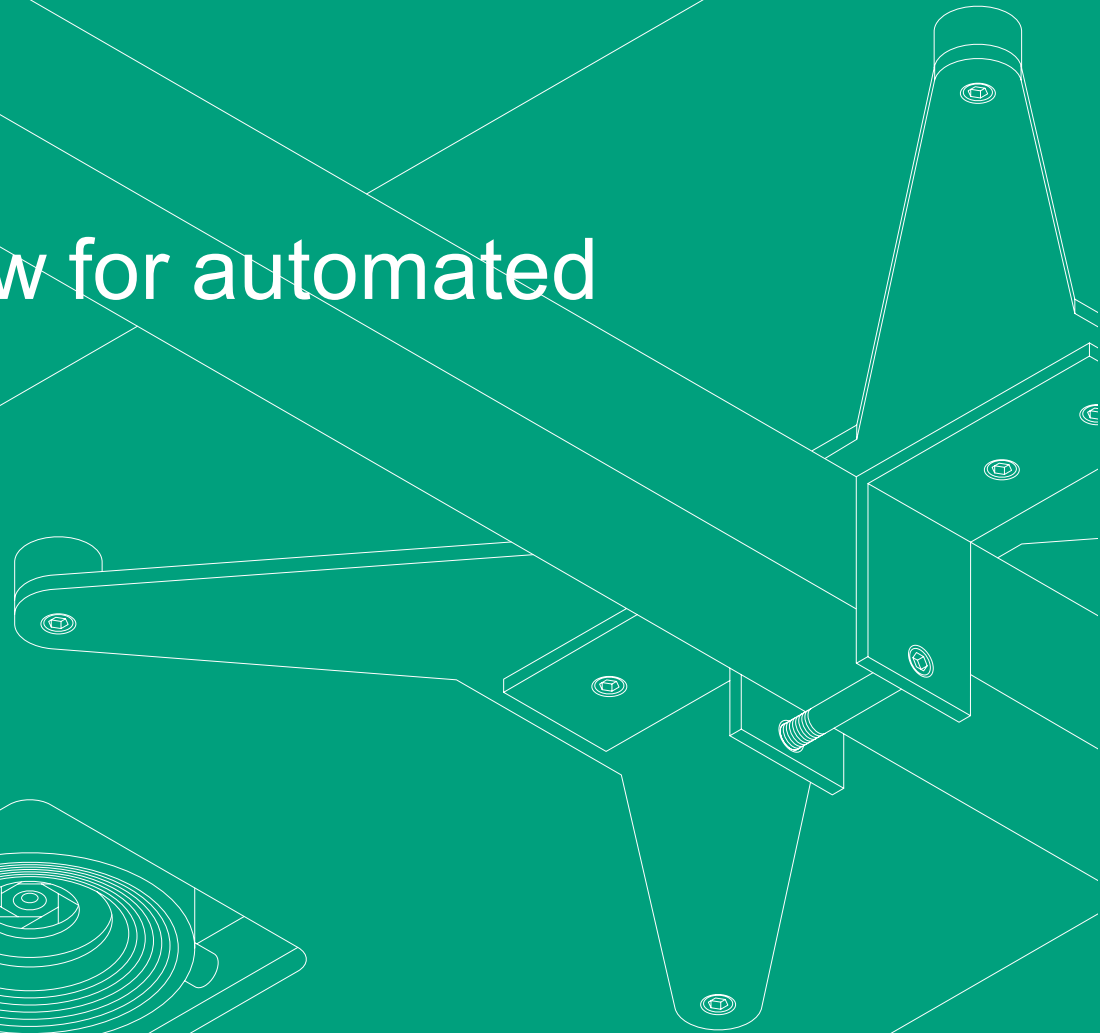
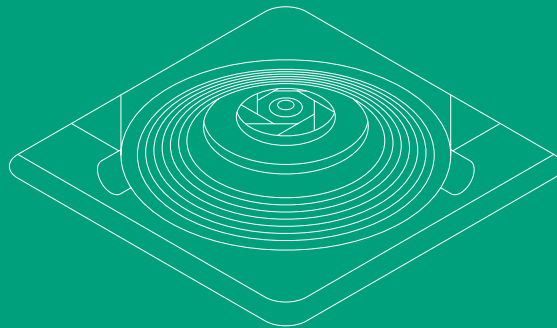


Tools and know-how for automated plant phenotyping

PHENOME Paris 10.12.2015

Grégoire Hummel

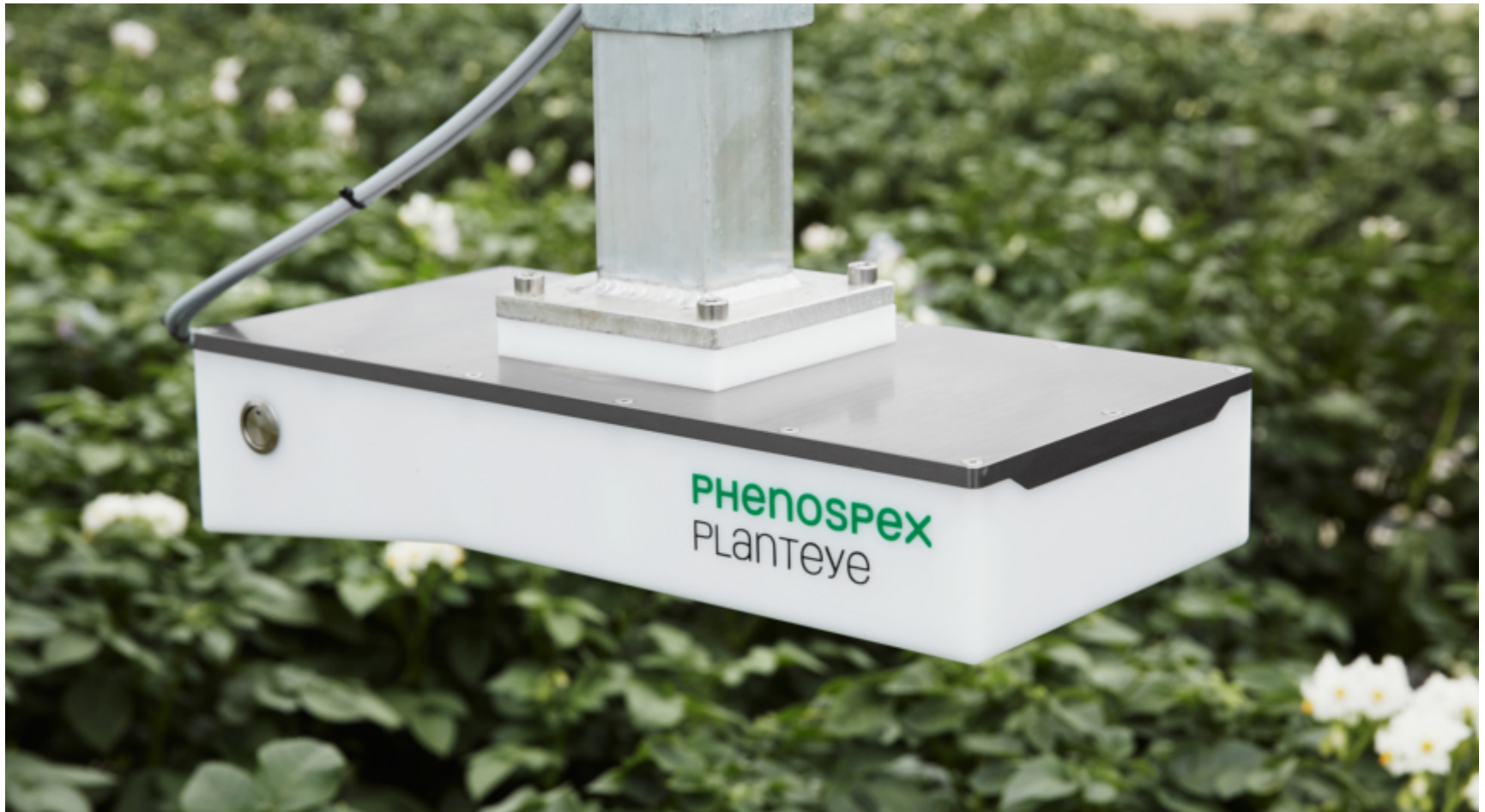


PHENOSPEX



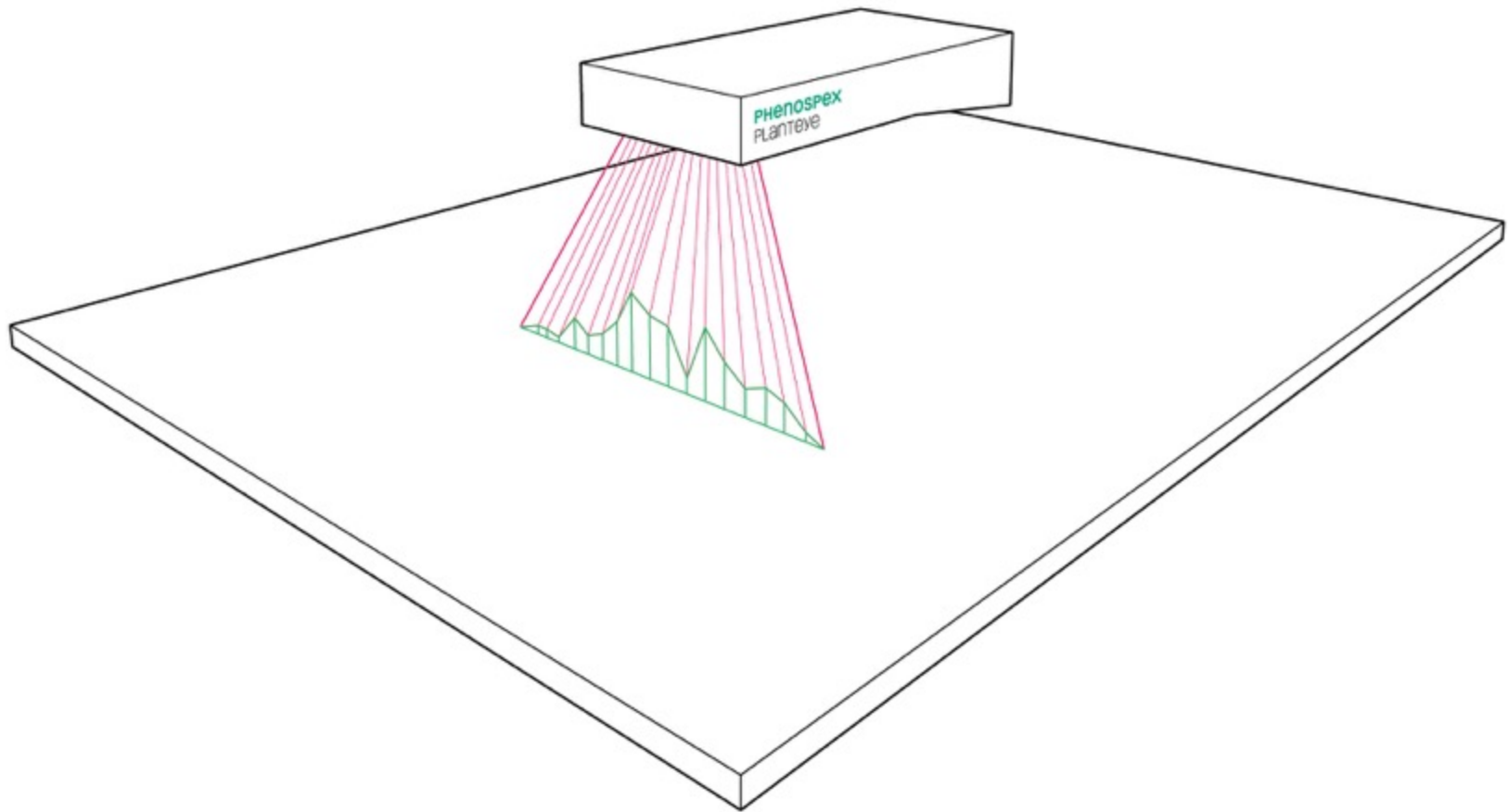
- Based in the Netherlands
- Founded in 2011
- 15 Employees
- 7 different nationalities
- Biologists, agronomists, physicists, software engineers, technicians

PlantEye F400

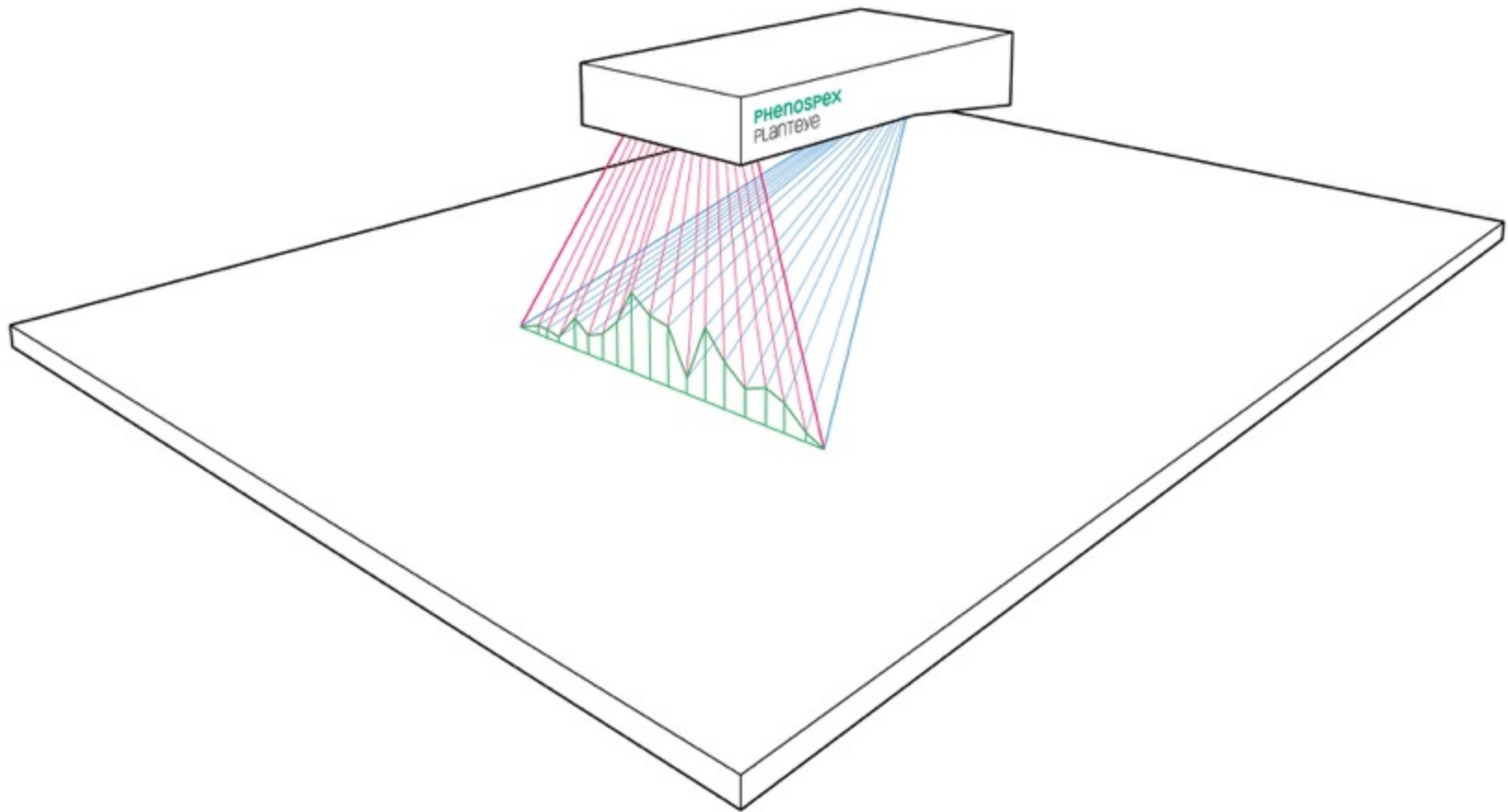


PHenospex

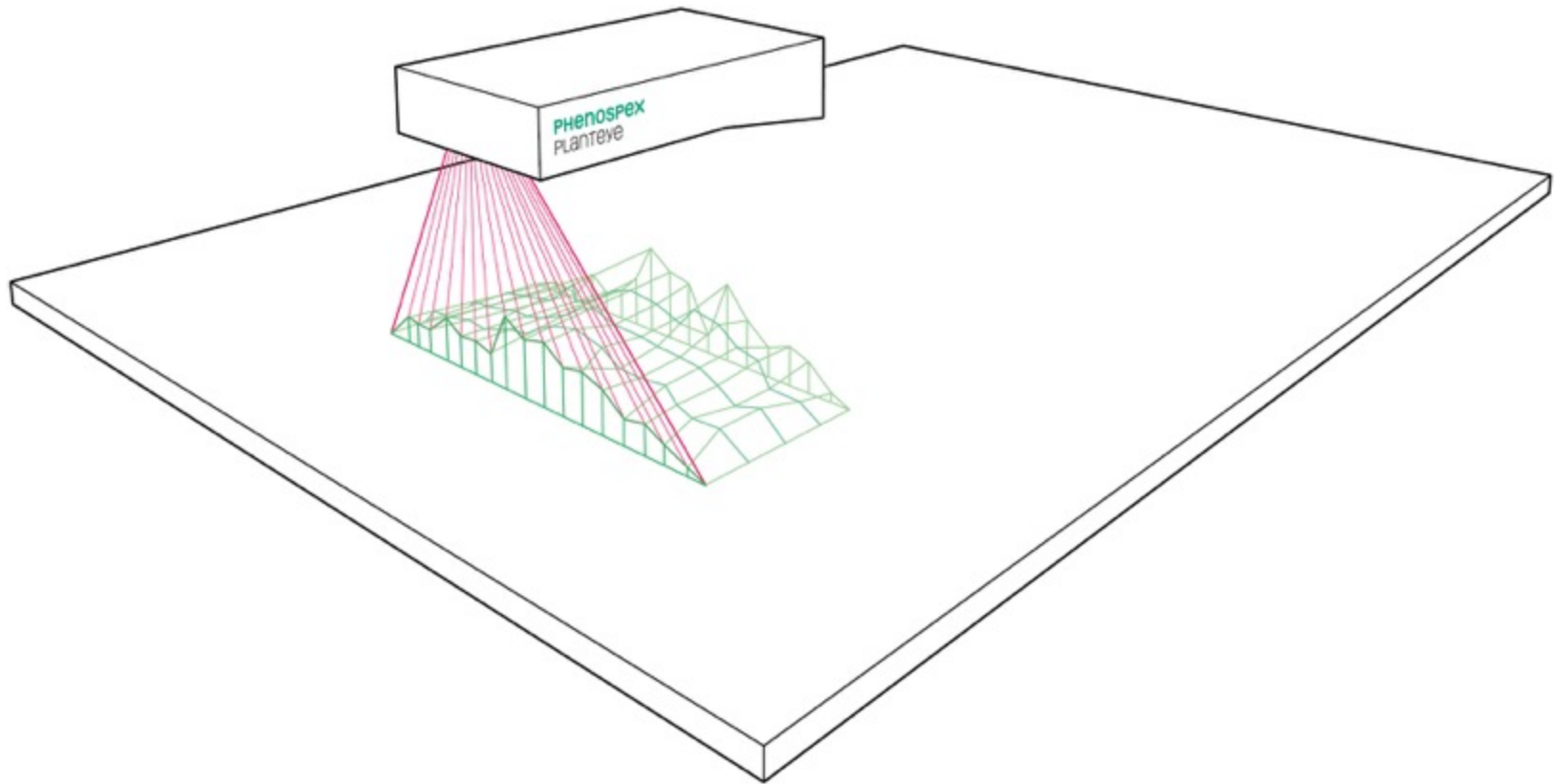
PlantEye – 3D Laser Triangulation Scanner



PlantEye – 3D Laser Triangulation Scanner



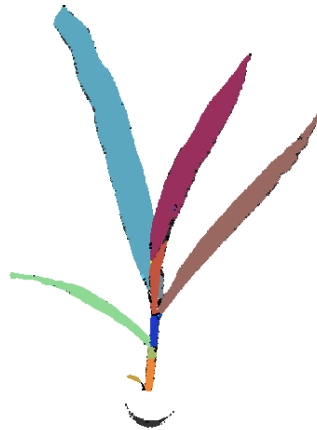
PlantEye – 3D Laser Triangulation Scanner



PlantEye – auto. computation of plant parameters



3D point cloud



Segmented
point cloud

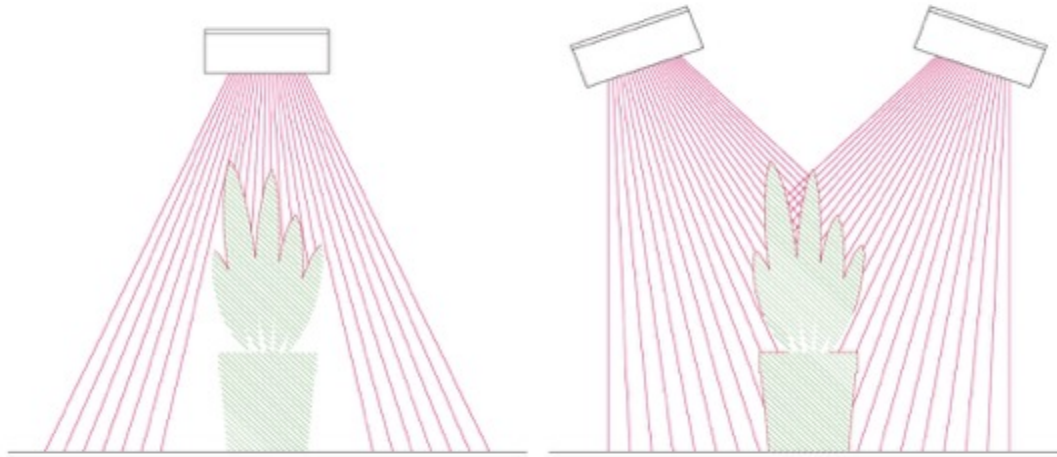
Automated computation of:

- Plant-/Canopy height
- 3D leaf area
- Projected leaf area
- Digital biomass
- Leaf inclination
- Leaf area index
- Light penetration depth
- Leaf coverage

Applications:

- Digital plant phenotyping
- Biomass estimation
- Growth rates
- Early vigour
- Germination assays
- Screenings

PlantEye – Dual Scan

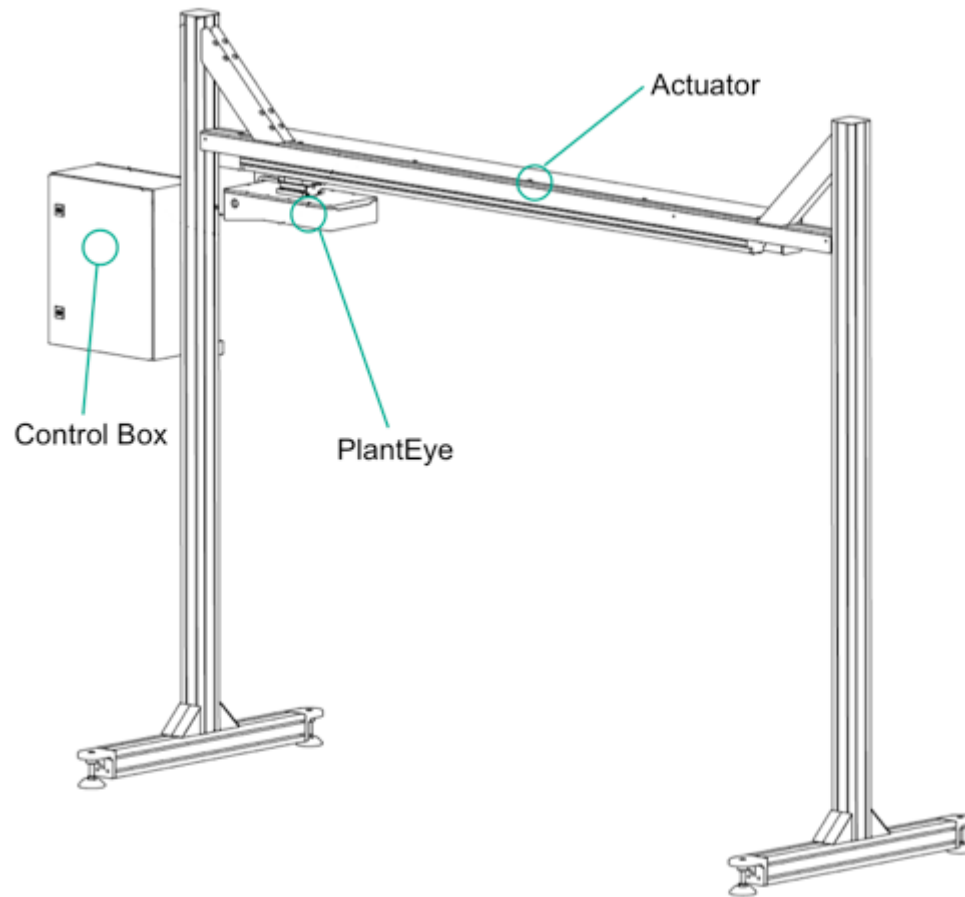


Single perspective

DualScan

Applications

PlantEye – Mobile Device



PlantEye – Mobile Device



PHenOSPex

FieldScan – High Throughput Phenotyping



PHenOSPEx

FieldScan – Sensor Carrier Device



PHenOSPex

Sensor Carrier Device – Greenhouse Application



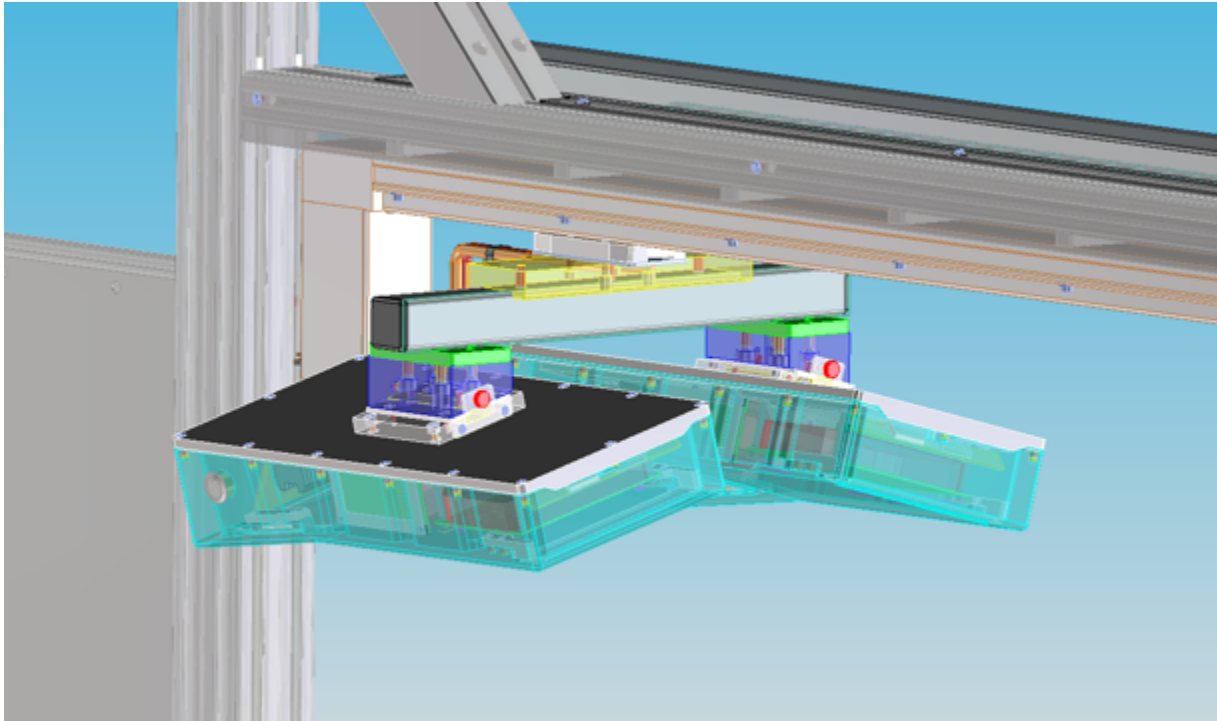
PHenospex

Sensor Carrier Device – Greenhouse Application



PHenosPex

PlantEye DualScan Principle



PHenOSPEx

DroughtSpotter

DroughtSpotter – Gravimetric Platform



PHENOSPEx

DroughtSpotter – Gravimetric Platform



DroughtSpotter – Irrigation Module



PHenOSPEx

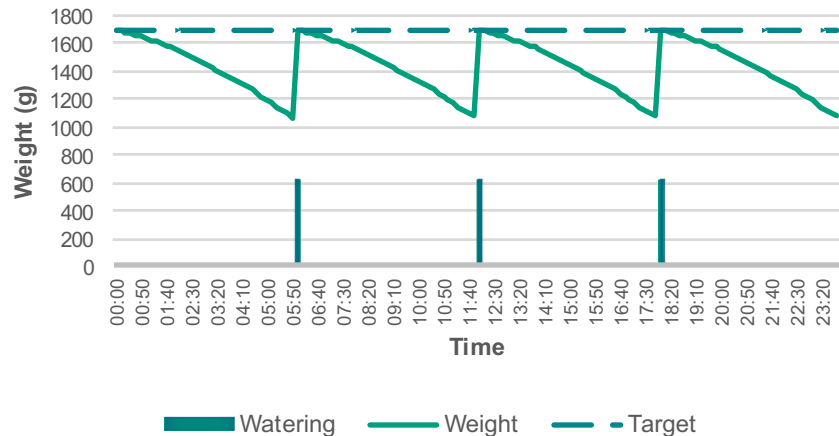
FieldScale – Gravimetric Module



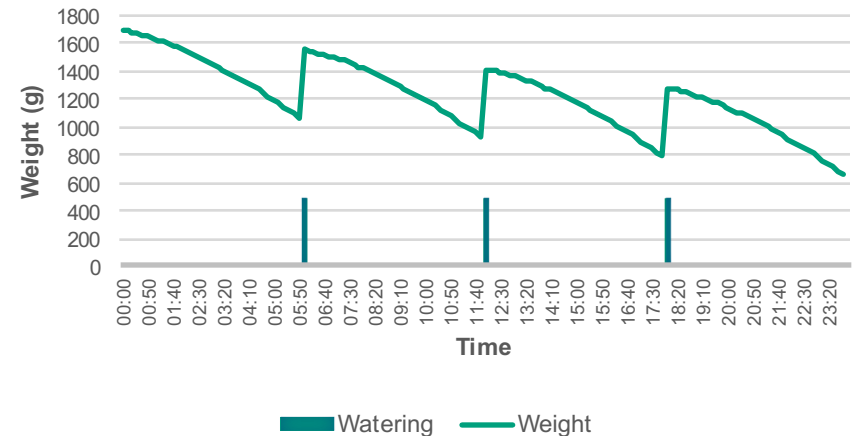
PHenOSPEx

DroughtSpotter – Automated Irrigation Modes

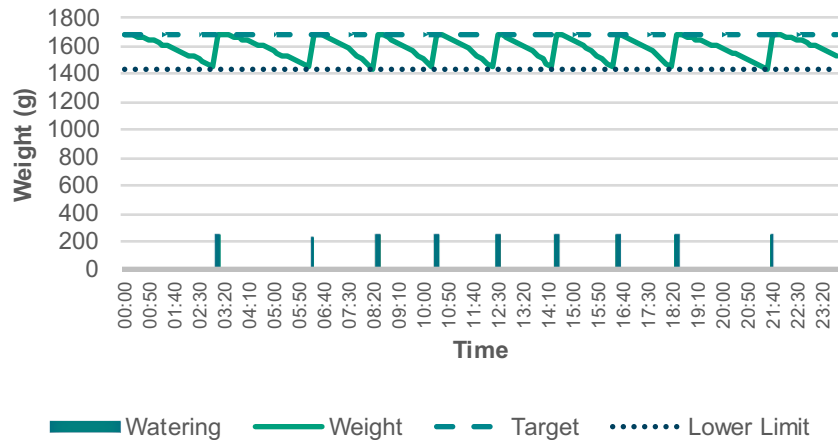
(H) HOLD



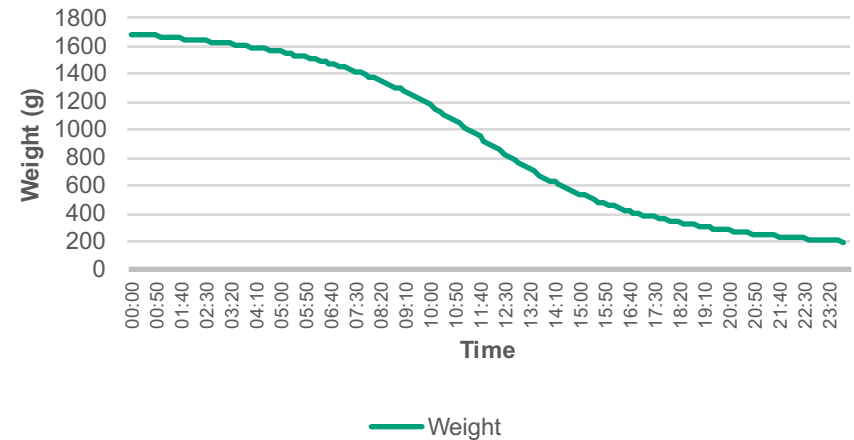
(F) FIX



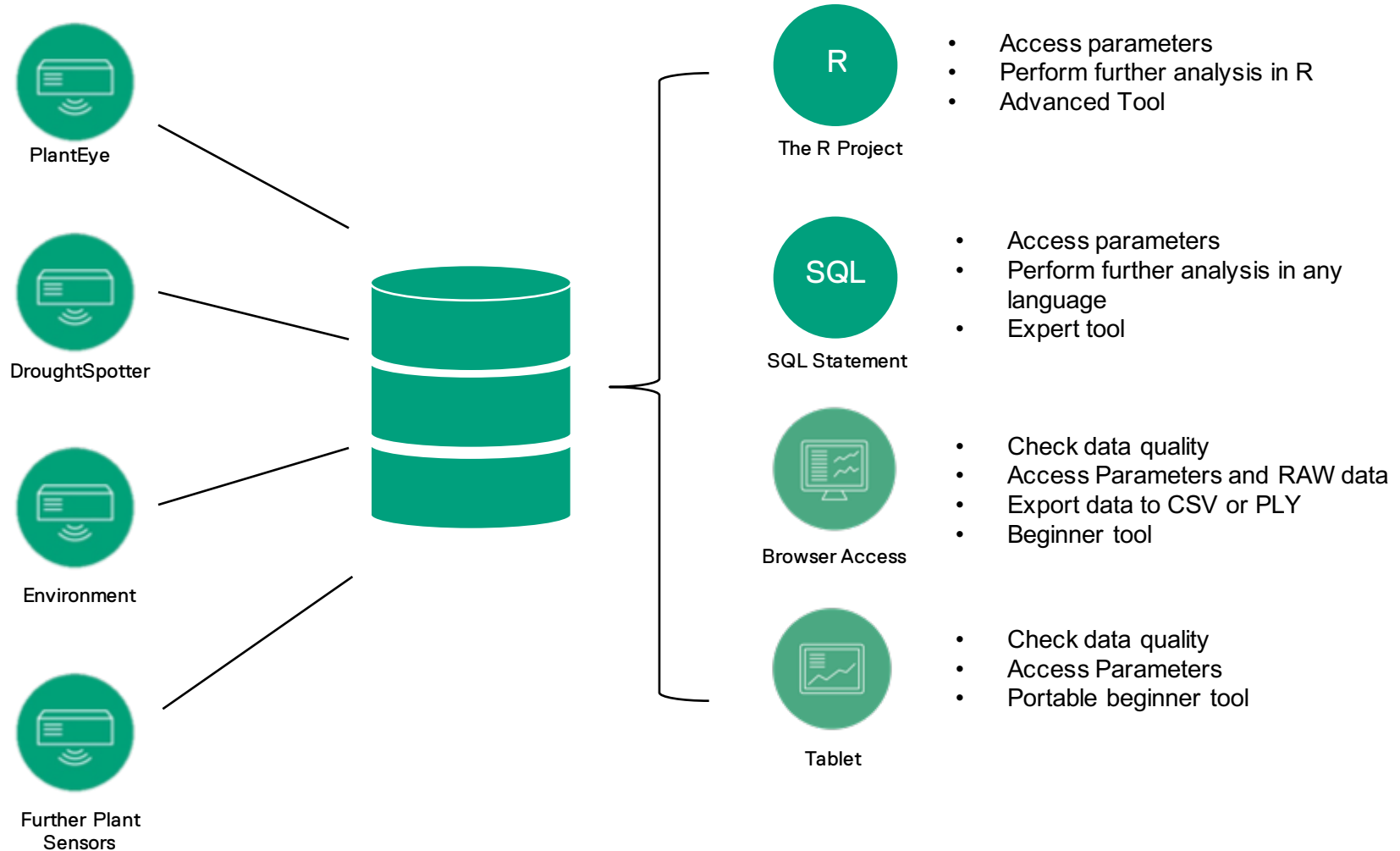
(D) DEVIATION MODE



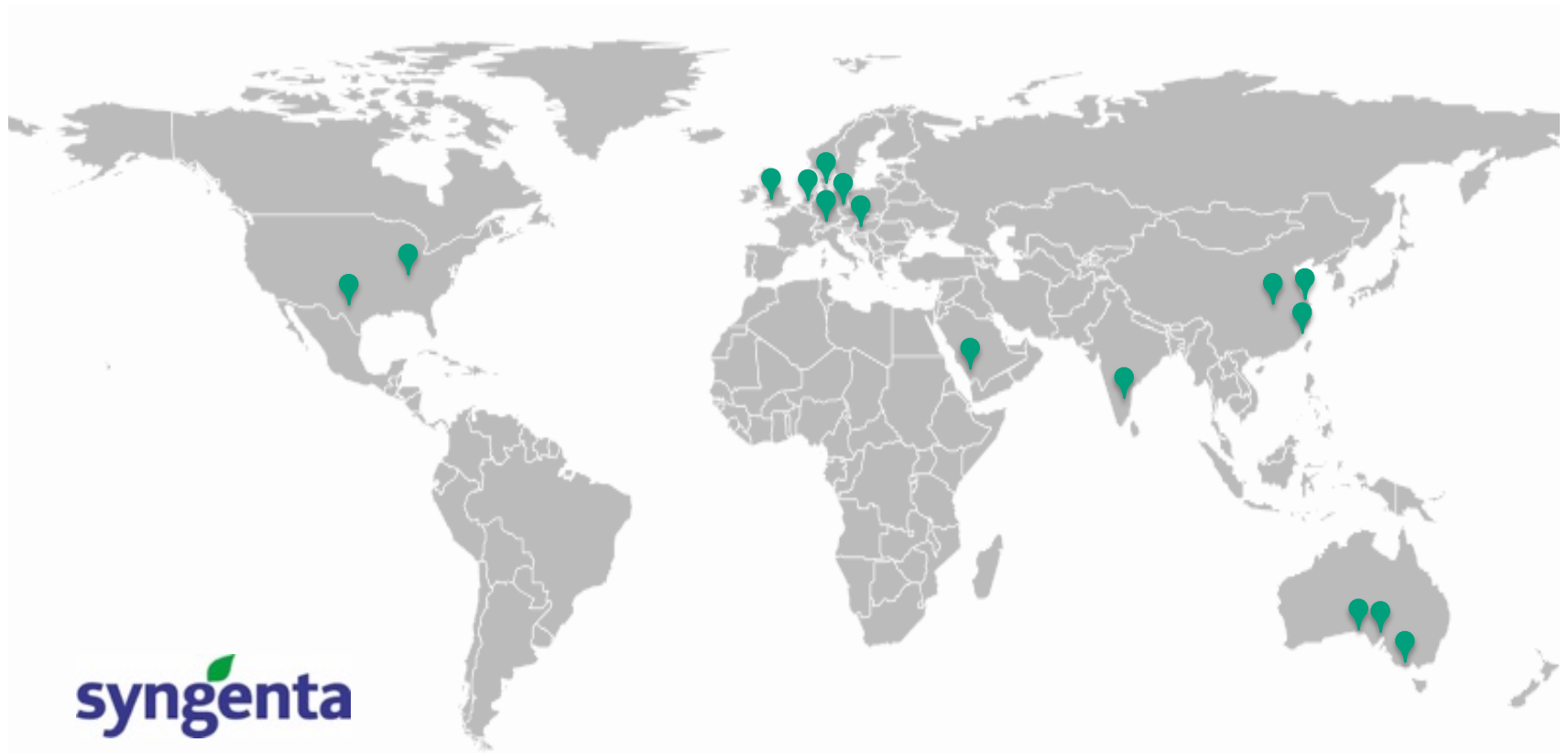
(N) NONE



Phenotyping Pipeline



Phenospex Key Customers



syngenta

LVG Heidelberg

universität bonn

JÜLICH
FORSCHUNGSZENTRUM

AARHUS UNIVERSITY

WAGENINGEN UR

MAX-PLANCK-GESellschaft

PRIFYSGOL
ABERYSTWYTH
UNIVERSITY

ICRISAT

PHENOSPEx

PHenOSPex

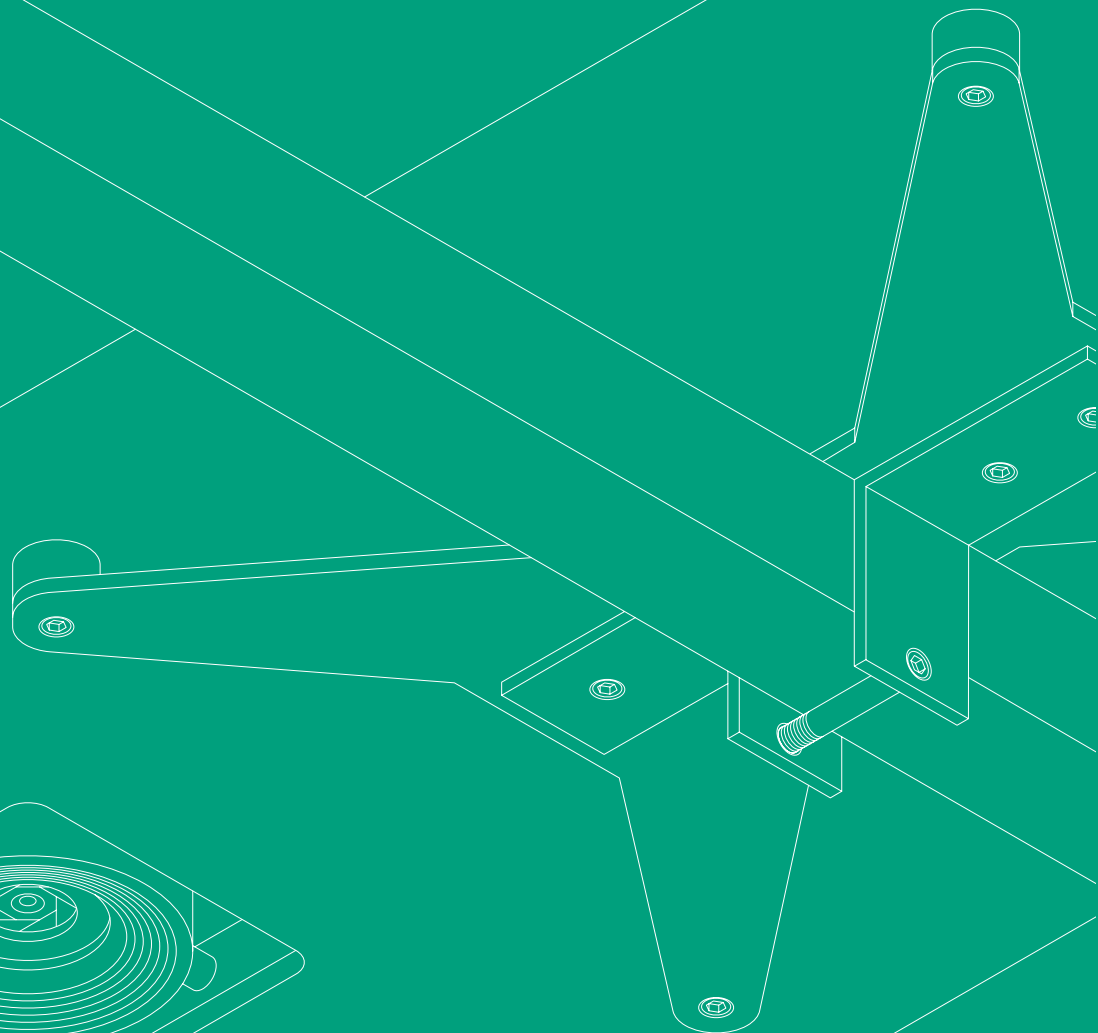
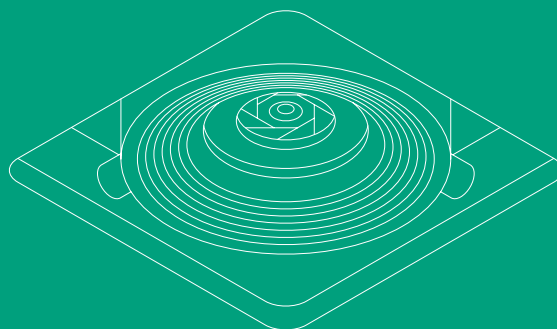
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g.hummel@phensopex.com



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