FireFlies	Max. 10	Max. 100	Max. 250
Data storage	2 weeks	2 weeks	2 weeks

Connect to the platform you already use

Quantified sensors integrate seamlessly with leading agri-tech and BI platforms through the open API – your data, in the system you already work in.



Click this button to request your platform as an integration.

Let's grow with confidence

Tell us about your crop and your business and we will help you put together the right sensor setup, from a single FireFly to a company-wide roll-out.

VISIT

Langegracht 70, PLNT
2312 NV Leiden
The Netherlands

CONTACT

✉ contact@quantified.eu →
🌐 www.quantified.eu →

