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> PRICE LIST PRIVA SENSORS AND ACCESSORIES



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# Sensors for meteorological station






Manuals for the Priva sensors are available in various languages and are downloadable from the Priva support portal.





## Meteo mast and mounting brackets

Part number	Description	Price (EUR)
3771009	 <p>Meteo mast, length 4 meter, with four meteorological sensors, consisting of:</p> <ul style="list-style-type: none"> <li>• Wind direction sensor (3779215)</li> <li>• Wind velocity sensor (3779203)</li> <li>• Outside temperature sensor (3779204)</li> <li>• Rain detection sensor (3779206)</li> <li>• Three aluminum poles with two wall mounting brackets and mounting materials</li> <li>• Upper mast section, suitable for installing four meteorological sensors</li> <li>• Lower mast section, suitable for installing two meteorological sensors</li> </ul>	
3771024	<p>Meteo mast, length 4 meter, with two meteorological sensors consisting of:</p> <ul style="list-style-type: none"> <li>• Wind velocity sensor (3779203)</li> <li>• Outside temperature sensor (3779204)</li> <li>• Three aluminum poles with two wall mounting brackets and mounting materials</li> <li>• Upper mast section, suitable for installing four meteorological sensors</li> <li>• Lower mast section, suitable for installing two meteorological sensors</li> </ul>	
3779211	 <p>Stainless steel mounting bracket for installation of a meteorological sensor in a black aluminum housing, like:</p> <ul style="list-style-type: none"> <li>• Radiation sensor CM3P (3779207)</li> <li>• Linear light sensor (3779205 or 3779213)</li> <li>• Rain sensor (3779206)</li> <li>• Outside temperature sensor (3779204)</li> <li>• Existing radiation sensor CM6b</li> </ul>	






## Meteorological sensors and accessories

Part number	Description	Price (EUR)
3779207	 <p>Radiation sensor CM3P with thermopile element, black aluminum housing and glass dome, suited for:</p> <ul style="list-style-type: none"> <li>• Measuring range: -100 till +1,000W/m<sup>2</sup> at wavelength 300-2,800nm</li> <li>• Output signal: 10-35 <math>\mu\text{V}/\text{W}\cdot\text{m}^{-2}</math></li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>• Connection cable shielded 4 x 0.5mm<sup>2</sup>, length 10 meter</li> <li>• Calibration certificate with serial number and specific sensitivity factor in <math>\mu\text{V}/\text{W}\cdot\text{m}^{-2}</math>, according to WRR and WMO Technical Regulations</li> </ul> <p>Two years of warranty on operation, calibration is covered for one year</p>	
3779205	 <p>Linear light sensor <b>50mVDC</b> at 160klux with photo rectifier, black aluminum housing and glass dome, suitable for:</p> <ul style="list-style-type: none"> <li>• Measuring range: 0-160klux at wavelength 525-1,100nm</li> <li>• Maximum output signal: 50mV at 160klux</li> </ul> <p>Suitable for connecting with:</p> <ul style="list-style-type: none"> <li>• Meteo module and EC/pH-module in Connex, Intégro, ISA-computers</li> <li>• Meteo interface box for Compass, Maximizer and 100-line computers</li> </ul> <p>This sensor is not suitable for connecting with:</p> <ul style="list-style-type: none"> <li>• Compri HX base module in NutriFit HX unit</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>• Connection cable shielded 4 x 0.5mm<sup>2</sup>, length 10 meter</li> <li>• Calibration certificate with serial number and specific radiation factor in <math>\mu\text{V}/\text{klux}</math></li> </ul>	

Part number	Description	Price (EUR)
3779213 	<p>Linear light sensor <b>5VDC</b> at 160klux with photo rectifier, black aluminum housing and glass dome, suited for:</p> <ul style="list-style-type: none"> <li>Measuring range: 0-160klux at wavelength 525-1,100nm</li> <li>Maximum output signal: 5VDC at 160klux</li> </ul> <p>Suited for connecting with:</p> <ul style="list-style-type: none"> <li>Universal input of MX34 input/output module in Compass</li> <li>Analog input of Compri HX base module in NutriFit HX unit</li> <li>Hydro only application in the Maximizer</li> </ul> <p>This sensor is not suited for connecting with:</p> <ul style="list-style-type: none"> <li>Meteo module and EC/pH-module in Connex, Intégro, ISA-computers</li> <li>Meteo interface box for Compass, Maximizer and 100-line computers</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>Connection cable shielded 4 x 0.5mm<sup>2</sup>, length 10 meter</li> <li>Calibration certificate with serial number and specific radiation factor in V/klux</li> </ul>	
3779214 	<p>Outside irradiation sensor IR02 with thermopile element (Pyrgeometer), heating element and two body temperature sensors in anodized housing, suited for:</p> <ul style="list-style-type: none"> <li>Measurement of long-wave Far Infra Red flux emitted by greenhouse and exposed to outer atmosphere and influenced by clouds (sky temperature)</li> <li>Measuring range: -1,000 till +1,000W/m<sup>2</sup> at wavelength 4,500-50,000nm FIR</li> <li>Output signal: 5-15 µV/W.m<sup>-2</sup> (To connect to a module meteo, This module is not included)</li> <li>Heating element, supply voltage: 24VAC or 24VDC-67mA</li> <li>Operating temperature range: -40 till +80°C</li> <li>Resistance of both NTCs/thermistors: 3kΩ/25°C</li> <li>Bulls-eye bubble level indicator</li> <li>White protection cover with hexagonal Allen key</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>Connection cable shielded 8 x 0.5mm<sup>2</sup>, length 10 meter</li> <li>Calibration certificate with serial number and specific irradiation sensitivity in µV/W.m<sup>-2</sup>, convertibility according to International Temperature Scale ITS-90</li> </ul> <p>Two years of warranty on operation, calibration is covered for one year Module meteo (3771252) not included for connecting input</p>	
3779215 	<p>Wind direction sensor with solid state detector in black aluminum housing, suited for:</p> <ul style="list-style-type: none"> <li>Measuring range: 0-360°</li> <li>Temperature range -10 till +80°C</li> <li>Output signal: 200-3,440mVDC at 0-360°</li> <li>Supply voltage: 24VDC-15mA</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>Connection cable shielded 4 x 0.5mm<sup>2</sup>, length 10 meter</li> </ul>	
3779203 	<p>Wind velocity sensor with optical pulse detector in black aluminum housing, suitable for:</p> <ul style="list-style-type: none"> <li>Measuring range: 0-36m/sec</li> <li>Temperature range -10 till +80°C</li> <li>Output signal: 0-175Hz</li> <li>Supply voltage: 24VDC-17mA</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>Connection cable shielded 4 x 0.5mm<sup>2</sup>, length 10 meter</li> </ul>	
3779204 	<p>Outside temperature sensor with NTC/thermistor in glass body, black aluminum housing and white discs for protection from direct solar radiation, suited for:</p> <ul style="list-style-type: none"> <li>Measuring range: -40 till +50°C</li> <li>Resistance of NTC/thermistor: 3kΩ/25°C</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>Connection cable shielded 4 x 0.5mm<sup>2</sup>, length 10 meter</li> </ul> <p>For Intégro only: this sensor must be supplied with a separate 24VDC, galvanic isolated power supply unit (3659056)</p>	


Part number	Description	Price (EUR)
3779219	<p>Outside humidity sensor in black aluminum housing, including:</p> <ul style="list-style-type: none"> <li>• Capacitive sensor HX922-H-01 with amplifier circuit and connector</li> <li>• White discs for protection from direct solar radiation</li> <li>• Mounting bracket suited for mounting against wall or around pole of meteo mast</li> <li>• Measuring range: 0 till 100%RH without condensation</li> <li>• Output signal: 4-20mA, linear, non-isolated</li> <li>• Supply voltage: 24VDC-4-20mA</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>• Connector and connection cable shielded 4 x 0.5mm<sup>2</sup>, length 10 meter</li> </ul> <p>For Intégro only: this sensor must be supplied with a separate galvanic isolated power supply unit 24VDC</p> <p>Two years of warranty on operation, calibration is covered for one year</p>	
	<p>Snow detector for photoelectrical light beam detection of snow and/or hail layer on a greenhouse roof construction (glass or plastic), consisting of:</p> <ul style="list-style-type: none"> <li>• Emitter unit, including: <ul style="list-style-type: none"> <li>• Mounting bracket</li> <li>• Connecting cable 5 x 0.3mm<sup>2</sup>, length 2 meter</li> <li>• Supply voltage emitter: 24VAC-1.5VA</li> </ul> </li> <li>• Receiver unit with relay output, including: <ul style="list-style-type: none"> <li>• Mounting bracket</li> <li>• Connecting cable 5 x 0.3mm<sup>2</sup>, length 2 meter</li> <li>• Supply voltage receiver: 24VAC-2.0A</li> <li>• Relay contact, maximum switching power: 24VAC-1.0A</li> </ul> </li> </ul> <p>Operating temperature range snow detector: -20 till +55°C</p> <p>Maximum distance emitter – receiver unit: 3 meter</p>	
	<p>Rain sensor with gold plated detection grid on black aluminum housing, with:</p> <ul style="list-style-type: none"> <li>• Gold plated detection grid area: 16cm<sup>2</sup></li> <li>• Grid detection range: on/off</li> <li>• Detection principle: conductivity of rain water drops</li> <li>• Heating element to evaporate rain drops and to prevent condensation of rain water detection grid</li> <li>• Supply voltage of heating element: 24VDC-0.25A, on/off controlled via meteo module</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>• Connection cable shielded 4 x 0.5mm<sup>2</sup>, length 10 meter</li> </ul>	
	<p>Precipitation intensity sensor for optical detection of drizzle, rain, snow or hail, with:</p> <ul style="list-style-type: none"> <li>• Interface board with six pulse-modulated light emitting diodes and shadowing effect detector in u-shaped housing</li> <li>• Precipitation detection area: 25cm<sup>2</sup></li> <li>• Precipitation detection range: 0.0-10.0mm/minute</li> <li>• Output signal: 4-20mA, quasi-logarithmic curve, non-isolated</li> <li>• Integrated temperature controlled heating element to avoid freezing of precipitation detection area</li> <li>• Supply voltage: 24VDC-1A</li> <li>• Operating temperature range: -20 till +60°C</li> </ul> <p>The precipitation intensity sensor must be mounted on a meteo mast, using an additional mounting bracket with black aluminum housing and connection cable (3769167).</p> <p>This sensor must be supplied with a separate galvanic isolated power supply unit 24VDC</p>	
	<p>Mounting bracket for installation of a precipitation intensity sensor (3779208) on a mast section of the meteo mast, consisting of black aluminum housing with connection cable shielded 4 x 0.5mm<sup>2</sup>, length 10 meter</p>	

## Compass meteo mast sensors and accessories

Part number	Description	Price (EUR)
3771026 	Weather station WSC11 and connection cable (15 meter) as a set for connecting with a Compass system. Consisting of: <ul style="list-style-type: none"> <li>• Outside temperature sensor</li> <li>• Outside humidity sensor</li> <li>• Wind velocity sensor</li> <li>• Wind direction sensor</li> <li>• Rain detection sensor</li> <li>• Radiation sensor</li> </ul> The sensor can be mounted on any 25mm diameter pole or on the mounting bracket (3779242)	
3779240 	Weather station WSC11 for connecting with a Compass system. Consisting of: <ul style="list-style-type: none"> <li>• Outside temperature sensor</li> <li>• Outside humidity sensor</li> <li>• Wind velocity sensor</li> <li>• Wind direction sensor</li> <li>• Rain detection sensor</li> <li>• Radiation sensor</li> </ul> The sensor can be connected to the Compass controller with the connection cable (3779241) The sensor can be mounted on any 25mm diameter pole or on the mounting bracket (3779242)	
3779241 	Connection cable for connecting the weather station WSC11 to a Compass system RS485 port. Length 15 meter.	
3771028 	Set network terminator RS-485 + resistor The set weather station WSC11 comes with a cable of 15 meters. If the distance between the weather station and Compass is more than 15 meters (up to 150 meters), the cable must be extended and the RS485 network must be terminated on both sides. Use this set for this purpose.	
3779242 	Bracket for mounting a weather station WSC11 to a vertical surface.	




## Meteo interface box for Maximizer & C-line

Part number	Description	Price (EUR)
3771351 	<p>Meteo interface box with board 8617 for connecting of meteorological sensors in black aluminum housing with the analog inputs of a Compass, Maximizer, Intégré Spectra` 92, CD/I or 100-line computer. The meteo interface box is suitable for connecting:</p> <ul style="list-style-type: none"> <li>• Outside temperature sensor (3779204)</li> <li>• Wind velocity sensor (3779203)</li> <li>• Wind direction sensor (3779215)</li> <li>• Rain detection sensor (3779206)</li> <li>• Radiation sensor CM3P or linear light sensor 50mV at 160klux (3779207 or 3779205)</li> </ul> <p>The meteo interface box is equipped with:</p> <ul style="list-style-type: none"> <li>• Transformer 24VAC/24VAC-10VA-50/60Hz to supply amplifier circuits on interface board</li> <li>• Two supply voltages for connection with external meteorological sensors: 12VDC-100mA and 24VDC-100mA</li> <li>• Glands for sensor cables, supply cable and computer cable</li> </ul> <p>Dimensions of the meteo interface box, h x w x d = 16.5 x 22 x 11cm</p>	



# Sensors for climate control




Manuals for the Priva sensors are available in various languages and are downloadable from the Priva support portal.

## Measuring box E





Part number	Description	Price (EUR)
3779302 	<p>Priva measuring box E T+RH, for measurement of temperature and relative humidity, with:</p> <ul style="list-style-type: none"> <li>• Base module including:               <ul style="list-style-type: none"> <li>• Air outlet openings and fan motor 12VDC-330mA</li> <li>• Interface board with firm ware, power supply and RS485 communication port</li> <li>• LED for indication of internal/external communication error and test mode status</li> <li>• Protective roof cover with 9-pin connector on top of base module for external data and power connection cable</li> </ul> </li> <li>• Module T+RH, including:               <ul style="list-style-type: none"> <li>• Sensor element E T+RH with temperature sensor, capacitive humidity sensor and connector</li> <li>• Stainless steel plate for protection against solar radiation</li> <li>• LED for indication of internal communication error and sensor mode status</li> <li>• Dust filter with holder in air inlet on bottom side</li> </ul> </li> <li>• PUR-connecting cable 5 x 0.75mm<sup>2</sup>, length 10 meter, with noise suppression ferrite and 9-pin connector for connecting of base module via external cabling to the RS485 port of a measuring box converter module (3779308)</li> </ul> <p>Specifications of this sensor:</p> <ul style="list-style-type: none"> <li>• Temperature measurement range: -5 till +60°C</li> <li>• Relative humidity measurement range: 0 – 100%RH without condensation</li> <li>• Relative humidity application range: 10 – 97%RH</li> <li>• Supply voltage of measuring box E, with base module, fan motor and module T+RH: 24VAC-0.3A.</li> </ul> <p>To ensure accurate temperature and humidity measurements of this measuring box E, it is advisable to replace the sensor element E T+RH with dust filter and holder (3779305) every year at the beginning of the growing season.</p> <p>Two years of warranty on operation, calibration is covered for one year</p>	





Part number	Description	Price (EUR)
<p>3779318</p> 	<p>Priva measuring box E T+RH+CO<sub>2</sub>, for measurement of temperature, relative humidity and carbon dioxide, with:</p> <ul style="list-style-type: none"> <li>• Base module, including: <ul style="list-style-type: none"> <li>• Air outlet openings and fan motor 12VDC-330mA</li> <li>• Interface board with firm ware, power supply and RS485 communication port</li> <li>• LED for indication of internal/external communication error and test mode status</li> <li>• Protective roof cover with 9-pin connector on top of base module for external data and power connection cable</li> </ul> </li> <li>• CO<sub>2</sub> module, including: <ul style="list-style-type: none"> <li>• CO<sub>2</sub> sensor GMP252 with dual beam infra red absorption system, CO<sub>2</sub> sensor cable and protection cover</li> <li>• LED for indication of internal communication error and sensor mode status</li> </ul> </li> <li>• Module T+RH, including: <ul style="list-style-type: none"> <li>• Sensor element E T+RH with temperature sensor, capacitive humidity sensor and connector</li> <li>• Stainless steel plate for protection against solar radiation</li> <li>• LED for indication of internal communication error and sensor mode status</li> <li>• Dust filter with holder in air inlet on bottom side</li> </ul> </li> <li>• PUR-connecting cable 5 x 0.75mm<sup>2</sup>, length 10 meter, with noise suppression ferrite and 9-pin connector for connecting of base module via external cabling to the RS485 port of a measuring box converter module (3779308)</li> </ul> <p>Specifications of this sensor:</p> <ul style="list-style-type: none"> <li>• CO<sub>2</sub> measurement range: 0-3,000ppm</li> <li>• Temperature measurement range: -5 till +60°C</li> <li>• Relative humidity measurement range: 0 – 100%RH without condensation</li> <li>• Relative humidity application range: 10 – 97%RH</li> <li>• Supply voltage of measuring box E, with base module, fan motor, module CO<sub>2</sub> and module T+RH: 24VAC-0.43A</li> </ul> <p>To ensure accurate CO<sub>2</sub> measurement of this measuring box E, it is advisable to have the CO<sub>2</sub> sensor checked by the Priva dealer every six months, using a reference CO<sub>2</sub> sensor unit GM70 and cylinders with calibration gas 0ppm and 2,600ppm.</p> <p>To ensure accurate temperature and humidity measurements of this measuring box E, it is advisable to replace the sensor element E T+RH with dust filter and holder (3779305) every year at the beginning of the growing season.</p> <p>Two years of warranty on operation, calibration is covered for one year</p>	
<p>3779303</p> 	<p>Priva BACnet measuring box E T+RH, for measurement of temperature and relative humidity, with:</p> <ul style="list-style-type: none"> <li>• BACnet base module, including: <ul style="list-style-type: none"> <li>• Air outlet openings and fan motor 12VDC-330mA</li> <li>• Interface board with firm ware, power supply and BACnet RS485 communication port</li> <li>• LED for indication of internal/external communication error and test mode status</li> <li>• Protective roof cover with 9-pin connector on top of base module for external data and power connection cable</li> </ul> </li> <li>• Module T+RH, including: <ul style="list-style-type: none"> <li>• Sensor element E T+RH with temperature sensor, capacitive humidity sensor and connector</li> <li>• Stainless steel plate for protection against solar radiation</li> <li>• LED for indication of internal communication error and sensor mode status</li> <li>• Dust filter with holder in air inlet on bottom side</li> </ul> </li> <li>• PUR-connecting cable 5 x 0.75mm<sup>2</sup>, length 10 meter, with noise suppression ferrite and 9-pin connector for connecting of base module via the BACnet RS485 port of a measuring box with the BACnet MS/TP single or multi device field connection box (3770618 or 3770616)</li> </ul> <p>Specifications of this sensor:</p> <ul style="list-style-type: none"> <li>• Temperature measurement range: -5 till +60°C</li> <li>• Relative humidity measurement range: 0 – 100%RH without condensation</li> <li>• Relative humidity application range: 10 – 97%RH</li> <li>• Supply voltage of measuring box E, with base module, fan motor and module T+RH: 24VAC-0.3A</li> </ul> <p>To ensure accurate temperature and humidity measurements of this measuring box E, it is advisable to replace the sensor element E T+RH with dust filter and holder (3779305) every year at the beginning of the growing season.</p>	





Part number	Description	Price (EUR)
<p>3779319</p> 	<p>Priva BACnet measuring box E T+RH+CO<sub>2</sub>, for measurement of temperature, relative humidity and carbon dioxide, with:</p> <ul style="list-style-type: none"> <li>BACnet base module, including: <ul style="list-style-type: none"> <li>Air outlet openings and fan motor 12VDC-330mA</li> <li>Interface board with firm ware, power supply and BACnet RS485 communication port</li> <li>LED for indication of internal/external communication error and test mode status</li> <li>Protective roof cover with 9-pin connector on top of base module for external data and power connection cable</li> </ul> </li> <li>CO<sub>2</sub> module, including: <ul style="list-style-type: none"> <li>CO<sub>2</sub> sensor GMP252 with dual beam infra red absorption system, CO<sub>2</sub> sensor cable and protection cover</li> <li>LED for indication of internal communication error and sensor mode status</li> </ul> </li> <li>Module T+RH, including: <ul style="list-style-type: none"> <li>Sensor element E T+RH with temperature sensor, capacitive humidity sensor and connector</li> <li>Stainless steel plate for protection against solar radiation</li> <li>LED for indication of internal communication error and sensor mode status</li> <li>Dust filter with holder in air inlet on bottom side</li> </ul> </li> <li>PUR-connecting cable 5 x 0.75mm<sup>2</sup>, length 10 meter, with noise suppression ferrite and 9-pin connector for connecting of base module via the BACnet RS485 port of a measuring box with the BACnet MS/TP single or multi device field connection box (3770618 or 3770616)</li> </ul> <p>Specifications of this sensor:</p> <ul style="list-style-type: none"> <li>CO<sub>2</sub> measurement range: 0-3,000ppm</li> <li>Temperature measurement range: -5 till +60°C</li> <li>Relative humidity measurement range: 0 – 100%RH without condensation</li> <li>Relative humidity application range: 10 – 97%RH</li> <li>Supply voltage of measuring box E, with base module, fan motor, module CO<sub>2</sub> and module T+RH: 24VAC-0.43A</li> </ul> <p>To ensure accurate CO<sub>2</sub> measurement of this measuring box E, it is advisable to have the CO<sub>2</sub> sensor checked by the Priva dealer every six months, using a reference CO<sub>2</sub> sensor unit GM70 and cylinders with calibration gas 0ppm and 2,600ppm.</p> <p>To ensure accurate temperature and humidity measurements of this measuring box E, it is advisable to replace the sensor element E T+RH with dust filter and holder (3779305) every year at the beginning of the growing season.</p>	
<p>3779346</p> 	<p>CO<sub>2</sub> module for integration in existing measuring box E T+RH (3779302 and 3779303), including:</p> <ul style="list-style-type: none"> <li>CO<sub>2</sub> sensor GMP252 with dual beam infra red absorption system, CO<sub>2</sub> sensor cable and protection cover</li> <li>LED for indication of internal communication error and sensor mode status</li> </ul> <p>Specifications of this sensor:</p> <ul style="list-style-type: none"> <li>CO<sub>2</sub> measurement range: 0-3,000ppm</li> <li>Supply voltage of measuring box E, with base module, fan motor, module CO<sub>2</sub> and module T+RH: 24VAC-0.43A</li> </ul> <p>To ensure accurate CO<sub>2</sub> measurement, it is advisable to have the CO<sub>2</sub> sensor every six months checked by the Priva dealer using a reference CO<sub>2</sub> sensor unit GM70 and cylinders with calibration gas 0ppm and 2,600ppm.</p> <p>Two years of warranty on operation, calibration is covered for one year</p>	
<p>3779307</p> 	<p>Cable winder (reel) for rolling up the PUR-connection cable of the measuring box E, so the suspension height of the measuring box E can be adjusted during the growing season</p>	





## Measuring box T (+ RH)

Part number	Description	Price (EUR)
	<p>Priva measuring box T+RH for measurement of temperature and relative humidity, operates on the physical principle of an aspirated psychrometer with dry bulb and wet bulb temperature sensors, consisting of:</p> <ul style="list-style-type: none"> <li>• Single wall galvanized steel housing, white coated, with air inlet on bottom side and air outlet in side wall</li> <li>• Electrical connection section, with: <ul style="list-style-type: none"> <li>• Door with quarter turn slotted head fastener</li> <li>• Screw terminals for connection cable</li> <li>• Bridge rectifier for fan motor</li> <li>• Connection cable 7 x 0.5mm<sup>2</sup>, length 5 meter</li> <li>• Clamping gland for connection cable</li> </ul> </li> <li>• Air measurement section, with: <ul style="list-style-type: none"> <li>• Door with quarter turn grip head fastener</li> <li>• Dry bulb temperature sensor with NTC/thermistor in glass tube Ø6mm x 60mm</li> <li>• Wet bulb temperature sensor with NTC/thermistor in glass tube Ø6mm x 60mm</li> <li>• Cotton hygrowick, length 25cm, used for wet bulb temperature measurement</li> <li>• Air restriction plate</li> <li>• Fan motor 24VDC-60mA</li> <li>• Power converter board 24VAC to 24VDC for fan motor</li> <li>• Plastic container with cover lid, content 1.5 liter, for Aquanex liquid with demineralized or distilled water</li> <li>• Grommet in cover lid, used to reduce secondary evaporation of water in cotton hygrowick</li> </ul> </li> <li>• Suspension materials with two S-hooks and galvanized steel chain, length 5 meter</li> </ul> <p>Specifications of this sensor:</p> <ul style="list-style-type: none"> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Temperature measurement range: 2.5....50°C</li> <li>• Relative humidity measurement range: 0 – 100%RH without condensation</li> <li>• Supply voltage of fan motor: 24VAC-60mA</li> </ul> <p>To ensure accurate measurement of the wet bulb temperature, the plastic container must be filled with demineralized or distilled water and Aquanex liquid. Aquanex prevents the growth of algae and/or formation of bio slime and optimizes sucking water into the cotton hygrowick.</p> <p>It is advisable to replenish regularly the plastic container with demineralized/distilled water and Aquanex (3779086 or 3779084) and to check regularly if the cotton hygrowick (3779088) is sufficiently moistened and not polluted with dust/dirt or algae/bio slime.</p>	
	<p>Cotton hygrowick, length 25cm, used for wet bulb temperature measurement in measuring box T+RH. Price per hygrowick. Ordering quantity: 10 pieces</p>	
	<p>Tank with 5 liter of distilled water and Aquanex liquid. Ready-mixed solution for direct application in plastic container of measuring box T+RH. Aquanex prevents the growth of algae and/or formation of bio slime in demineralized/distilled water and optimizes sucking water into the cotton hygrowick.</p>	
	<p>Plastic bottle with 0.25 liter of concentrated and Aquanex liquid. Must be mixed/diluted with 5 liter demineralised/distilled water for application in plastic container of measuring box T+RH. Aquanex prevents the growth of algae and/or formation of bio slime in demineralized/distilled water and optimizes sucking water into the cotton hygrowick.</p>	



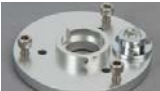
Part number	Description	Price (EUR)
<p>3779027</p> 	<p>Priva measuring box T for measurement of ambient temperature, consisting of:</p> <ul style="list-style-type: none"> <li>• PVC housing consisting of tube and protective cover, white coated</li> <li>• Aluminum separation plate, including: <ul style="list-style-type: none"> <li>• Temperature sensor with NTC/thermistor in glass tube Ø6mm x 60mm</li> <li>• Fan motor 24VDC-60mA</li> <li>• Power converter board 24VAC to 24VDC for fan motor</li> <li>• Screw terminals for connection cable</li> <li>• Bridge rectifier for fan motor</li> <li>• Connection cable 4 x 0.5mm<sup>2</sup>, length 5 meter</li> <li>• Grommet for connection cable</li> <li>• Suspension materials with two S-hooks and galvanized steel chain, length 5 meter</li> </ul> </li> </ul> <p>Specifications of this sensor:</p> <ul style="list-style-type: none"> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Temperature measurement range: 0 till +40°C</li> <li>• Supply voltage of fan motor: 24VAC-60mA</li> </ul>	
<p>111265</p> 	<p>Ambient temperature sensor with 3K NTC/thermistor suitable for:</p> <ul style="list-style-type: none"> <li>• Measuring range: +1 till +40°C, without condensation</li> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Use this sensor in dry areas only (not in greenhouse areas). Exposure to direct solar radiation will influence the accuracy of the measurement of this temperature sensor.</li> </ul>	

## CO<sub>2</sub> monitor, calibration gas and accessories

Part number	Description	Price (EUR)
	<p>Guardian NG CO<sub>2</sub> monitor for measurement of carbon dioxide, using dual wavelength non-dispersive infra-red (NDIR) technology, with:</p> <ul style="list-style-type: none"> <li>• Enclosure with transparent door, front panel with graphic LCD-display, four calibration adjustment buttons, three navigation push buttons with LEDs, alarm relays and fault/low flow alarm relay</li> <li>• Microprocessor controlled interface board with: <ul style="list-style-type: none"> <li>• Air suction pump and air flow detector (=pressure transducer)</li> <li>• CO<sub>2</sub> measuring chamber with dual wavelength non-dispersive infra-red sensor and air pressure compensation</li> <li>• Three relays with dry contacts for alarm functions</li> <li>• An Isolated analog output 0-20mA with settings via dipperswitches, with fault indication (=25mA) or 4-20mA with fault indication (=0mA) for connection with analog input of Compass, Connex, Intégro or Maximizer computer</li> </ul> </li> <li>• Gas inlet port with integrated air particle filter capsule</li> <li>• Air outlet nipple</li> <li>• Mains cable with CEE 7/4 plug</li> </ul> <p>The Guardian NG CO<sub>2</sub> monitor comes with the following materials:</p> <ul style="list-style-type: none"> <li>• Spare air particle filter capsule with integral seal (3660250)</li> <li>• Water trap (3659002) with mounting bracket and two adapter nipples for connecting of air sampling tube</li> <li>• Dust filter Crossland (3659010) with 1 meter blue sampling tube (3795152), adapter nipple (3795162) for connecting at inlet of black air sampling tube (3561017 or 3561018, air sampling tube is not included) in greenhouse</li> <li>• Load resistor 249Ω-1%-0.25W (3671139) for analog output to realize a 0-5VDC signal at the analog input of the computer system</li> <li>• User manual in English</li> <li>• Gas inlet connection assembly with 1.5 meter air sampling tube (3561020) and tee-piece (751664) for overpressure connection to an external Wisa air pump (3659151, Wisa air pump is not included)</li> <li>• Nipple with 0.15m sampling tube for connection with calibration gas inlet</li> </ul> <p>Specifications of the Guardian NG CO<sub>2</sub> monitor:</p> <ul style="list-style-type: none"> <li>• CO<sub>2</sub> measurement range: 0-3,000ppm, compensated for ambient pressure</li> <li>• Mains voltage: <b>90-260VAC-50/60Hz</b></li> <li>• Power consumption: 13W</li> <li>• Operating temperature: 0 – 40°C</li> <li>• Air pump flow: 1.0 liter/minute</li> <li>• Housing protection: IP45</li> <li>• Dimensions: h x w x d = 26 x 28 x 14 cm</li> </ul> <p>To ensure accurate CO<sub>2</sub> measurement of this CO<sub>2</sub> monitor, it is advised to have the CO<sub>2</sub> sensor every six months checked by the Priva dealer, using a pressure regulator and cylinders with calibration gas 0ppm and 900ppm or 2,600ppm.</p> <p>The water trap with the gas inlet connection assembly must be installed underneath the CO<sub>2</sub> monitor. The water trap must be emptied frequently; emptying interval depends on the specific situation.</p> <p>The air particle filter capsule in the gas inlet port and dust filter Crossland must be replaced every 12 months or more frequent if the aspirated air contains dust and dirt particles.</p>	
	<p>Roll with 100 meter air sampling tube Ø4mm x Ø6mm, black PE, UV stabilized</p>	
	<p>Roll with 500 meter air sampling tube Ø4mm x Ø6mm, black PE, UV stabilized</p>	
	<p>Wisa air sampling pump to suck air from sampling point in greenhouse via air sampling tube to water trap, tee-piece and gas inlet port of the Guardian NG CO<sub>2</sub> monitor</p> <ul style="list-style-type: none"> <li>• Mains voltage: 230VAC-6.5VA-50/60Hz</li> <li>• Air pump flow: 4.0 liter/minute at suction pressure of -100mbar</li> </ul>	





Part number	Description	Price (EUR)
3795115 	Can with one liter compressed calibration gas of 0ppm CO <sub>2</sub> (nitrogen N <sub>2</sub> ) for calibrating of zero reading of CO <sub>2</sub> monitors Guardian, Union, Horiba and Siemens as well as CO <sub>2</sub> module of Priva measuring box E. Four calibration and/or check cycles may be performed with one can. A can with calibration gas must be connected with the gas inlet of the CO <sub>2</sub> monitor/module using a pressure control set (3795159).	
3795116 	Can with one liter compressed calibration gas 900ppm CO <sub>2</sub> to check reading of CO <sub>2</sub> monitors Guardian, Union, Horiba and Siemens as well as CO <sub>2</sub> module of Priva measuring box E. Four check cycles may be performed with one can. A can with calibration gas must be connected with the gas inlet of the CO <sub>2</sub> monitor/module using a pressure control set (3795159).	
3795118 	Can with one liter compressed calibration gas 2600ppm CO <sub>2</sub> for calibrating of span reading of CO <sub>2</sub> monitors Guardian, Union, Horiba and Siemens as well as CO <sub>2</sub> module of Priva measuring box E. Four calibration cycles may be performed with one can. A can with calibration gas must be connected with the gas inlet of the CO <sub>2</sub> monitor/module using a pressure control set (3795159).	
3795159 	Pressure control set consisting of miniflow valve with flow indication, suited for cans with calibration gas	


## PAR sensor

Part number	Description	Price (EUR)
<p>3779237</p> 	<p>PAR sensor LI-190-R-BL-5 measures inside the greenhouse the PAR energy carried by photons in light spectrum between 400 and 700nm. Photosynthesis of plants is largely driven by Photosynthetically Active Radiation. This sensor consists of:</p> <ul style="list-style-type: none"> <li>• PAR sensor LI-190-R-BL-5 in weatherproof anodized aluminum housing with acrylic diffuser and stainless steel hardware</li> <li>• PAR interface UTA in aluminum housing with cable glands, amplifier circuit with DIP-switches set at <b>0.4V/μA</b> and analog output</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Measuring range PAR sensor, wavelength: 400 – 700nm</li> <li>• Typical sensitivity PAR sensor: 5μA per 1,000μmol/(s.m<sup>2</sup>)</li> <li>• Supply voltage PAR interface UTA: 24VDC-1mA (use a galvanic isolated power supply unit)</li> <li>• Analog output signal of PAR interface UTA: 0-5VDC, linear, non-isolated</li> <li>• Operating temperature range PAR sensor and interface UTA: -30 till +65°C</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>• Coaxial cable shielded, length 5 meter</li> <li>• Calibration certificate with serial number, calibration multiplier factor and calibration constant in μA per 1,000μmol/(s.m<sup>2</sup>), traceable to the National Institute of Standards and Technology (NIST)</li> </ul> <p>This sensor must be installed on a mounting plate with level indicator (3779234). The PAR interface UTA must be supplied via a galvanic isolated power supply unit 24VDC. Only in case of Intégro an additional power supply unit 24VDC must be installed. To reduce influence of light spots and/or shadowing effect of greenhouse parts and installation parts inside the greenhouse on the PAR sensor, it is advisable to install the sensor with the mounting plate on a motorized arm construction which continuously moves in the horizontal plane. Clean and check the PAR sensor every three months. To ensure accurate measurements, it is advisable to have the PAR sensor checked and calibrated every two years by the Priva dealer. Manuals in Dutch, English, German, French, Spanish and Russian are downloadable from the Priva Support portal.</p>	
<p>3779239</p> 	<p>PAR sensor LI-190-R-BL-5 measures inside and outside the greenhouse the PAR energy carried by photons in light spectrum between 400 and 700nm. Photosynthesis of plants is largely driven by Photosynthetically Active Radiation. This sensor consists of:</p> <ul style="list-style-type: none"> <li>• PAR sensor LI-190-R-BL-5 in weatherproof anodized aluminum housing with acrylic diffuser and stainless steel hardware</li> <li>• PAR interface UTA in aluminum housing with cable glands, amplifier circuit with DIP-switches set at <b>0.28V/μA</b> and analog output</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Measuring range PAR sensor, wavelength: 400 – 700nm</li> <li>• Typical sensitivity PAR sensor: 5μA per 1,000μmol/(s.m<sup>2</sup>)</li> <li>• Supply voltage PAR interface UTA: 24VDC-1mA (use a galvanic isolated power supply unit)</li> <li>• Analog output signal of PAR interface UTA: 0-5VDC, linear, non-isolated</li> <li>• Operating temperature range PAR sensor and interface UTA: -30 till +65°C</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>• Coaxial cable shielded, length 5 meter</li> <li>• Calibration certificate with serial number, calibration multiplier factor and calibration constant in μA per 1,000μmol/(s.m<sup>2</sup>), traceable to the National Institute of Standards and Technology (NIST)</li> </ul> <p>This sensor must be installed on a mounting plate with level indicator (3779234). The PAR interface UTA must be supplied via a galvanic isolated power supply unit 24VDC. Only in case of Intégro an additional power supply unit 24VDC must be installed. To reduce influence of light spots and/or shadowing effect of greenhouse parts and installation parts inside the greenhouse on the PAR sensor, it is advisable to install the sensor with the mounting plate on a motorized arm construction which continuously moves in the horizontal plane. Clean and check the PAR sensor every three months. To ensure accurate measurements, it is advisable to have the PAR sensor checked and calibrated every two years by the Priva dealer. Manuals in Dutch, English, German, French, Spanish and Russian are downloadable from the Priva Support portal.</p>	
<p>3779234</p> 	<p>Anodized aluminum mounting plate for PAR sensor LI-190-R-BL-5 / Li190SZ, with:</p> <ul style="list-style-type: none"> <li>• Stainless steel leveling screws</li> <li>• Bulls-eye bubble level indicator</li> <li>• Hexagonal Allen key</li> </ul>	

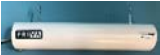


## Plant temperature sensor



Part number	Description	Price (EUR)
 <p>3779008</p>	<p>Infrared plant temperature sensor, operating principle is based on measurement of infrared radiation emitted by plants in a greenhouse, consisting of:</p> <ul style="list-style-type: none"> <li>• Sensor in stainless steel housing with cable gland, connecting cable, pyroelectric detector with lens for measurement of spectral emissivity of plants</li> <li>• Without interface and mounting set</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Measuring range, wavelength: 8 – 14µm</li> <li>• Scaled plant temperature range: -0 - +50°C</li> <li>• Measuring spot: Diameter 32mm with distance 1 meter</li> <li>• Supply voltage: 24VDC</li> <li>• Analog output: 4-20mA, linear</li> </ul> <p>Clean the IR plant temperature sensor every three months, using a spray can with compressed air and a lens cleaning tissue. To ensure accurate measurements, it is advisable to have the IR plant temperature sensor checked every year by the Priva dealer.</p>	
 <p>3779009</p>	<p>Interface box PT camera TopCrop Monitor To activate the laser and directing the laser beam</p>	
 <p>3779028</p>	<p>Flexible mounting system for PT camera - Top Crop Monitor</p>	
 <p>3779011</p>	<p>Infrared plant temperature sensor, operating principle is based on measurement of infrared radiation emitted by plants in a greenhouse, consisting of:</p> <ul style="list-style-type: none"> <li>• Sensor CT11.GH in stainless steel housing with cable gland, connecting cable, pyroelectric detector with lens for measurement of spectral emissivity of plants</li> <li>• Interface with amplifier circuit, analog output for connecting with analog input of Priva computer system and serial port RS232 for maintenance and calibration</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Measuring range, wavelength: 8 – 15µm</li> <li>• Scaled plant temperature range: -10 - +50°C</li> <li>• Measuring spot: 5 – 16m², depending on operating height above plants</li> <li>• Supply voltage: 24VAC or 24VDC-80mA</li> <li>• Isolated analog output: 4-20mA, linear</li> <li>• Operating temperature: -20 till +60°C</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>• Suspension bracket with wing bolts, must be attached to greenhouse post with a width up to <b>14cm</b>. Used to raise the operating height between 60 and 40cm above the top of the plants</li> <li>• Swiveling coupling with two lock nuts and wing bolt</li> <li>• Sensor suspension housing with viewer opening</li> <li>• Weight bar to stabilize the vertical position of the infrared plant temperature sensor, independent of the dilation of the greenhouse construction</li> <li>• Shielded cable 6 x 2 x 0.14mm², twisted pairs of, length 5 meter. Only four leads and shield of this cable are connected with the analog input and supply voltage of the Priva computer; all other leads, used for serial port RS232, must be isolated in connection box</li> <li>• Calibration certificate with serial number</li> </ul> <p>Heating pipes may influence this sensor, therefore it is important to pay attention to the measured plant spot, using the viewer opening. The operating height of this sensor above the plants must be adjusted during the growing season via the suspension bracket, which is attached to the greenhouse post.</p> <p>Clean the IR plant temperature sensor every three months, using a spray can with compressed air and a lens cleaning tissue. To ensure accurate measurements, it is advisable to have the IR plant temperature sensor checked every year by the Priva dealer.</p> <p>Two years of warranty on operation, calibration is covered for one year</p>	

Part number	Description	Price (EUR)
3779007	<p>Infrared plant temperature sensor, operating principle is based on measurement of infrared radiation emitted by plants in a greenhouse, consisting of:</p> <ul style="list-style-type: none"> <li>• Sensor CT11.GH in stainless steel housing with cable gland, connecting cable, pyroelectric detector with lens for measurement of spectral emissivity of plants</li> <li>• Interface with amplifier circuit, analog output for connecting with analog input of Priva computer system and serial port RS232 for maintenance and calibration</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Measuring range, wavelength: 8 – 15µm</li> <li>• Scaled plant temperature range: -10 - +50°C</li> <li>• Measuring spot: 5 – 16m<sup>2</sup>, depending on operating height above plants</li> <li>• Supply voltage: 24VAC or 24VDC-80mA</li> <li>• Isolated analog output: 4-20mA, linear</li> <li>• Operating temperature: -20 till +60°C</li> </ul> <p>This sensor comes with:</p> <ul style="list-style-type: none"> <li>• Suspension bracket with wing bolts, must be attached to greenhouse post with a width up to <b>16cm</b>. Used to raise the operating height between 60 and 40cm above the top of the plants</li> <li>• Swiveling coupling with two lock nuts and wing bolt</li> <li>• Sensor suspension housing with viewer opening</li> <li>• Weight bar to stabilize the vertical position of the infrared plant temperature sensor, independent of the dilation of the greenhouse construction</li> <li>• Shielded cable 6 x 2 x 0.14mm<sup>2</sup>, twisted pairs of, length 5 meter. Only four leads and shield of this cable are connected with the analog input and supply voltage of the Priva computer; all other leads, used for serial port RS232, must be isolated in connection box</li> <li>• Calibration certificate with serial number</li> </ul> <p>Heating pipes may influence this sensor, therefore it is important to pay attention to the measured plant spot, using the viewer opening. The operating height of this sensor above the plants must be adjusted during the growing season via the suspension bracket, which is attached to the greenhouse post.</p> <p>Clean the IR plant temperature sensor every three months, using a spray can with compressed air and a lens cleaning tissue. To ensure accurate measurements, it is advisable to have the IR plant temperature sensor checked every year by the Priva dealer.</p> <p>Two years of warranty on operation, calibration is covered for one year</p>	
498914	Infrared plant temperature sensor CT11.GH without suspension bracket. For description see part number 3779011.	
3779010	 <p>Suspension bracket for Infrared plant temperature sensor CT11.GH. For description see part number 3779011</p>	



## Air tube sensor T + electronic RH




Part number	Description	Price (EUR)
<p>3779026</p> 	<p>Air tube sensor T + electronic RH 4-20mA, consisting of:</p> <ul style="list-style-type: none"> <li>• White pvc housing Ø80mm x length 400mm with two suspension hooks to attach sensor inside air tube onto the suspension cable above the air tube/under the growing gutter. Temperature and humidity sensors are screened off from direct solar radiation. RH sensor is suited for measurement of non-condensating blowout air inside air tube with a maximum RH &lt;95%.</li> <li>• Stainless steel mounting plate with mounting clamps and silicone connection cable grommets :             <ul style="list-style-type: none"> <li>• Temperature sensor in stainless steel AISI 304 protection tube Ø6mm x 45mm with silicone cable, length 10 meter. Typical resistance of thermistor in temperature sensor: 3kΩ/25°C. The temperature sensor must be connected via 2 x 0.5mm<sup>2</sup> connection cable.</li> <li>• Capacitive electronic RH-sensor HX922 with integrated amplifier circuit, mesh filter cap, connector and 2-wire connection cable, length 10 meter. Amplifier circuit has a non-isolated analog output with a linear measuring range 0-100%RH = 4-20mA. Supply voltage 24VDC. Must be connected via 2 x 0.5mm<sup>2</sup> connection cable.</li> </ul> </li> <li>• Operating range:             <ul style="list-style-type: none"> <li>• Temperature: 0-50°C, without condensation.</li> <li>• Relative humidity: 5-95%RH, so: RH-sensor cannot be applied in cooling system with dehumidification function below dewpoint of air inside air tube.</li> </ul> </li> </ul> <p>Don't immerse the temperature and humidity sensor as they are not hermetically sealed.</p> <p>An air tube sensor:</p> <ul style="list-style-type: none"> <li>• comes with electrical wiring diagram.</li> <li>• can be applied in Connex computer systems since version 909 in case of Optima Greenhouse/AHU control in semi-closed greenhouses. In Webproduction you must select the option "electronic RH-measurement" for the measuring boxes within the Optima Ghs/AHU control software.</li> </ul> <p>must be connected with two analog inputs on an I/O-module with 16 analog inputs/32 digital outputs.</p> <ul style="list-style-type: none"> <li>• doesn't require a converter module for E measuring box.</li> </ul> <p>The electronic RH-sensor of the air tube sensor must be supplied with 24VDC. In existing Intégro substations this must be realized via an additional galvanic isolated power supply unit 24VDC for connecting external sensors. A Priva Connex substation is always equipped with a galvanic isolated power supply unit 24VDC for connecting of external sensors.</p> <p>It is advised to check and maintain this RH-sensor every 12 months to ensure reliable and accurate RH-measurements.</p>	

## Vent position sensors


Part number	Description	Price (EUR)
3779032	 <p>Vent position indicator 0-60°, to measure 0-100% position of a motorized roof vent system of the greenhouse, consisting of:</p> <ul style="list-style-type: none"> <li>• Box with cable gland and mounting plate for installation against fixed rod of greenhouse roof construction</li> <li>• Spring operated gear box with adjustment cone for closed position. Maximum spring tension is realized in closed position of roof vent system.</li> <li>• Potentiometer 1kΩ with gearwheel for vent position indicator 60° and screw connection terminals for external cabling</li> <li>• Two measurement rods with nylon wheel to track the opening/position of the motorized roof vent system. The short rod optimizes accuracy of the position measurement at small roof vent openings between 0 and 20%, the long rod tracks the opening of the motorized roof vent system between 20 and 100%.</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Rotation angle of rods: 0-60°</li> <li>• Resistance of potentiometer: 1kΩ, linear</li> <li>• Operating temperature: 0 till +50°C</li> </ul> <p>The potentiometer of this vent position indicator must be connected with an analog input of the Priva computer, using a cable 3 x 0.5mm<sup>2</sup>.</p>	
3779033	 <p>Vent position indicator 0-90°, to measure 0-100% position of a motorized roof vent system of the greenhouse, consisting of:</p> <ul style="list-style-type: none"> <li>• Box with cable gland and mounting plate for installation against fixed rod of greenhouse roof construction</li> <li>• Spring operated gear box with adjustment cone for closed position. Maximum spring tension is realized in closed position of roof vent system.</li> <li>• Potentiometer 1kΩ with gearwheel for vent position indicator 90° and screw connection terminals for external cabling</li> <li>• Two measurement rods with nylon wheel to track the opening/position of the motorized roof vent system. The short rod optimizes accuracy of the position measurement at small roof vent openings between 0 and 20%, the long rod tracks the opening of the motorized roof vent system between 20 and 100%.</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Rotation angle of rods: 0-90°</li> <li>• Resistance of potentiometer: 1kΩ, linear</li> <li>• Operating temperature: 0 till +50°C</li> </ul> <p>The potentiometer of this vent position indicator must be connected with an analog input of the Priva computer, using a cable 3 x 0.5mm<sup>2</sup>.</p>	

## Warm and cold water temperature sensors


Part number	Description	Price (EUR)
3779013	 <p>Warm water temperature sensor with NTC/thermistor in 65mm long stainless steel protection tube with threaded process connection G<math>\frac{1}{2}</math>", aluminum die cast housing with screw connector and cable gland, suitable for:</p> <ul style="list-style-type: none"> <li>• Operating temperature range: +10 till +120°C, without condensation</li> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Process connection: G<math>\frac{1}{2}</math>"</li> <li>• Material protection tube: stainless steel AISI 316Ti</li> <li>• Shaft length of protection tube: 65mm</li> <li>• Pressure range on process side of protection tube: 0-20 bar</li> </ul> <p>This sensor must be connected with a cable 2 x 0.5mm<sup>2</sup>, cable gland PG19. Don't use this sensor in cold water loops, as it is not hermetically sealed and protected against condensing water.</p>	
3779012	 <p>Warm water temperature sensor with NTC/thermistor in 135mm long stainless steel protection tube with threaded process connection G<math>\frac{1}{2}</math>", aluminum die cast housing with screw connector and cable gland, suitable for:</p> <ul style="list-style-type: none"> <li>• Operating temperature range: +10 till +120°C, without condensation</li> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Process connection: G<math>\frac{1}{2}</math>"</li> <li>• Material protection tube: stainless steel AISI 316Ti</li> <li>• Shaft length of protection tube: 135mm</li> <li>• Pressure range on process side of protection tube: 0-20 bar</li> </ul> <p>This sensor must be connected with a cable 2 x 0.5mm<sup>2</sup> cable gland PG19. Don't use this sensor in cold water loops, as it is not hermetically sealed and protected against condensing water.</p>	



Part number	Description	Price (EUR)
111233	 <p>Contacting sensor in plastic housing with NTC/thermistor, cable gland, binding clip, used as contacting sensor on top of a heating pipe, suitable for:</p> <ul style="list-style-type: none"> <li>• Measuring range: -40 till +110°C, without condensation</li> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Binding clip for heating pipe diameter: between Ø25mm and Ø175mm</li> </ul> <p>This sensor must be connected with a cable 2 x 0.5mm<sup>2</sup>. Use this sensor in a dry area only (not in greenhouse area) and install it on top of the warm water heating pipe. Don't use this sensor on cold water loops, as it is not hermetically sealed and protected against condensing water.</p>	
3779064	 <p>Cold water temperature sensor with NTC/thermistor, hermetically sealed blue cable, stainless steel protection tube with connection M10 x 1 and 65mm long stainless steel immersion sleeve with threaded process connection G½", suitable for:</p> <ul style="list-style-type: none"> <li>• Operating temperature range: -20 till +70°C</li> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Process connection immersion sleeve: G½"</li> <li>• Material immersion sleeve and protection tube: stainless steel AISI 316Ti</li> <li>• Shaft length of immersion sleeve: 65mm</li> <li>• Pressure range on process side of immersion sleeve: 0-20 bar</li> <li>• Length of cable: 3 meter</li> </ul> <p>This sensor must be connected with a cable 2 x 0.5mm<sup>2</sup>.</p>	
3779062	 <p>Cold water temperature sensor with NTC/thermistor, hermetically sealed blue cable, stainless steel protection tube with connection M10 x 1 and 135mm long stainless steel immersion sleeve with threaded process connection G½", suitable for:</p> <ul style="list-style-type: none"> <li>• Operating temperature range: -20 till +70°C</li> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Process connection immersion sleeve: G½"</li> <li>• Material immersion sleeve and protection tube: stainless steel AISI 316Ti</li> <li>• Shaft length of immersion sleeve: 135mm</li> <li>• Pressure range on process side of immersion sleeve: 0-20 bar</li> <li>• Length of cable: 3 meter</li> </ul> <p>This sensor must be connected with a cable 2 x 0.5mm<sup>2</sup>.</p>	

## Solid state mixing valve switching box



Part number	Description	Price (EUR)
3779018	 <p>Mixing valve switching box with manual switch, suited to control an actuator motor 24VAC or 230VAC on mixing valves, boiler valves, butterfly valves and EC pre-control valves. Consisting of:</p> <ul style="list-style-type: none"> <li>• Plastic housing with transparent cover</li> <li>• Red and green LEDs for indication of motor control</li> <li>• Manual switch with positions closed-off-open-off-automatic</li> <li>• Connection terminals for supply voltage 24VAC or 230VAC</li> <li>• Protective ground terminal strip</li> <li>• Connection terminals for actuator motor 24VAC or 230VAC</li> <li>• Optocouplers for galvanic isolation between computer control and actuator motor control</li> <li>• Triacs in actuator motor control circuit</li> <li>• Maximum power of actuator motor: 36VA</li> </ul>	

## Soil, slab, pot and product temperature sensors

Part number	Description	Price (EUR)
3779016	 <p>Soil/slab temperature sensor with NTC/thermistor in stainless steel protection tube, with orange pur-cable, length 6 meters, suitable for:</p> <ul style="list-style-type: none"> <li>• Operating temperature range: 0 till +50°C</li> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Material protection tube: stainless steel AISI 304</li> <li>• Dimensions protection tube: Ø10mm x 100mm</li> </ul> <p>This sensor must be connected with a cable 2 x 0.5mm<sup>2</sup>.</p>	

Part number	Description	Price (EUR)
3779015 	Soil/slab temperature sensor with NTC/thermistor in stainless steel protection tube, with orange pur-cable, length 15 meters, suitable for: <ul style="list-style-type: none"> <li>• Operating temperature range: 0 till +50°C</li> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Material protection tube: stainless steel AISI 304</li> <li>• Dimensions protection tube: Ø10mm x 100mm</li> </ul> This sensor must be connected with a cable 2 x 0.5mm².	
3779020 	Pot temperature sensor with NTC/thermistor in stainless steel protection tube, with blue silicone cable, length 10 meters, suited for: <ul style="list-style-type: none"> <li>• Operating temperature range: 0 till +50°C</li> <li>• Resistance of NTC/thermistor: 3kΩ/25°C</li> <li>• Material protection tube: stainless steel AISI 304</li> <li>• Dimensions protection tube: Ø6mm x 45mm</li> </ul> This sensor must be connected with a cable 2 x 0.5mm². Don't immerse this temperature sensor in a water tank, silo, drain tank or in a growing slab, etc, as it is not hermetically sealed.	

## Differential air pressure gauges

Part number	Description	Price (EUR)
3779039 	Differential air pressure gauge E&H PMD75 suited for high-accuracy pressure measurement to limit speed controlled fans in semi-closed greenhouses, where a small overpressure difference between greenhouse air and outside air must be maintained to prevent entering of insects via insect nets in roof vent system <ul style="list-style-type: none"> <li>• Display and toggle operation</li> <li>• Mounting bracket</li> <li>• Range -50 to +110Pa</li> <li>• Galvanic isolated analog output: 4-20mA, non linear -50Pa - 0Pa - +30Pa - +110Pa = 0% - 10% - 90% - 100% output with high resolution range between 0Pa and 30Pa</li> <li>• Supply voltage: 24VDC-16mA</li> <li>• Operating temperature: -20°C till +60°C</li> <li>• Housing protection: IP66</li> <li>• Air inlet nipple Ø4mm outer diameter, suited for air sampling tube Ø4mm x Ø6mm</li> </ul> This sensor must be connected with a shielded cable 2 x 0.5mm². The analog output signal 4-20mA of this differential pressure gauge must be connected with an analog input 0-5VDC of the Priva computer using a load resistor 249Ω-1%-0.25W (3671139). The dealer/installer must add stainless steel air inlet/outlet tubes with a pvc air pressure pipe filled with non-hygroscopic material	
794402 	Differential air pressure gauge SP-A95 in plastic housing with cable gland, two air nipples, used for alarm and protection functions in a greenhouse with Air Treatment Units, suited for: <ul style="list-style-type: none"> <li>• Operating pressure range: 0 till 1,000Pa, with DIP-switches it is possible to select a range of 0-100Pa, 0-200Pa or 0-500Pa</li> <li>• Supply voltage: 24VDC-60mA</li> <li>• Analog output: 4-20mA, linear, non-isolated</li> <li>• Dimensions air inlet nipples: Ø6.2mm, suited for air sampling tube Ø6mm x Ø8mm</li> <li>• Housing protection: IP54</li> <li>• Operating temperature: 0 till +45°C</li> </ul> The time constant (output delay) and measuring range of this differential pressure sensor can be set via DIP-switches. This sensor must be supplied with a galvanic isolated power supply unit 24VDC. This sensor must be connected with a cable 3 x 0.5mm². The analog output signal 4-20mA of this differential pressure gauge must be connected with an analog input 0-5VDC of the Priva computer using a load resistor 249Ω-1%-0.25W (3671139). Via DIP switches the analog output signal could be selected. This sensor is not suited for high-accuracy pressure measurement to control roof vent opening of air outlets in semi-closed greenhouse with speed controlled fans. In semi-closed greenhouses a small overpressure difference between greenhouse air and outside air must be maintained to prevent entering of insects via insect nets in the roof vent system	

## Modbus interfaces, screen catcher, XML-program

Suppliers of Air Treatment Units and semi-closed greenhouses with mixing chambers use Modbus controlled devices like fans with EC-motors and damper motors with louvre blades. Digital outputs, digital inputs and analog inputs of a Connex computer system are connected with Modbus-interface equipment to control fans and damper motors. The present Modbus protocol within the Modbus-interfaces supports connecting of EBM Papst fans, Ziehl-Abegg ECblue fans and Belimo damper motors with air inlet protection switches. Modbus-interfaces are suited for a single-phase line voltage of 230VAC. For USA and Canada it is possible to have Modbus-interfaces suited for a supply voltage of 24VAC

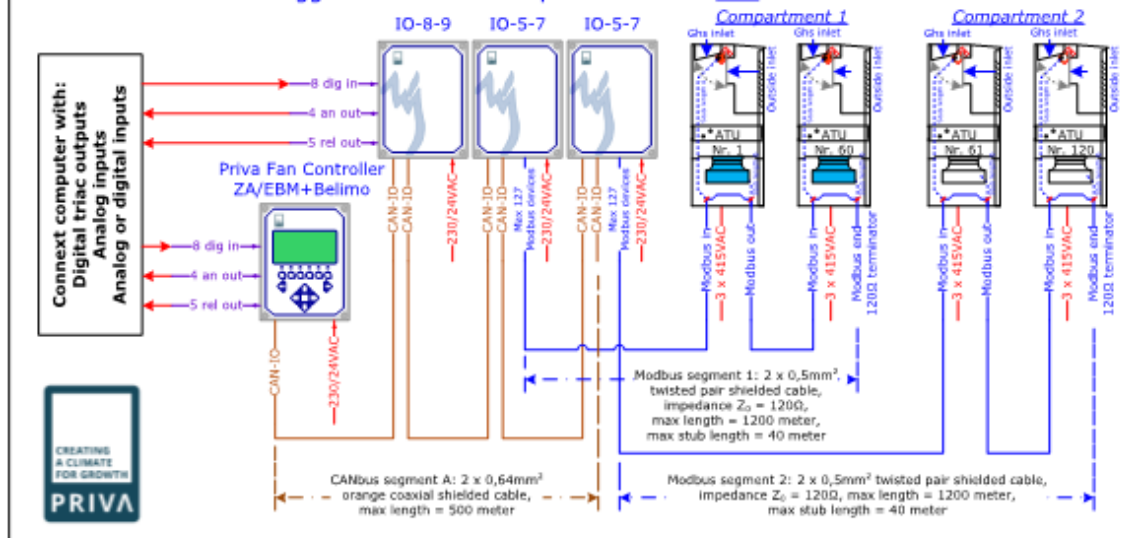


One Priva Fan Controller controls via a maximum of 16 IO-5-7 units up to 255 Modbus field devices. Every Ziehl-Abegg ECBlue fan motor, EBM-Papst fan motor and Belimo louvre motor counts as one Modbus field device.

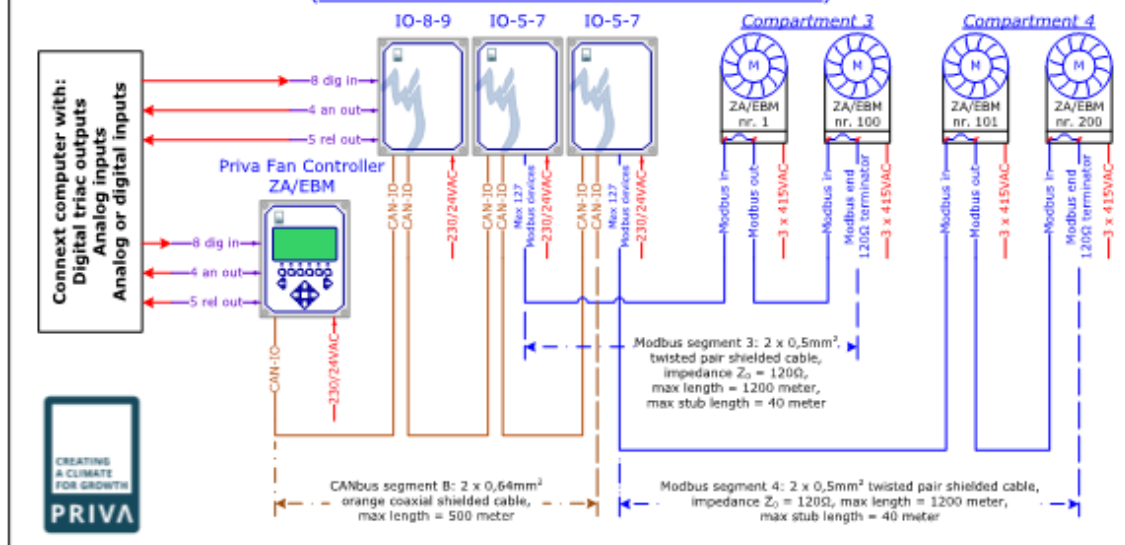
One IO-5-7 unit controls one Modbus segment with a maximum cable length of 1200 meters and a maximum of 127 Modbus field devices (= Ziehl-Abegg ECBlue or EBM-Papst fan motors and Belimo louvre motors). Total stub-length of all field devices within one Modbus segment is limited to 40 meters at the maximum.


**Note:** maximum number of field devices in one Modbus segment/one IO-5-7 unit is limited at **31 EBM-Papst fans if equipped with the former/special EBM-Papst-bus protocol.**


**Example 1:** Priva Fan Controllers 794502 (230VAC) & 794511 (24VAC) for ATUs with Ziehl-Abegg ECBlue or EBM-Papst fan motors and Belimo louvre motors






**Example 2:** Priva Fan Controllers 794500 (230VAC) & 794510 (24VAC), for semi-closed greenhouses with Ziehl-Abegg ECBlue or EBM-Papst fan motors in mixing chamber (so: without control of Belimo louvre motors)




Part number	Description	Price (EUR)
<p>794500</p> 	<p>Priva Fan Controller <b>EBM/ZA 230VAC</b> with software to control up to 255 Modbus field devices like EBM Papst fans and Ziehl-Abegg ECblue fans split up into 32 motor groups. Each Priva Fan Controller has:</p> <ul style="list-style-type: none"> <li>• One controller board with EE-prom and option module, in plastic housing with keyboard/LCD and Ethernet connecting set</li> <li>• One bottom plate with ground terminal strip for connecting shield wires of external cabling</li> <li>• One CAN-IO-8-9 module with CAN-bus port for connecting with external communication modules CAN IO-5-7 and/or extension modules CAN IO-8-9. This CAN IO-8-9 module is equipped with: <ul style="list-style-type: none"> <li>• 8 digital inputs 24VAC/DC max. 10Hz</li> <li>• 4 analog outputs 0-5VDC, max. load 1mA</li> <li>• 5 relay outputs 24VAC/DC, max. 0.5 Amp, of which only 4 outputs can be used for alarm of the motor groups</li> <li>• 1 CAN-bus port for connecting a coaxial cable (498738) with a maximum length of 500 meters</li> </ul> </li> <li>• Power supply unit suited for line voltage: 230VAC (±10%)-15VA, 50/60Hz</li> <li>• Housing dimensions: H x W x D = 222 x 170 x 107mm, without cable glands</li> <li>• Operating temperature 0-40°C</li> <li>• Housing protection: IP54</li> </ul> <p>Required inputs and outputs on Priva Fan Controller to control one group of EBM/ZA fans from the Connex computer system:</p> <ul style="list-style-type: none"> <li>• 2 digital inputs/1 analog output to control fan speed (RPM/PWM)</li> <li>• 2 relay outputs to detect urgent/non-urgent alarm status of a fan group. Since Connex 909 it is possible to invert alarm status, so no need for external relays.</li> </ul> <p>It is possible to use extension modules CAN IO-8-9 to realize additional digital inputs for control signals of multiple EBM/ZA fan groups. Pay attention to a logical and controllable subdivision of EBM/ZA fan groups, heating nets with heater coils as well as location of temperature/humidity sensors in ATUs in case of using Optima Greenhouse Air Treatment Control programs and splitting of ATUs into multiple EBM/ZA fan groups within one climate compartment.</p> <p>It is possible to expand a Priva Fan Controller with additional digital inputs, analog outputs and relay outputs by connecting additional extension modules CAN IO-8-9 via CAN-bus.</p> <p>The serial RS485 Modbus communication port of one communication module CAN IO-5-7 with one Modbus segment can be connected with 127 Modbus field devices. It is possible to connect multiple CAN IO-5-7 communication modules with one Priva Fan Controller via CAN-bus.</p> <p>The Priva Fan Controller EBM/ZA supports Modbus protocol for EBM Papst fans and Ziehl-Abegg ECblue fans. In case of the special EBMbus protocol for EBM Papst fans the number of field devices on one Modbus segment/CAN IO-5-7 module is limited at 31 EBM Papst fans.</p> <p>Specific data of each EBM/ZA fan (like: alarm status, fan speed, power consumption, temperature) can be displayed on a separate PC via an XML-coupling (46091). We recommend to have this separate PC not connected within the industrial Ethernet network of Connex/Priva Office Direct. Priva Fan Controllers must be connected with this separate PC via their Ethernet connecting sets. If the Priva Fan Controllers are yet connected to one or multiple Priva Office Direct PCs, each PC must have a separate Ethernet port for communication with the Priva Fan Controllers</p>	




Part number	Description	Price (EUR)
<p>794502</p> 	<p>Priva Fan Controller <b>EBM/ZA + Belimo 230VAC</b> with software to control up to 255 Modbus field devices like EBM Papst fans, Ziehl-Abegg ECblue fans and Belimo damper/louvre motors with air inlet protection switches split up into 32 motor groups. Each Priva Fan Controller has:</p> <ul style="list-style-type: none"> <li>• One controller board with EE-prom and option module, in plastic housing with keyboard/LCD and Ethernet connecting set</li> <li>• One bottom plate with ground terminal strip for connecting shield wires of external cabling</li> <li>• One CAN-IO-8-9 module with CAN-bus port for connecting with external communication modules CAN IO-5-7 and/or extension modules CAN IO-8-9. This CAN IO-8-9 module is equipped with: <ul style="list-style-type: none"> <li>• 8 digital inputs 24VAC/DC max. 10Hz</li> <li>• 4 analog outputs 0-5VDC, max. load 1mA</li> <li>• 5 relay outputs 24VAC/DC, max. 0.5 Amp, of which only 4 outputs can be used for alarm of the EBM/ZA motor groups or alarm of the Belimo louvre motor groups</li> <li>• 1 CAN-bus port for connecting a coaxial cable (498738) with a maximum length of 500 meters</li> </ul> </li> <li>• Power supply unit suited for line voltage: 230VAC (±10%)-15VA, 50/60Hz</li> <li>• Housing dimensions: H x W x D = 222 x 170 x 107mm, without cable glands</li> <li>• Operating temperature 0-40°C</li> <li>• Housing protection: IP54</li> </ul> <p>Required inputs and outputs on Priva Fan Controller to control one group of EBM/ZA fans with Belimo air inlet motors from the Connex computer system:</p> <ul style="list-style-type: none"> <li>• 2 digital inputs/1 analog output to control fan speed (RPM/PWM)</li> <li>• 2 relay outputs to detect urgent/non-urgent alarm status of a fan group. Since Connex 909 it is possible to invert alarm status, so no need for external relays.</li> <li>• 2 digital inputs/1 analog output to control group of Belimo air inlet motors</li> <li>• 1 relay output to detect alarm status of air inlet protection switch of a group of Belimo motors. Since Connex 909 it is possible to invert alarm status, so no need for external relays.</li> </ul> <p>It is possible to use extension modules CAN IO-8-9 to realize additional digital inputs for control signals of multiple EBM/ZA fan groups and Belimo motor groups. Pay attention to a logical and controllable subdivision of EBM/ZA fan groups and Belimo motor groups, heating nets with heater coils as well as location of temperature/humidity sensors in ATUs in case of using Optima Greenhouse Air Treatment Control programs and splitting of ATUs into multiple EBM/ZA fan groups/ Belimo motor groups within one climate compartment.</p> <p>It is possible to expand a Priva Fan Controller with additional digital inputs, analog outputs and relay outputs by connecting additional extension modules CAN IO-8-9 via CAN-bus.</p> <p>The serial RS485 Modbus communication port of one communication module CAN IO-5-7 with one Modbus segment can be connected with 127 Modbus field devices. It is possible to connect multiple CAN IO-5-7 communication modules with one Priva Fan Controller via CAN-bus.</p> <p>The Priva Fan Controller EBM/ZA + Belimo support Modbus protocol for EBM Papst fans, Ziehl-Abegg ECblue fans and Belimo motors. In case of the special EBMbus protocol for EBM Papst fans the number of field devices on one Modbus segment/CAN IO-5-7 module is limited at 31 EBM Papst fans.</p> <p>Specific data of each EBM/ZA fan (like: alarm status, fan speed, power consumption, temperature, position) and since version 4.32 of each Belimo motor can be displayed on a separate PC via an XML-coupling (46091). We recommend to have this separate PC not connected within the industrial Ethernet network of Connex/Priva Office Direct. Priva Fan Controllers must be connected with this separate PC via their Ethernet connecting sets. If the Priva Fan Controllers are yet connected to one or multiple Priva Office Direct PCs, each PC must have a separate Ethernet port for communication with the Priva Fan Controllers</p>	

Part number	Description	Price (EUR)
<p>794503</p> 	<p>Extension module <b>CAN IO-8-9 230VAC</b> with CAN-bus ports to expand a Priva Fan Controller with additional digital inputs, analog outputs and relay outputs. Each extension module CAN IO-8-9 comes with:</p> <ul style="list-style-type: none"> <li>• Plastic housing with bottom plate and ground terminal strip for connecting shield wires of external cabling</li> <li>• One CAN-IO-8-9 module with CAN-bus ports for connecting with Priva Fan Controller. This CAN IO-8-9 module is equipped with: <ul style="list-style-type: none"> <li>• 8 digital inputs 24VAC/DC max. 10Hz</li> <li>• 4 analog outputs 0-5VDC, max. load 1mA</li> <li>• 5 relay outputs 24VAC/DC, max. 0.5 Amp, off which only 4 outputs can be used for alarm of the EBM/ZA motor groups or alarm of the Belimo louvre motor groups</li> <li>• 2 CAN-bus ports for connecting a coaxial cable (498738) with a maximum length of 500 meters</li> </ul> </li> <li>• Power supply unit suited for line voltage: 230VAC (±10%)-15VA, 50/60Hz</li> <li>• Housing dimensions: H x W x D = 222 x 170 x 107mm, without cable glands</li> <li>• Operating temperature 0-40°C</li> <li>• Housing protection: IP54</li> </ul>	
<p>794501</p> 	<p>Communication module <b>CAN IO-5-7 230VAC</b> with half-duplex RS485 Modbus communication port for connecting 127 Modbus field devices on one Modbus segment and CAN-bus ports for connecting with a Priva Fan Controller. Each communication module CAN IO-5-7 comes with:</p> <ul style="list-style-type: none"> <li>• Plastic housing with bottom plate and ground terminal strip for connecting shield wires of external cabling</li> <li>• One CAN-IO-5-7 module with CAN-bus ports for connecting with Priva Fan Controller. This CAN IO-5-7 module is equipped with: <ul style="list-style-type: none"> <li>• 1 serial RS485 Modbus port with one segment for communication with 127 Modbus devices, maximum Modbus length of 1200m and a maximum Stub length of 40m</li> <li>• 2 CAN-bus ports for connecting coaxial cable (498738) with a maximum length of 500 meters</li> </ul> </li> <li>• Power supply unit suited for line voltage: 230VAC (±10%)-15VA, 50/60Hz</li> <li>• Housing dimensions: H x W x D = 222 x 170 x 107mm, without cable glands</li> <li>• Operating temperature 0-40°C</li> <li>• Housing protection: IP54</li> </ul>	

Part number	Description	Price (EUR)
<p>794510</p> 	<p>Priva Fan Controller <b>EBM/ZA 24VAC</b> with software to control up to 255 Modbus field devices like EBM Papst fans and Ziehl-Abegg ECblue fans split up into 32 motor groups. Each Priva Fan Controller has:</p> <ul style="list-style-type: none"> <li>• One controller board with EE-prom and option module, in plastic housing with keyboard/LCD and Ethernet connecting set</li> <li>• One bottom plate with ground terminal strip for connecting shield wires of external cabling</li> <li>• One CAN-IO-8-9 module with CAN-bus port for connecting with external communication modules CAN IO-5-7 and/or extension modules CAN IO-8-9. This CAN IO-8-9 module is equipped with: <ul style="list-style-type: none"> <li>• 8 digital inputs 24VAC/DC max. 10Hz</li> <li>• 4 analog outputs 0-5VDC, max. load 1mA</li> <li>• 5 relay outputs 24VAC/DC, max. 0.5 Amp, of which only 4 outputs can be used for alarm of the motor groups</li> <li>• 1 CAN-bus port for connecting a coaxial cable (498738) with a maximum length of 500 meters</li> </ul> </li> <li>• Power supply unit suited for line voltage: 24VAC (±10%)-15VA, 50/60Hz</li> <li>• Housing dimensions: H x W x D = 222 x 170 x 107mm, without cable glands</li> <li>• Operating temperature 0-40°C</li> <li>• Housing protection: IP54</li> </ul> <p>Required inputs and outputs on Priva Fan Controller to control one group of EBM/ZA fans from the Connex computer system:</p> <ul style="list-style-type: none"> <li>• 2 digital inputs/1 analog output to control fan speed (RPM/PWM)</li> <li>• 2 relay outputs to detect urgent/non-urgent alarm status of a fan group. Since Connex 909 it is possible to invert alarm status, so no need for external relays.</li> </ul> <p>It is possible to use extension modules CAN IO-8-9 to realize additional digital inputs for control signals of multiple EBM/ZA fan groups. Pay attention to a logical and controllable subdivision of EBM/ZA fan groups, heating nets with heater coils as well as location of temperature/humidity sensors in ATUs in case of using Optima Greenhouse Air Treatment Control programs and splitting of ATUs into multiple EBM/ZA fan groups within one climate compartment.</p> <p>It is possible to expand a Priva Fan Controller with additional digital inputs, analog outputs and relay outputs by connecting additional extension modules CAN IO-8-9 via CAN-bus.</p> <p>The serial RS485 Modbus communication port of one communication module CAN IO-5-7 with one Modbus segment can be connected with 127 Modbus field devices. It is possible to connect multiple CAN IO-5-7 communication modules with one Priva Fan Controller via CAN-bus.</p> <p>The Priva Fan Controller EBM/ZA supports Modbus protocol for EBM Papst fans and Ziehl-Abegg ECblue fans. In case of the special EBMbus protocol for EBM Papst fans the number of field devices on one Modbus segment/CAN IO-5-7 module is limited at 31 EBM Papst fans.</p> <p>Specific data of each EBM/ZA fan (like: alarm status, fan speed, power consumption, temperature) can be displayed on a separate PC via an XML-coupling (46091). We recommend to have this separate PC not connected within the industrial Ethernet network of Connex/Priva Office Direct. Priva Fan Controllers must be connected with this separate PC via their Ethernet connecting sets. If the Priva Fan Controllers are yet connected to one or multiple Priva Office Direct PCs, each PC must have a separate Ethernet port for communication with the Priva Fan Controllers</p>	

Part number	Description	Price (EUR)
<p>794511</p> 	<p>Priva Fan Controller <b>EBM/ZA + Belimo 24VAC</b> with software to control up to 255 Modbus field devices like EBM Papst fans, Ziehl-Abegg ECblue fans and Belimo damper/louvre motors with air inlet protection switches split up into 32 motor groups. Each Priva Fan Controller has:</p> <ul style="list-style-type: none"> <li>• One controller board with EE-prom and option module, in plastic housing with keyboard/LCD and Ethernet connecting set</li> <li>• One bottom plate with ground terminal strip for connecting shield wires of external cabling</li> <li>• One CAN-IO-8-9 module with CAN-bus port for connecting with external communication modules CAN IO-5-7 and/or extension modules CAN IO-8-9. This CAN IO-8-9 module is equipped with: <ul style="list-style-type: none"> <li>• 8 digital inputs 24VAC/DC max. 10Hz</li> <li>• 4 analog outputs 0-5VDC, max. load 1mA</li> <li>• 5 relay outputs 24VAC/DC, max. 0.5 Amp, of which only 4 outputs can be used for alarm of the EBM/ZA motor groups and alarm of the Belimo louver motor groups</li> <li>• 1 CAN-bus port for connecting a coaxial cable (498738) with a maximum length of 500 meters</li> </ul> </li> <li>• Power supply unit suited for line voltage: 24VAC (±10%)-15VA, 50/60Hz</li> <li>• Housing dimensions: H x W x D = 222 x 170 x 107mm, without cable glands</li> <li>• Operating temperature 0-40°C</li> <li>• Housing protection: IP54</li> </ul> <p>Required inputs and outputs on Priva Fan Controller to control one group of EBM/ZA fans with Belimo air inlet motors from the Connex computer system:</p> <ul style="list-style-type: none"> <li>• 2 digital inputs/1 analog output to control fan speed (RPM/PWM)</li> <li>• 2 relay outputs to detect urgent/non-urgent alarm status of a fan group. Since Connex 909 it is possible to invert alarm status, so no need for external relays.</li> <li>• 2 digital inputs/1 analog output to control group of Belimo air inlet motors</li> <li>• 1 relay output to detect alarm status of air inlet protection switch of a group of Belimo motors. Since Connex 909 it is possible to invert alarm status, so no need for external relays.</li> </ul> <p>It is possible to use extension modules CAN IO-8-9 to realize additional digital inputs for control signals of multiple EBM/ZA fan groups and Belimo motor groups. Pay attention to a logical and controllable subdivision of EBM/ZA fan groups and Belimo motor groups, heating nets with heater coils as well as location of temperature/humidity sensors in ATUs in case of using Optima Greenhouse Air Treatment Control programs and splitting of ATUs into multiple EBM/ZA fan groups/ Belimo motor groups within one climate compartment.</p> <p>It is possible to expand a Priva Fan Controller with additional digital inputs, analog outputs and relay outputs by connecting additional extension modules CAN IO-8-9 via CAN-bus.</p> <p>The serial RS485 Modbus communication port of one communication module CAN IO-5-7 with one Modbus segment can be connected with 127 Modbus field devices. It is possible to connect multiple CAN IO-5-7 communication modules with one Priva Fan Controller via CAN-bus.</p> <p>The Priva Fan Controller EBM/ZA + Belimo support Modbus protocol for EBM Papst fans, Ziehl-Abegg ECblue fans and Belimo motors. In case of the special EBMbus protocol for EBM Papst fans the number of field devices on one Modbus segment/CAN IO-5-7 module is limited at 31 EBM Papst fans.</p> <p>Specific data of each EBM/ZA fan (like: alarm status, fan speed, power consumption, temperature, position) and since version 4.32 also of each Belimo motor can be displayed on a separate PC via an XML-coupling (46091). We recommend to have this separate PC not connected within the industrial Ethernet network of Connex/Priva Office Direct. Priva Fan Controllers must be connected with this separate PC via their Ethernet connecting sets. If the Priva Fan Controllers are yet connected to one or multiple Priva Office Direct PCs, each PC must have a separate Ethernet port for communication with the Priva Fan Controllers</p>	



Part number	Description	Price (EUR)
794512 	<p>Extension module <b>CAN IO-8-9 24VAC</b> with CAN-bus ports to expand a Priva Fan Controller with additional digital inputs, analog outputs and relay outputs. Each extension module CAN IO-8-9 comes with:</p> <ul style="list-style-type: none"> <li>• Plastic housing with bottom plate and ground terminal strip for connecting shield wires of external cabling</li> <li>• One CAN-IO-8-9 module with CAN-bus ports for connecting with Priva Fan Controller. This CAN IO-8-9 module is equipped with:               <ul style="list-style-type: none"> <li>• 8 digital inputs 24VAC/DC max. 10Hz</li> <li>• 4 analog outputs 0-5VDC, max. load 1mA</li> <li>• 5 relay outputs 24VAC/DC, max. 0.5 Amp, off which only 4 outputs can be used for alarm of the EBM/ZA motor groups or alarm of the Belimo louvre motor groups</li> <li>• 2 CAN-bus ports for connecting a coaxial cable (498738) with a maximum length of 500 meters</li> </ul> </li> <li>• Power supply unit suited for line voltage: 24VAC (±10%)-15VA, 50/60Hz</li> <li>• Housing dimensions: H x W x D = 222 x 170 x 107mm, without cable glands</li> <li>• Operating temperature 0-40°C</li> <li>• Housing protection: IP54</li> </ul>	
794513 	<p>Communication module <b>CAN IO-5-7 24VAC</b> with half-duplex RS485 Modbus communication port for connecting 127 Modbus field devices on one Modbus segment and CAN-bus ports for connecting with a Priva Fan Controller. Each communication module CAN IO-5-7 comes with:</p> <ul style="list-style-type: none"> <li>• Plastic housing with bottom plate and ground terminal strip for connecting shield wires of external cabling</li> <li>• One CAN-IO-5-7 module with CAN-bus ports for connecting with Priva Fan Controller. This CAN IO-5-7 module is equipped with:               <ul style="list-style-type: none"> <li>• 1 serial RS485 Modbus port with one segment for communication with 127 Modbus devices, maximum Modbus length of 1200m and a maximum Stub length of 40m</li> <li>• 2 CAN-bus ports for connecting coaxial cable (498738) with a maximum length of 500 meters</li> </ul> </li> <li>• Power supply unit suited for line voltage: 24VAC (±10%)-15VA, 50/60Hz</li> <li>• Housing dimensions: H x W x D = 222 x 170 x 107mm, without cable glands</li> <li>• Operating temperature 0-40°C</li> <li>• Housing protection: IP54</li> </ul>	
498738	<p>Orange-colored shielded coaxial CAN-bus cable 2 x 0.64mm<sup>2</sup> for CAN-bus connection of Priva Fan Controller with communication modules CAN IO-5-7 and/or extension modules CAN IO-8-9, per meter</p>	
794504 	<p>Priva screen catcher program for local operation of one or multiple Priva Fan Controllers via a separate PC/laptop which is located/present on the greenhouse site. Priva screen catcher software is used to:</p> <ul style="list-style-type: none"> <li>• Visualize information of Priva Fan Controller on a large screen</li> <li>• Configure fan groups and damper/louvre motor groups</li> <li>• Control Modbus devices manually on/off for user and service engineer</li> <li>• Back-up, copy and save settings of service engineer</li> </ul> <p>Priva recommends to install one Priva screen catcher on a PC/laptop on the greenhouse site. This operation of the Priva Fan Controllers should not be connected within the industrial Ethernet network of Connex/Priva Office Direct. Priva Fan Controllers must be connected with this separate PC via their Ethernet connecting sets. If Priva Fan Controllers are connected to one or multiple Priva Office Direct PCs, each PC must have a separate Ethernet port for communication with the Priva Fan Controllers.</p>	
794505	<p>Software upgrade of an existing Priva Fan Controller <b>EBM/ZA</b> to the most recent program version, including EE-prom 4.xx and option module. From version 4.32 standard equipped with watchdog protection (parameter with fixed speed in every fan) for the fans in case of disconnected Modbus communication</p>	
794506	<p>Software upgrade of an existing Priva Fan Controller <b>EBM/ZA + Belimo</b> to the most recent program version, including EE-prom 4.xx and option module. From version 4.32 standard equipped with watchdog protection (parameter with fixed speed in every fan) for the fans in case of disconnected Modbus communication</p>	



Part number	Description	Price (EUR)
46091	<p>Tailor-made screen on a separate PC supporting XML-coupling with Priva Fan Controllers. Via this XML-coupling specific data of each EBM/ZA fan (like: alarm status, fan speed, power consumption, temperature, position) can be displayed on a separate PC which is not connected within the industrial Ethernet network of Connex/Priva Office Direct. If this XML-coupling with the Priva Fan Controllers will be connected with one Priva Office Direct PC, this PC must have a separate Ethernet port for communication with the Priva Fan Controllers.</p> <p>This XML-coupling supports data transfer of EBM Papst fans, Ziehl-Abegg ECblue fans and since version 4.32 also of Belimo louvre motors as well as status information of Priva Fan Controllers. For the user it simplifies status overview in case of many fans. XML-coupling is possible since Priva Office Direct version 5. During putting into operation/commissioning of the control system, the dealer contacts Priva and will receive a unique key code enabling to install this XML-coupling on one separate PC.</p>	

# Sensors for irrigation equipment


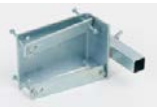


Manuals for the Priva sensors are available in various languages and are downloadable from the Priva support portal.









## Groscale slab weighing system

Usually a Groscale slab weighing system consists of the following items:

- One Groscale amplifier unit (3771140) with one support lock for greenhouse post with a width of 12-14cm (3771600) or 10cm (3771160) and one support arm of 75cm (3771162) or 30cm (3771165)
- Either two weighing platforms 50kgs (3771142) suited for a total weight of 100kgs or two weighing platforms 100kgs (3771147) suited for a total weight of 200kgs
- Either one stainless steel drain trough with a length of 2.15 meter (3475021) or 2.80 meter (3475022) with two mounting brackets (3656479) or one frame (3771143) for stationing of a tray, gutter or subsurface trough
- One Groscale sign with suspension chain (3771144) for installation in central path or corridor
- Groscale user manual in Dutch, English or French are available on the Priva support portal

It is possible to connect two sets of two weighing platforms with one Groscale amplifier unit, which will act as one Groscale weighing system, suited for a maximum total weight of 200kgs or 400kgs. In that case, you will have to double the number of either weighing platforms and stainless steel troughs with mounting brackets or frames for stationing of trays.

Part number	Description	Price (EUR)
3771140 	<p>Groscale amplifier unit with membrane keyboard/LCD for accurate measurement of tare weight of frame, trough and dry slab, saturated weight and net weight of irrigation water in growing slab with roots of plants, including:</p> <ul style="list-style-type: none"> <li>• Groscale amplifier unit in plastic housing</li> <li>• Menu controlled operator functions for calibration and measuring range settings</li> <li>• Membrane keyboard with LCD-screen</li> <li>• Galvanic isolated power supply unit</li> <li>• Processor controlled interface for connecting two or four weighing platforms</li> <li>• Two analog outputs</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Weight measuring range: 0-100kgs/two weighing platforms of 50kg or 0-200kgs/two weighing platforms of 100kgs</li> <li>• Supply voltage: 24VAC-180mA</li> <li>• Isolated analog output 1: 0-5VDC, linear, used to monitor total weight of 100kgs or 200kgs</li> <li>• Isolated analog output 2: 0-5VDC, linear, used to monitor weight in optimized control range from dry slab weight up to saturated slab weight</li> <li>• Resolution of analog output 1 and 2: 2 gram = 2cm<sup>3</sup> irrigation water for multiple plants on trough of 2.15 or 2.80 meter</li> <li>• Operating temperature: 0 till +50°C</li> </ul> <p>The Groscale amplifier unit must be connected with the Priva computer using a twisted pair shielded cable 4 x 2 x 0.5mm<sup>2</sup>.</p>	
3771600 	Galvanized straight support lock for installing on a greenhouse post with a width of 12-14cm, with mounting bracket, plate and screws. Material: galvanized steel	
3771160 	Galvanized straight support lock for installing on a greenhouse post with a width of 10cm, with mounting bracket, plate and screws. Material: galvanized steel	
3771162 	Galvanized support arm, length 75cm	

Part number	Description	Price (EUR)
3771165 	Galvanized support arm, length 30cm	
3771142 	<p>Weighing platform, suited for a weight of <b>50kgs</b>, consisting of:</p> <ul style="list-style-type: none"> <li>Galvanized construction with 21cm wide girder to carry trough/tray with growing slab</li> <li>Load cell with cable and connector, length 5 meter, for connecting with Groscale amplifier unit</li> <li>Three adjustable feet and two bulls-eye bubble level indicators for horizontal leveling</li> <li>Stainless steel protection cover</li> </ul> <p>Each weighing platform must be installed on a paving stone or hanging gutter. For accurate measurement of slab weight, it is necessary to add a stable relief structure which carries the stem, leaves and fruits of the plants. This relief construction depends on the type of crop with specific growing system and must be manufactured and supplied by the installer.</p> <p>If the drain trough on the weighing platforms is used for the Drain Sensor System, then it is important that the drain water collection tank is not attached to the drain trough as it will affect the measurement of the Groscale slab weighing system. An additional relief bracket must be manufactured and supplied by the installer to separate the construction of drain water collection tank from the Groscale slab weighing system.</p>	
3771147 	<p>Weighing platform, suited for a weight of <b>100kgs</b>, consisting of:</p> <ul style="list-style-type: none"> <li>Galvanized construction with 21cm wide girder to carry trough/tray with growing slab</li> <li>Load cell with cable and connector, length 5 meter, for connecting with Groscale amplifier unit</li> <li>Three adjustable feet and two bulls-eye bubble level indicators for horizontal leveling</li> <li>Stainless steel protection cover</li> </ul> <p>Each weighing platform must be installed on a paving stone or hanging gutter. For accurate measurement of slab weight, it is necessary to add a stable relief structure which carries the stem, leaves and fruits of the plants. This relief construction depends on the type of crop with specific growing system and must be manufactured and supplied by the installer.</p> <p>If the drain trough on the weighing platforms is used for the Drain Sensor System, then it is important that the drain water collection tank is not attached to the drain trough as it will affect the measurement of the Groscale slab weighing system. An additional relief bracket must be manufactured and supplied by the installer to separate the construction of drain water collection tank from the Groscale slab weighing system. This weighing platform is used for softfruit like blue and black berries.</p>	
3771143 	<p>Frame for stationing of a tray, gutter or subsurface trough on two weighing platforms, with a variable length between 2.00 and 2.70 meter, consisting of:</p> <ul style="list-style-type: none"> <li>Four galvanized tubes with end brackets and locking pin for positioning on girder of weighing platform</li> <li>Two galvanized extension tubes with bolts</li> </ul>	
3475021 	<p>Stainless steel trough for growing slab, dimensions: l x w x h = 200cm x 21cm x 6cm, with opening for drain water at one side Use only with slabs or bags and not with pots. For pots use manual, groscale for big pots, to build your own scale.</p>	
3475022 	<p>Stainless steel trough for growing slab, dimensions: l x w x h = 280cm x 21cm x 6cm, with opening for drain water at one side Use only with slabs or bags and not with pots. For pots use manual, groscale for big pots, to build your own scale.</p>	
3656479 	Mounting bracket with a width of 21cm and locking pins for positioning of trough on girder of Groscale weighing platform	
3771144 	Groscale sign with suspension chain for installation in central path or corridor	

## Drain sensor system 3.6 l/hr (DSS)




A Drain Sensor System 3.6 liter/hour (DSS) consists of the following items:


- One drain water collecting tank with dirt filter, siphoning tube, integrated EC-sensor with either a thermistor 3k $\Omega$ /25 $^{\circ}$ C (3779225 for Connex/Intégro) or an NTC 1k $\Omega$ /25 $^{\circ}$ C (3779224 for Compass, Maximizer and C-line), with outlet cap, drain volume detector with tipping spoon, magnet and reed relay
- Stainless steel drain trough with a length of either 2.15 meter (3475021) or 2.80 meter (3475022) for slab with growing medium

The drain water collecting tank fits in the sliding edge construction of the drain trough. It is advisable to use a plastic sheet to cover the collecting tank thus preventing dirt (leaves, fruit, etc) from entering the collecting tank.

The measured volume of drain water must be calibrated at least once per year via the program of the Priva computer by pouring 1.0 liter of water into the collecting tank of a DSS which contains already some water in the siphoning tube construction.

If the drain trough is installed on the weighing platforms of a Groscale weighing system and is also used for Drain Sensor System, then it is important that the drain water collection tank is not attached to the drain trough as it will affect the measurement of the Groscale slab weighing system. An additional relief bracket must be manufactured and supplied by the installer to separate the construction of drain water collection tank and the drain trough with Groscale slab weighing system.

Part number	Description	Price (EUR)
3779225 	<p>Drain Sensor System 3.6 liter/hour (DSS) for Connex/Intégro, with measurement of electrical conductivity of drain water in mS/cm and the drain water volume in cm<sup>3</sup>, consisting of:</p> <ul style="list-style-type: none"> <li>• Stainless steel drain water collecting tank with dirt filter</li> <li>• Siphoning tube and outlet cap with <math>\varnothing</math>1.5mm hole</li> <li>• Encapsulated drain EC-sensor with thermistor 3k<math>\Omega</math>/25<math>^{\circ}</math>C</li> <li>• Drain volume detector with tipping spoon, magnet and reed relay</li> <li>• Connection box with glands and screw terminals</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• EC measuring range: 0.01-10.0mS/cm</li> <li>• EC-cell constant: 5.0cm/cm<sup>2</sup></li> <li>• Resistance of thermistor: 3k<math>\Omega</math>/25<math>^{\circ}</math>C</li> <li>• Volume measuring range: 0-3.6 liter/hour. At 3.6 l/hr the tipping spoon is continuously in operation</li> <li>• Resolution tipping spoon: approx. 4cm<sup>3</sup>/pulse, calibrated via software of Priva computer</li> <li>• Operating temperature: 0 till +45<math>^{\circ}</math>C</li> </ul> <p>The Drain Sensor System with thermistor 3k<math>\Omega</math>/25<math>^{\circ}</math>C must be connected with the EC/pH-module of the Priva computer (Connex/Intégro) using a shielded cable 6 x 0.34mm<sup>2</sup>.</p>	
3779224 	<p>Drain Sensor System 3.6 liter/hour (DSS) for Compass, Maximizer and C-line, with measurement of electrical conductivity of drain water in mS/cm and the drain water volume in cm<sup>3</sup>, consisting of:</p> <ul style="list-style-type: none"> <li>• Stainless steel drain water collecting tank with dirt filter</li> <li>• Siphoning tube and outlet cap with <math>\varnothing</math>1.5mm hole</li> <li>• Encapsulated drain EC-sensor with NTC 1k<math>\Omega</math>/25<math>^{\circ}</math>C</li> <li>• Drain volume detector with tipping spoon, magnet and reed relay</li> <li>• Connection box with glands and screw terminals</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• EC measuring range: 0.01-10.0mS/cm</li> <li>• EC-cell constant: 5.0cm/cm<sup>2</sup></li> <li>• Resistance of NTC: 1k<math>\Omega</math>/25<math>^{\circ}</math>C</li> <li>• Volume measuring range: 0-3.6 liter/hour. At 3.6 l/hr the tipping spoon is continuously in operation</li> <li>• Resolution tipping spoon: approx. 4cm<sup>3</sup>/pulse, calibrated via software of Priva computer</li> <li>• Operating temperature: 0 till +45<math>^{\circ}</math>C</li> </ul> <p>The Drain Sensor System with NTC 1k<math>\Omega</math>/25<math>^{\circ}</math>C must be connected with the EC-interface board 9943 of the Priva computer Compass, Maximizer, C-Line using a shielded cable 6 x 0.34mm<sup>2</sup>.</p>	
3475021 	<p>Stainless steel trough for growing slab, dimensions: l x w x h = 200cm x 21cm x 6cm, with opening for drain water at one side Use only with slabs or bags and not with pots. For pots use manual, groscale for big pots, to build your own scale.</p>	

Part number	Description	Price (EUR)
3475022 	Stainless steel trough for growing slab, dimensions: l x w x h = 280cm x 21cm x 6cm, with opening for drain water at one side Use only with slabs or bags and not with pots. For pots use manual, groscale for big pots, to build your own scale.	

## Drain Measurement System 10.0 l/hr (DMS)

A Drain Measurement System 10.0 liter/hour (DMS) consists of the following items:

- One Drain Measurement System 10.0 liter/hour for either 50Hz (E490503) or 60Hz (E490506) with pvc inlet pipe construction, dirt filter, funnel, collecting tube, electrical 3-way valve with connecting cable, tee-piece with outlet nipple, drain volume measuring chamber with level detectors on aluminum base plate, relay box and two extension brackets for weighing platforms
- Stainless steel drain trough, either 300cm x 25cm x 5cm (498828) or 285cm x 21cm x 6cm (498458) with central drain outlet pipe connection and grating plate for stationing of growing slab on Groscale weighing platforms

The base plate of this sensor must be installed on a horizontally leveled construction. The pvc inlet pipe construction must be attached to the drain water outlet pipe of the stainless steel drain trough. Therefore the dealer has to add some specific materials, which depends on the present type of growing system (like: shape of crop gutter), drain system (like: tube or bucket with pump) to return the measured drain water into the general drain water loop of the greenhouse and a leveled bracket construction to install the base plate and measuring chamber with relay box of the drain measurement system.

It is advisable to use a plastic sheet to cover the drain measurement system 10.0 liter/hour, thus preventing algae or dirt (leaves, fruit, etc) from entering the drain measurement system or that drain water enters into electrical components.



The power supply voltage 24VAC-1.0A must be very stable, otherwise the level detector system with 3-way valve and relay box will be affected. Pay attention to the correct dimensions of the cabling.

At manufacturing, the level detectors of the drain water measuring chamber are calibrated at a water content of 12ml.




This drain measurement system must be inspected and/or cleaned every three months.

The drain trough is installed on two weighing platforms of a Groscale weighing system using both extension brackets. It is important that the Drain Measurement System is not attached to the drain trough as it will affect the measurement of the Groscale slab weighing system.




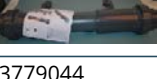

The Drain Measurement System does not have a drain EC-sensor.


Part number	Description	Price (EUR)
E490503 	<p>Drain Measurement System 10.0 liter/hour (DMS) for Connex, with measurement of drain water volume in cm<sup>3</sup>, suited for 50Hz, consisting of:</p> <ul style="list-style-type: none"> <li>Inlet construction with pvc pipe Ø25mm, one pvc elbow Ø25mm x Ø25mm, one pvc elbow Ø25mm x ¾" inner thread for connecting onto outlet pipe of drain trough</li> <li>Aluminum base plate with:               <ul style="list-style-type: none"> <li>Dirt filter, funnel and collecting tube</li> <li>Electrical 3-way valve 24VAC-8W-50Hz-EPDM with connecting cable and tee-piece with outlet nipple for connecting of drain tube with inner diameter of Ø8.0mm</li> <li>Drain volume measuring chamber with level detectors</li> </ul> </li> <li>Relay box with 4 meter long connecting cables of 3-way valve and level detectors and gland for external connection cable</li> <li>Two extension brackets with holes M6, to install a drain trough with a width of 0.25 meter on the arms of the weighing platforms</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>Volume measuring range: 0-10.0 liter/hour (On dealer level another calibration curve should be selected)</li> <li>Resolution level detectors: 12.0cm<sup>3</sup>/pulse</li> <li>Power supply voltage: 21.6-26.4VAC-50Hz-1.0A</li> <li>Outlet nipple connection of tee-piece: Ø8mm</li> <li>Operating temperature: 0 till +45°C</li> </ul> <p>The Drain Measurement System must be connected with the Priva Connex computer using a cable 6 x 0.5mm<sup>2</sup>, of which four cores are used for a stable power supply voltage 24VAC. Add volume vs pulse time curve on dealerlevel.</p>	
E490506 	<p>Drain Measurement System 10.0 liter/hour (DMS) for Connex, with measurement of drain water volume in cm<sup>3</sup>, suited for 60Hz, consisting of:</p> <ul style="list-style-type: none"> <li>Inlet construction with pvc pipe Ø25mm, one pvc elbow Ø25mm x Ø25mm, one pvc elbow Ø25mm x ¾" inner thread for connecting onto outlet pipe of drain trough</li> <li>Aluminum base plate with:               <ul style="list-style-type: none"> <li>Dirt filter, funnel and collecting tube</li> <li>Electrical 3-way valve 24VAC-8W-60Hz-EPDM with connecting cable and tee-piece with outlet nipple for connecting of drain tube with inner diameter of Ø8.0mm</li> <li>Drain volume measuring chamber with level detectors</li> </ul> </li> <li>Relay box with 4 meter long connecting cables of 3-way valve and level detectors and gland for external connection cable</li> <li>Two extension brackets with holes M6, to install a drain trough with a width of 0.25 meter on the arms of the weighing platforms</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>Volume measuring range: 0-10.0 liter/hour (On dealer level another calibration curve should be selected)</li> <li>Resolution level detectors: 12.0cm<sup>3</sup>/pulse</li> <li>Power supply voltage: 21.6-26.4VAC-60Hz-1.0A</li> <li>Outlet nipple connection of tee-piece: Ø8mm</li> <li>Operating temperature: 0 till +45°C</li> </ul> <p>The Drain Measurement System must be connected with the Priva computer Connex using a cable 6 x 0.5mm<sup>2</sup>, of which four cores are used for a stable power supply voltage 24VAC. Add volume vs pulse time curve on dealerlevel.</p>	
498828	<p>Stainless steel drain trough, L x W x H = 300cm x 25cm x 5cm with drain water outlet nipple ¾" outer thread, located in the center under the bottom of the trough, with grating plate for stationing of growing slabs with plants</p>	

## EC measurement


Part number	Description	Price (EUR)
<p>3779054</p> 	<p>In-line EC sensor with one temperature sensor for Connex/Intégro and Compri HX, with measurement of electrical conductivity in mS/cm of irrigation water, supply water, mixed pre-control water, fertilized water, drain water and pad-wall bleed-off water. The in-line EC sensor comes with:</p> <ul style="list-style-type: none"> <li>• Two measuring cells with stainless steel electrodes; measuring cells are hydraulically connected in series and electrically connected in parallel. Two electrodes are equipped with 3/4" outer thread for connection with pvc tubes</li> <li>• One nickel plated brass housing with two temperature sensors for temperature compensating of measured electrical conductivity</li> <li>• Shielded connection cable 5 x 0.34mm<sup>2</sup>, length 5 meter</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Screw connection: 3/4" outer thread on both outer electrode sides</li> <li>• Length: <b>334mm</b></li> <li>• EC cell constant: 1.23cm/cm<sup>2</sup></li> <li>• EC measuring range: 0.01 till 10.0mS/cm</li> <li>• Resistance of temperature sensor: NTC 3kΩ/25°C</li> <li>• Flow range: 0.5 till 25.0m<sup>3</sup>/hr</li> <li>• Operating pressure: 0.0 till 6.0bar</li> <li>• Operating temperature: 0 till +45°C</li> </ul> <p>The in-line EC sensor with NTC 3kΩ/25°C may be connected with the EC/pH-module of Connex/Intégro using a shielded cable 4 x 0.34mm<sup>2</sup>. EC/pH-module 9523 and EC interface board 9943 generate an agitation voltage with a frequency of 400Hz for measurement of electrical conductivity via this in-line EC sensor.</p> <p>The in-line EC sensor with NTC 3kΩ/25°C may be connected directly with EC interface board 2202 of the Compri HX system; it is not allowed to elongate this cable. EC interface board 2202 generates an agitation voltage with a frequency of 4,000Hz for measurement of electrical conductivity via this in-line EC sensor.</p> <p>To ensure accurate measurement it is recommended to have this sensor checked and cleaned every year, using a descaling agent for cleaning the measuring cells of the in-line EC sensor.</p>	
<p>3779052</p> 	<p>In-line EC sensor with one temperature sensor for Compass, Maximizer and C-Line, with measurement of electrical conductivity in mS/cm of irrigation water, supply water, mixed pre-control water, fertilized water, drain water and pad-wall bleed-off water. The in-line EC sensor comes with:</p> <ul style="list-style-type: none"> <li>• Two measuring cells with stainless steel electrodes; measuring cells are hydraulically connected in series and electrically connected in parallel. Two electrodes are equipped with 3/4" outer thread for connection with pvc tubes</li> <li>• One nickel plated brass housing with two temperature sensors for temperature compensating of measured electrical conductivity</li> <li>• Shielded connection cable 5 x 0.34mm<sup>2</sup>, length 5 meter</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Screw connection: 3/4" outer thread on both outer electrode sides</li> <li>• Length: <b>334mm</b></li> <li>• EC cell constant: 1.23cm/cm<sup>2</sup></li> <li>• EC measuring range: 0.01 till 10.0mS/cm</li> <li>• Resistance of temperature sensor: NTC 1kΩ/25°C</li> <li>• Flow range: 0.5 till 25.0m<sup>3</sup>/hr</li> <li>• Operating pressure: 0.0 till 6.0bar</li> <li>• Operating temperature: 0 till +45°C</li> </ul> <p>The in-line EC sensor with NTC 1kΩ/25°C may be connected with the EC interface board 9943 of the Compass, Maximizer or C-line computer using a shielded cable 4 x 0.34mm<sup>2</sup>. EC interface board 9943 generates an agitation voltage with a frequency of 400Hz for measurement of electrical conductivity via this in-line EC sensor.</p> <p>To ensure accurate measurement it is recommended to have this sensor checked and cleaned every year, using a descaling agent for cleaning the measuring cells of the in-line EC sensor.</p>	
<p>750744</p>	<p>Mainline flow tube Ø 40mm-PN16 with two fittings Ø 40mm for PVC mainline and by-pass construction with two fittings 3/4", suited to insert an in-line EC sensor (3779054 or 3779052)</p>	
<p>750745</p> 	<p>Mainline flow tube Ø 50mm-PN16 with two fittings Ø 50mm for PVC mainline and by-pass construction with two fittings 3/4", suited to insert an in-line EC sensor (3779054 or 3779052)</p>	





Part number	Description	Price (EUR)
750746 	Mainline flow tube Ø 63mm-PN16 with two fittings Ø 63mm for PVC mainline and by-pass construction with two fittings ¾", suited to insert an in-line EC sensor (3779054 or 3779052)	
750747 	Mainline flow tube Ø 75mm-PN16 with two fittings Ø 75mm for PVC mainline and by-pass construction with two fittings ¾", suited to insert an in-line EC sensor (3779054 or 3779052)	
750748 	Mainline flow tube Ø 90mm-PN16 with two fittings Ø 90mm for PVC mainline and by-pass construction with two fittings ¾", suited to insert an in-line EC sensor (3779054 or 3779052)	
750749 	Mainline flow tube Ø 110mm-PN16 with two fittings Ø 110mm for PVC mainline and by-pass construction with two fittings ¾", suited to insert an in-line EC sensor (3779054 or 3779052)	
3779044 	<p>Angled EC sensor with one temperature sensor for Connex/Intégro, with measurement of electrical conductivity in mS/cm of irrigation water, supply water, mixed pre-control water, fertilized water, drain water and pad-wall bleed-off water. The angled EC sensor comes with:</p> <ul style="list-style-type: none"> <li>• Two measuring cells with nickel plated brass electrodes; measuring cells are hydraulically connected in series and electrically connected in parallel</li> <li>• One nickel plated brass housing with two temperature sensors for temperature compensating of measured electrical conductivity</li> <li>• Two hexagonal nuts with ¾" inner thread</li> <li>• Two brass adapters ¾" outer thread x ½" inner thread for connection with pvc tubes</li> <li>• Shielded connection cable 5 x 0.34mm<sup>2</sup>, length 5 meter</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Screw connection: ½" inner thread on both brass adapters</li> <li>• Length: <b>580mm</b></li> <li>• EC cell constant: 1.82cm/cm<sup>2</sup></li> <li>• EC measuring range: 0.01 till 10.0mS/cm</li> <li>• Resistance of temperature sensor: NTC 3kΩ/25°C</li> <li>• Flow range: 0.5 till 25.0m<sup>3</sup>/hr</li> <li>• Operating pressure: 0.0 till 6.0bar</li> <li>• Operating temperature: 0 till +45°C</li> </ul> <p>The angled EC sensor with NTC 3kΩ/25°C may be connected with the EC/pH-module 9523 of Connex/Intégro/Compact using a shielded cable 4 x 0.34mm<sup>2</sup>. EC/pH-module 9523 generates an agitation voltage with a frequency of 400Hz for measurement of electrical conductivity via this angled EC sensor.</p> <p>To ensure accurate measurement it is recommended to have this sensor checked and cleaned every year, using a descaling agent for cleaning the measuring cells of the angled EC sensor.</p>	


Part number	Description	Price (EUR)
3779041 	<p>Angled EC sensor with one temperature sensor for Compass, Maximizer and C-Line, with measurement of electrical conductivity in mS/cm of irrigation water, supply water, mixed pre-control water, fertilized water, drain water and pad-wall bleed-off water. The angled EC sensor comes with:</p> <ul style="list-style-type: none"> <li>• Two measuring cells with nickel plated brass electrodes; measuring cells are hydraulically connected in series and electrically connected in parallel</li> <li>• One nickel plated brass housing with two temperature sensors for temperature compensating of measured electrical conductivity</li> <li>• Two hexagonal nuts with 3/4" inner thread</li> <li>• Two brass adapters 3/4" outer thread x 1/2" inner thread for connection with pvc tubes</li> <li>• Shielded connection cable 5 x 0.34mm<sup>2</sup>, length 5 meter</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Screw connection: 1/2" inner thread on both brass adapters</li> <li>• Length: <b>580mm</b></li> <li>• EC cell constant: 1.82cm/cm<sup>2</sup></li> <li>• EC measuring range: 0.01 till 10.0mS/cm</li> <li>• Resistance of temperature sensor: NTC 1kΩ/25°C</li> <li>• Flow range: 0.5 till 25.0m<sup>3</sup>/hr</li> <li>• Operating pressure: 0.0 till 6.0bar</li> <li>• Operating temperature: 0 till +45°C</li> </ul> <p>The angled EC sensor with NTC 1kΩ/25°C may be connected with the EC interface board 9943 of the Compass, Maximizer or C-line computer using a shielded cable 4 x 0.34mm<sup>2</sup>. EC interface board 9943 generates an agitation voltage with a frequency of 400Hz for measurement of electrical conductivity via this angled EC sensor. To ensure accurate measurement it is recommended to have this sensor checked and cleaned every year, using a descaling agent for cleaning the measuring cells of the angled EC sensor.</p>	


## EC interface for Compass, Maximizer

Part number	Description	Price (EUR)
3771051 	<p>Box with one EC interface for Compass, Maximizer and C-line computer. Suitable for connecting two EC sensors with NTC 1kΩ/25°C or two Drain Sensor Systems DSS with NTC 1kΩ/25°C. One EC interface board 9943 converts the EC measurements of two EC sensors/Drain Sensor Systems DSS into two analog output signals. This box with one EC interface consists of:</p> <ul style="list-style-type: none"> <li>• Plastic housing with cable glands</li> <li>• Steel base plate with predrilled holes, suited to expand with a second EC-interface, consisting of board 8658 (3770758) and board 9943 (3770198)</li> <li>• One connection board 8658 with: <ul style="list-style-type: none"> <li>• Screw terminals for external cabling to two EC sensors, 24VAC supply circuit and analog inputs</li> <li>• Plug-in connector with two support guides to insert one EC interface board 9943</li> </ul> </li> <li>• One EC interface board 9943 with: <ul style="list-style-type: none"> <li>• Transformer 24VAC/24VAC-1.2VA to supply amplifiers and agitation circuits</li> <li>• Amplifier circuits, agitation circuits at frequency of 400Hz for two EC sensors or two Drain Sensor Systems DSS and temperature compensation circuits for NTC 1kΩ/25°C</li> <li>• Two isolated analog output circuits with linear 0-5VDC signal conversion of temperature compensated electrical conductivity measurement between 0.01 and 10.0mS/cm</li> </ul> </li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Dimensions plastic housing: H x L x W = 180mm x 165mm x 130mm (without glands)</li> <li>• Operating temperature: 0 till +35°C</li> </ul> <p>The input of an EC interface board 9943 must for connecting with two EC sensors with NTC 1kΩ/25°C (3779041 and 3779052) or two Drain Sensor Systems DSS with NTC 1kΩ/25°C (3779224). One shielded cable 4 x 0.34mm<sup>2</sup> is required to connect two analog outputs of an EC interface board 9943 with the analog inputs of a compass or Maximizer or C-line computer. One supply cable 2 x 0.5mm<sup>2</sup> is required for connecting the 24VAC power supply circuit of the Compass or Maximizer computer with one or two EC interface boards 9943.</p>	


Part number	Description	Price (EUR)
3770758 	<p>Connection board 8658, to incorporate in box with EC interface (3771051) or switching panel of fertilizer dosing unit, comes with:</p> <ul style="list-style-type: none"> <li>Screw terminals for external cabling to two EC sensors, 24VAC supply circuit and analog inputs of Compass or Maximizer computer</li> <li>Plug-in connector with two support guides to insert one EC interface board 9943 (3770198)</li> </ul>	
3770198 	<p>EC interface board 9943, to insert in connection board 8658 (3770758), comes with:</p> <ul style="list-style-type: none"> <li>Transformer 24VAC/24VAC-1.2VA to supply amplifiers and agitation circuits</li> <li>Amplifier circuits, agitation circuits at frequency of 400Hz for two EC sensors or two Drain Sensor Systems DSS and temperature compensation circuits for NTC 1k<math>\Omega</math>/25<math>^{\circ}</math>C</li> <li>Two isolated analog output circuits with linear 0-5VDC signal conversion of temperature compensated electrical conductivity measurement between 0.01 and 10.0mS/cm</li> </ul> <p>The input of an EC interface board 9943 must be connected with two EC sensors with NTC 1k<math>\Omega</math>/25<math>^{\circ}</math>C (3779041 and 3779052) or two Drain Sensor Systems DSS with NTC 1k<math>\Omega</math>/25<math>^{\circ}</math>C (3779224).</p>	

## pH measurement


Part number	Description	Price (EUR)
3779046 	<p>pH electrode for pressureless and high pressure application 0 – 10bar, used to determine the acidity (= molar concentration of dissolved hydrogen ions) in irrigation water within the measuring range of pH3 (acid) and pH10 (basic). This pH electrode comes with:</p> <ul style="list-style-type: none"> <li>Internal and external half cell chambers: glass body with Ag-AgCl lead in KCl electrolyte salt bridge</li> <li>pH sensitive glass membrane and diaphragm liquid junction ring to measure potential difference between both half cell chambers, which depends on number of hydrogen ions in irrigation water</li> <li>Protective bottle for storage and transport of pH electrode, filled with 3.8M KCl saturated solution to prevent that glass membrane and diaphragm junction ring dry out and get blocked</li> <li>Epoxy cap with rubber cable gland and coaxial cable <math>\varnothing</math> 2.5mm, length 3m, with BNC connector</li> <li>Rubber ring <math>\varnothing</math> 15mm x <math>\varnothing</math> 22mm for pH holder (3770858)</li> <li>For pressureless purposes: protective cap</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>pH operating range: pH3 – pH10</li> <li>pH calibration range: pH7 (neutral) and pH4 (acid), using ampoules with buffer solution</li> <li>Potential difference <math>\delta</math>: 59.16mV/pH</li> <li>Operating pressure: 0 till 10bar (without shockwaves)</li> <li>Operating temperature: 5 till +30<math>^{\circ}</math>C</li> </ul> <p>During normal operation, the glass membrane and diaphragm liquid junction ring of a high pH holder pressure pH electrode must be kept submerged in water in a (by-pass) line, using a tee-piece with <math>\frac{3}{4}</math>" connection (3770856, 751288 or 751285) and holder with screw coupling (3770858). Prevent growth of algae or biofilm in the water, it will clog and block the glass membrane and diaphragm liquid junction ring.</p> <p>The BNC connector with coaxial cable of a pH electrode for high pressure application may be connected with:</p> <ul style="list-style-type: none"> <li>One of the two BNC connectors of EC/pH-module 9523 of Connex/Compact CC computer.</li> <li>One of the two BNC connectors of the pH interface board 9969 in a dosing unit or the pH interface of the Compass, Maximizer or C-line computer.</li> <li>Smart pH interface board 2203 of the Compri HX system.</li> </ul> <p>The pH electrode can also be used on the pH meter in the case to replace the electrode supplied in the case.</p> <p>It is not allowed to elongate the coaxial cable of the pH electrode.</p> <p>To ensure accurate measurement it is recommended to have this high pressure pH electrode calibrated every two weeks, using a pH calibration set (3779053) with ampoules buffer solution pH4 (3470071) and pH7 (3470073) and a stainless steel calibration holder (3779051) for two pH electrodes.</p> <p>Warranty time for this product is 3 months</p>	

Part number	Description	Price (EUR)
3770858 	Holder with screw coupling and 3/4" threaded male connection, used to insert a high pressure pH electrode (3779046) in a PVC (by-pass) line. The 3/4" threaded connection of the holder fits in a tee-piece with 3/4" connection (3770856, 751288 or 751285).	
3770856 	PVC tee-piece Ø 25mm x 3/4" x Ø 25mm, to fit a holder with screw coupling (3770858) in a Ø 25mm PVC (by-pass) line	
751288 	PVC tee-piece Ø 32mm x 3/4" x Ø 32mm, to fit a holder with screw coupling (3770858) in a Ø 32mm PVC (by-pass) line	
751285 	PVC tee-piece Ø 40mm x 3/4" x Ø 40mm, to fit a holder with screw coupling (3770858) in a Ø 40mm PVC (by-pass) line	
3779053 	pH calibration set <ul style="list-style-type: none"> <li>• Two boxes with six glass ampoules with buffer solution pH4 (3470071) in the one and pH7 (3470073) in the other</li> <li>• One calibration holder (3779051) for calibrating two pH electrodes (3779046)</li> </ul>	
3779051 	Calibration holder (stainless steel) for calibrating two pH electrodes (3779046)	
3470071 	Glass ampoule with buffer solution pH4; used for calibration of a pH electrode. <ul style="list-style-type: none"> <li>• Minimum order quantity 6 pieces, price per piece</li> </ul>	
3470073 	Glass ampoule with buffer solution pH7; used for calibration of a pH electrode. <ul style="list-style-type: none"> <li>• Minimum order quantity 6 pieces, price per piece</li> </ul>	



## pH interface for Compass, Maximizer and C-Line

Part number	Description	Price (EUR)
3771056	 <p>Aluminum housing with pH interface board 9969 for Compass, Maximizer and C-Line computer. Suitable for connecting two pH electrodes with BNC connectors. One pH interface board 9969 converts the signals of two pH electrodes into two analog output signals. This aluminum housing with interface consists of:</p> <ul style="list-style-type: none"> <li>Aluminum die-cast housing with two BNC connectors for pH electrodes and cable gland for external cables</li> <li>One pH interface board 9969 with: <ul style="list-style-type: none"> <li>Transformer 24VAC/24VAC-3.0VA to supply amplifiers and isolation circuits</li> <li>Amplifier circuits and isolation circuits for two pH electrodes</li> <li>Two isolated analog output circuits with linear 100 - 4,500mVDC signal conversion of acidity between pH2 and pH10</li> </ul> </li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>Dimensions aluminum housing: H x L x W = 85mm x 120mm x 120mm (without glands)</li> <li>Operating temperature: 0 till +35°C</li> </ul> <p>The BNC connector inputs of a pH interface board 9969 must be connected with two pH electrodes (3779046).  One shielded cable 4 x 0.34mm<sup>2</sup> is required for connecting two analog outputs of a pH interface board 9969 with the analog inputs of a Compass, Maximizer or C-Line computer.  One supply cable 2 x 0.5mm<sup>2</sup> is required for connecting the 24VAC power supply circuit of the Compass, Maximizer or C-Line computer with pH interface board 9969.</p>	

## Portable EC and pH analyzing equipment

Part number	Description	Price (EUR)
3779196	 <p>Portable EC and pH meters for checking the EC and pH in irrigation water, drain water and water from substrate, consisting of:</p> <ul style="list-style-type: none"> <li>Plastic case</li> <li>Low pressure pH electrode and pH measuring instrument with sensor holder, display, pH7 (= neutral) and pH4 (= acid) adjustable</li> <li>EC measuring cell and EC measuring instrument with display to measure the water temperature and conductivity in mS/cm</li> <li>Bottle of additive solution for the storage of pH electrode 3 molar KCl</li> <li>Plastic bottle with buffer solution pH7 for pH electrode</li> <li>Plastic bottle with buffer solution pH4 for pH electrode</li> <li>Empty bottle for sampling</li> <li>Visual instruction and manual in German, English</li> <li>Test report pH and EC measuring instrument</li> </ul>	

## Level sensors for water tanks and silos

Part number	Description	Price (EUR)
3651068 	<p>Level sensor 5WC-9M for measurement of 0 - 5 meter water level in tanks and silos, using a hydrostatic pressure sensor which is not affected by atmospheric pressure, consisting of:</p> <ul style="list-style-type: none"> <li>Stainless steel body with front membrane and pressure transducer</li> <li>Shielded PE connection cable 2-core, length 9 meter, with integrated aspiration tube</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>Water column range: 0 - 5 meter</li> <li>Analog output signal: 4-20mA, linear, non-isolated</li> <li>Accuracy: 0.2% of full scale</li> <li>Supply voltage: 24VDC-20mA</li> <li>Operating pressure: 0.0 till 6.0bar</li> <li>Operating temperature: 0 till +50°C</li> <li>Suited for solutions &lt;1weight% HNO<sub>3</sub></li> </ul> <p>The PE connection cable with integrated aspiration tube of this level sensor must be guided with a wide radius and must be connected in an aspirated junction box. The level sensor must be supplied via a galvanic isolated power supply unit 24VDC. One cable, shielded, twisted pair 2 x 0.34mm<sup>2</sup> is required for connecting with the isolated 24VDC supply voltage and analog input on the I/O-modules in Connex and Intégro computers.</p> <p>Pay attention to the position of the level sensor in the tank or silo, so the sensor membrane is not affected by pressure differences caused by filling lines and/or suction lines.</p>	
3651067 	<p>Level sensor 1WC-4M for measurement of 0 - 1 meter water level in tanks, using a hydrostatic pressure sensor which is not affected by atmospheric pressure, consisting of:</p> <ul style="list-style-type: none"> <li>Stainless steel body with front membrane and pressure transducer</li> <li>Shielded PE connection cable 2-core, length 4 meter, with integrated aspiration tube</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>Water column range: 0 - 1 meter</li> <li>Analog output signal: 4-20mA, linear, non-isolated</li> <li>Accuracy: 0.2% of full scale</li> <li>Supply voltage: 24VDC-20mA</li> <li>Operating pressure: 0.0 till 6.0bar</li> <li>Operating temperature: 0 till +50°C</li> <li>Suited for solutions &lt;1weight% HNO<sub>3</sub></li> </ul> <p>The PE connection cable with integrated aspiration tube of this level sensor must be guided with a wide radius and must be connected in an aspirated junction box. The level sensor must be supplied via a galvanic isolated power supply unit 24VDC. One cable, shielded, twisted pair 2 x 0.34mm<sup>2</sup> is required for connecting with the isolated 24VDC supply voltage and analog input on the I/O-modules in Connex and Intégro computers. Pay attention to the position of the level sensor in the tank, so the sensor membrane is not affected by pressure differences caused by filling lines and/or suction lines.</p>	

## Flow measurement

The flow sensors are applied in irrigation systems and drain water systems for high accuracy flow measurements in PVC lines between 0.2m/sec and 2.0m/sec.





The flow sensor must be installed in a pipe with specific inner and outer diameters and with respect to specific pipe distances before and behind this sensor (upstream and downstream) and related to the internal diameter of the pipe/tube. This is specified in the product documentation.

Paddlewheel flow sensors are inserted in different types of tee-pieces, saddle fittings and clamp-on saddles:

- PVC tee-pieces with union fittings, suited for metric glue connections Ø 20mm – Ø 63mm.
- PP clamp-on saddles, suited for metric pipe dimensions Ø 125 and Ø 140mm.
- PVC clamp-on saddles, suited for metric pipe dimensions Ø 75mm – Ø 110mm, Ø 160mm and Ø 225mm.
- PVC clamp-on saddles, suited for imperial pipe dimensions Ø 2.5" – Ø 6.0".





For each tee-piece, saddle and internal pipe/tube diameter it is possible to calculate a typical K-factor in pulses/liter. The typical K-factor depends on the internal pipe diameter in combination with the type of paddlewheel sensor and internal pipe diameter. The SDR (= Standard Dimension Ratio) for pvc pipes depends on the pressure classification (specified in PN/bar). The SDR calculation formula is:  $SDR = \frac{\text{Outer pipe diameter}}{\text{wall thickness of pipe}}$  (specified in mm). In this pricelist we have indicated the estimated K-factors and SDR for the tee-pieces and saddle fittings based on pvc pipes with pressure class PN16 or PN10, often used for irrigation main lines in greenhouses.

We recommend that you use the GF-calculator program to calculate the most accurate K-factor: <http://www.gf.com>. In the Priva computer, the water flow generated by the paddlewheel flow sensor in a specific tee-piece or saddle must be entered in liters/pulse.

Part number	Description	Price (EUR)
750470 	<p>Paddlewheel flow sensor with <b>short</b> shaft for accurate measurement of water flow, using a magnetic rotor and hall sensor with open collector detection system, consisting of:</p> <ul style="list-style-type: none"> <li>• Short shaft P0 with FPM seal, blue threaded cap NPS 1.25", magnetic rotor and hall sensor</li> <li>• Connection cable, 2-core twisted pair, shielded, length 7.6m</li> <li>• Multi-language instruction manual</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Material Body/Rotor/Pin: Polypropylene/Black PVDF/Titanium</li> <li>• Supply voltage: 5VDC-3.5mA</li> <li>• Operating pressure: 0 till 8bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul> <p>One cable, shielded, twisted pair 2 x 0.34mm<sup>2</sup> is required for connecting with the high speed digital input and 5VDC supply voltage of the I/O-modules in Connex, Intégro and ISA computers or the high speed digital input board 8664 of the Compri HX4 computer.</p> <p>The paddlewheel flow sensor has a short shaft and fits in the short holder which is supplied with the tee-pieces and clamp-on saddles ranging from Ø 20mm up to Ø 110mm and Ø 2.5" up to Ø 4.0".</p>	
750471 	<p>PVC tee-piece for metric PVC pipe Ø 20mm/DN15-PN16, with short shaft and metric union fittings for glue connection, suited to insert paddlewheel flow sensor with short shaft (750470)</p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Flow range: 0.1634 – 1.634m<sup>3</sup>/h</li> <li>• K-factor: 256.9pulses/liter (= 0.003893liter/pulse) at inner diameter of Ø 17mm</li> <li>• Standard Dimensioning Ratio: 13.3</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
750472	<p>PVC tee-piece for metric PVC pipe Ø 25mm/DN20-PN16, with short shaft and metric union fittings for glue connection, suited to insert paddlewheel flow sensor with short shaft (750470)</p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Flow range: 0.2542 – 2.542m<sup>3</sup>/h</li> <li>• K-factor: 128.32pulses/liter (= 0.007793liter/pulse) at inner diameter of Ø 21.2mm</li> <li>• Standard Dimensioning Ratio: 13.2 at inner diameter of Ø 21.2mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
750473 	<p>PVC tee-piece for metric PVC pipe Ø 32mm/DN25-PN16, with short shaft and metric union fittings for glue connection, suited to insert paddlewheel flow sensor with short shaft (750470)</p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Flow range: 0.4184 – 4.184m<sup>3</sup>/h</li> <li>• K-factor: 78.54pulses/liter (= 0.012732liter/pulse) at inner diameter of Ø 27.2mm</li> <li>• Standard Dimensioning Ratio: 13.3 at inner diameter of Ø 27.2mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
750474 	<p>PVC tee-piece for metric PVC pipe Ø 40mm/DN32-PN16, with short shaft and metric union fittings for glue connection, suited to insert paddlewheel flow sensor with short shaft (750470)</p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Flow range: 0.6537 – 6.537m<sup>3</sup>/h</li> <li>• K-factor: 44.98pulses/liter (= 0.022232liter/pulse) at inner diameter of Ø 34.0mm</li> <li>• Standard Dimensioning Ratio: 13.3 at inner diameter of Ø 34.0mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	



Part number	Description	Price (EUR)
750475 	PVC tee-piece for metric PVC pipe Ø 50mm/DN40-PN16, with short shaft and metric union fittings for glue connection, suited to insert paddlewheel flow sensor with short shaft (750470) Specifications: <ul style="list-style-type: none"> <li>• Flow range: 1.0262 – 10.262m<sup>3</sup>/h</li> <li>• K-factor: 27.4pulses/liter (= 0.036496liter/pulse) at inner diameter of Ø 42.6mm</li> <li>• Standard Dimensioning Ratio: 13.5 at inner diameter of Ø 42.6mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
750476 	PVC tee-piece for metric PVC pipe Ø 63mm/DN50-PN16, with short shaft and metric union fittings for glue connection, suited to insert paddlewheel flow sensor with short shaft (750470) Specifications: <ul style="list-style-type: none"> <li>• Flow range: 1.6246 – 16.246m<sup>3</sup>/h</li> <li>• K-factor: 15.72pulses/liter (= 0.063613liter/pulse) at inner diameter of Ø 53.6mm</li> <li>• Standard Dimensioning Ratio: 13.4 at inner diameter of Ø 53.6mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
750477 	PVC clamp-on saddle for metric PVC pipe Ø 75mm/DN65-PN16, with short shaft suited to insert paddlewheel flow sensor with short shaft (750470) Specifications: <ul style="list-style-type: none"> <li>• Flow range: 2.3018 – 23.018m<sup>3</sup>/h</li> <li>• K-factor: 10,154pulses/liter (= 0.098483liter/pulse) at inner diameter of Ø 63.8mm</li> <li>• Standard Dimensioning Ratio: 13.4 at inner diameter of Ø 63.8mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
750478 	PVC clamp-on saddle for metric PVC pipe Ø 90mm/DN80-PN16, with short shaft suited to insert paddlewheel flow sensor with short shaft (750470) Specifications: <ul style="list-style-type: none"> <li>• Flow range: 3.3180 – 33.180m<sup>3</sup>/h</li> <li>• K-factor: 7,8330pulses/liter (= 0.127665liter/pulse) at inner diameter of Ø 76.6mm</li> <li>• Standard Dimensioning Ratio: 13.4</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
750782	PVC clamp-on saddle with short shaft for connection on imperial PVC pipe NPS 3.0"-DN80-SCH40 (with an outer pipe diameter Ø 3.5"/Ø 88.90mm), suited to insert paddlewheel flow sensor with short shaft (750470) Specifications: <ul style="list-style-type: none"> <li>• Flow range: 3.434 – 34.341m<sup>3</sup>/h</li> <li>• K-factor: 6.26pulses/liter (= 0.159742liter/pulse) at inner diameter of Ø 77.9mm</li> <li>• Standard Dimensioning Ratio: 16.2 at inner diameter of Ø 77.9mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
750479 	PVC clamp-on saddle for metric PVC pipe Ø 110mm/DN100-PN16, with short shaft suited to insert paddlewheel flow sensor with short shaft (750470) Specifications: <ul style="list-style-type: none"> <li>• Flow range: 4.9542 – 49.542m<sup>3</sup>/h</li> <li>• K-factor: 5.45pulses/liter (= 0.183352liter/pulse) at inner diameter of Ø 93.6mm</li> <li>• Standard Dimensioning Ratio: 13.4 at inner diameter of Ø 93.6mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
750783	Pvc clamp-on saddle with short shaft for connection on imperial pvc pipe NPS 4.0"-DN100-SCH40 (with an outer pipe diameter Ø 4.5"/Ø 114.30mm), suited to insert paddlewheel flow sensor with short shaft (750470) Specifications: <ul style="list-style-type: none"> <li>• Flow range: 5.913 – 59.134m<sup>3</sup>/h</li> <li>• K-factor: 3.55pulses/liter (= 0.281278liter/pulse) at inner diameter of Ø 102.3mm</li> <li>• Standard Dimensioning Ratio: 19.0 at inner diameter of Ø 102.3mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	

Part number	Description	Price (EUR)
<p>750465</p> 	<p>Paddlewheel flow sensor with <b>long</b> shaft for accurate measurement of water flow, using a magnetic rotor and hall sensor with open collector detection system, consisting of:</p> <ul style="list-style-type: none"> <li>• Long shaft P1 with FPM seal, blue threaded cap NPS 1.25", magnetic rotor and hall sensor</li> <li>• Connection cable, 2-core twisted pair, shielded, length 7.6meter</li> <li>• Multi-language instruction manual</li> </ul> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Material Body/Rotor/Pin: Polypropylene/Black PVDF/Titanium</li> <li>• Supply voltage: 5VDC-3.5mA</li> <li>• Operating pressure: 0 till 8bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul> <p>One cable, shielded, twisted pair 2 x 0.34mm<sup>2</sup> is required for connecting with the high speed digital input and 5VDC supply voltage of the I/O-modules in Connex/Intégro/ISA-computers.</p> <p>The paddlewheel flow sensor GF2536-P1 has a long shaft and fits in the long holder which is supplied with the clamp-on saddles Ø 125mm, Ø 140mm, Ø 160mm, Ø 225mm and Ø 6.0".</p>	
<p>750482</p> 	<p>PP clamp-on saddle PP-H-312 for metric PVC pipe Ø 125mm/DN100-PN16, with long shaft and metric union fittings for glue connection, suited to insert paddlewheel flow sensor with long shaft (750465)</p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Flow range: 6.426-64.259m<sup>3</sup>/h</li> <li>• K-factor: 4.8pulses/liter (= 0.208333liter/pulse) at inner diameter of Ø 106,6mm</li> <li>• Standard Dimensioning Ratio: 26.0 at inner diameter of Ø 106,6mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
<p>750483</p> 	<p>PP clamp-on saddle PP-H-312 for metric PVC pipe Ø 140mm/DN125-PN16, with long shaft suited to insert paddlewheel flow sensor with long shaft (750465)</p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Flow range: 8,129-81,294m<sup>3</sup>/h</li> <li>• K-factor: 3.8pulses/liter (= 0.263158liter/pulse) at inner diameter of Ø 119,4mm</li> <li>• Standard Dimensioning Ratio: 13,6 at inner diameter of Ø 119,4mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
<p>750466</p> 	<p>PVC clamp-on saddle for metric PVC pipe Ø 160mm/DN150-PN16, with long shaft suited to insert paddlewheel flow sensor with long shaft (750465)</p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Flow range: 10,52 – 105.209m<sup>3</sup>/h</li> <li>• K-factor: 2.6pulses/liter (= 0.384615liter/pulse) at inner diameter of Ø 136.4mm</li> <li>• Standard Dimensioning Ratio: 13.6 at inner diameter of Ø 136.4mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
<p>750784</p>	<p>PVC clamp-on saddle with long shaft for connection on imperial PVC pipe NPS 6.0"-DN150-SCH40 (with an outer pipe diameter Ø 6.625"/Ø 168.28mm), suited to insert paddlewheel flow sensor with long shaft (750465)</p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Flow range: 13.4208 – 134.208m<sup>3</sup>/h</li> <li>• K-factor: 1.97pulses/liter (= 0.507408liter/pulse) at inner diameter of Ø 154.1mm</li> <li>• Standard Dimensioning Ratio: 23.7 at inner diameter of Ø 154.1mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	
<p>750467</p>	<p>PVC clamp-on saddle for metric PVC pipe Ø 225mm/DN200-PN10, with long shaft suited to insert paddlewheel flow sensor with long shaft (750465)</p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Flow range: 23.395-233,95m<sup>3</sup>/h</li> <li>• K-factor: 1.14pulses/liter (= 0.876424liter/pulse) at inner diameter of Ø 203.4mm</li> <li>• Standard Dimensioning Ratio: 20.8 at inner diameter of Ø 203.4mm</li> <li>• Operating pressure: 0 till 10bar</li> <li>• Operating temperature: 0 till +40°C</li> </ul>	

## Wireless sensors





Wireless sensors transmit the information using high-frequency radio signals. The frequency used depends on the location on earth. In Europe, base stations and sensors operating at a frequency of 868MHz. Outside Europe the frequency of 915MHz is used. For this reason, the base stations and sensor modules are divided into two categories:

- Wireless sensors 868MHz / Europe
- Wireless sensors 915MHz North, middle and South America

Other parts of the world uses other frequencies

In addition, there are frequency independent articles



### Parts for use in both frequencies





Part number	Description	Price (EUR)
3779401 	Solar Panel + converter + battery for SD-12 sensor module	
3779402 	Solar Panel + converter + Battery for Range extender	
3779405 	Replacement antenna for sensor module	
3779406 	Battery 3,6V Lithium 2600mAh	

### Wireless sensors and base station 868MHz for Europe

The wireless sensors transmit information using high-frequency radio signals in a licencefree ISM band. The used frequency depends on the geographical location of the installation. In **Europe** base stations and sensors operate on a frequency of 868MHz.




In other parts of the world other frequencies are used depending on local legislation.




Part number	Description	Price (EUR)
3779411 	Basestation (868MHz) with ethernet output module MODBUS/TCP	
3779421 	Range Extender (868MHz) with solar charger connection, always in combination with part number 3779402 solar panel + converter + Battery	

Part number	Description	Price (EUR)
3779403 	External Antenna(868MHz) with 3m cable for base station. Use this antenna always if the base station is inside a shed or container. Put the antenna outside for maximum range of radio signal.	
3779414 	Sensor module (868MHz) with SDI-12 interface (rugged) to connect SD-12 sensors. Maximum 10 data channels available. Example a GS 3 sensor has 3 data channels (moisture level, temperature and EC), than a maximum of 3 GS 3 sensors can be connected.	
3779426	Sensor module (868MHz) for scale (rugged) to connect maximum two Groscals, either 50kgs or 100kgs scales  PLEASE NOTE: This new product is only compatible with basestations running software version R3E or newer (purchased after June 2020). Please check the current software version in the configuration tab of the SensorGraph software or using the serial number on the device (the serial number starts with AE, the following number should be higher than 20340001)	
3779418 	Sensor module (868MHz) for puls counter (rugged) to connect puls counter like drain sensor system	
3779420 	Sensor Module (868MHz) Range Detector to detect radio signal strength in the field.	










## Wireless sensors 915MHz for America and Australia


Wireless sensors transmit information using high-frequency radio signals. Which frequency is used depends on the location on earth. In **America** and **Australia** base stations and sensors operating on a frequency of 915MHz are used. All part numbers in this chapter operate with frequency 915MHz

Part number	Description	Price (EUR)
3779431 	Basis station (915MHz) met ethernet output module MODBUS/TCP	
3779441 	Range Extender (915MHz) with solar charger connection, always in combination with part number 3779402 solar panel + converter + Battery	
3779404 	External Antenna (915MHz) with 3m cable for base station. Use this antenna always if the base station is inside a shed or container. Put the antenna outside for maximum range of radio signal.	










Part number	Description	Price (EUR)
3779434 	Sensormodule (915MHz) with SDI-12 interface (rugged) to connect SD-12 sensors. Maximum 10 data channels available. Example a GS 3 sensor has 3 data channels (moisture level, temperature and EC), than a maximum of 3 GS 3 sensors can be connected.	
3779446	Sensor module (915MHz) for scale (rugged) to connect maximum two Groscales, either 50kgs or 100kgs scales  PLEASE NOTE: This new product is only compatible with basestations running software version R3E or newer (purchased after June 2020). Please check the current software version in the configuration tab of the SensorGraph software or using the serial number on the device (the serial number starts with AE, the following number should be higher than 20340001)	
3779438 	Sensor module (915MHz) for puls counter (rugged) to connect puls counter like drain sensor system	
3779440 	Sensor Module (915Mhz) Range Detector to detect radio signal strength in the field.	












## Parts for sensors




Part number	Description	Price (EUR)
3659072	Capacitive RH sensor element HX922-H-01 with amplifier circuit and connector for replacement in outside humidity sensor (3779219)	
3770870	PUR-connecting cable 5 x 0.75mm <sup>2</sup> , length 10 meter, with noise suppression ferrite and 9-pin connector for connecting of external cabling with the base module of measuring box E 	
3779307	Cable winder (reel) for rolling up the PUR-connection cable of the measuring box E, so the suspension height of the measuring box E can be adjusted during the growing season 	
3779338	Maintenance set for measuring box E, including: <ul style="list-style-type: none"> <li>• Sensor element E T+RH with temperature sensor, capacitive humidity sensor and connector with additional filter against pollution for the capacitive element (harsh environment)</li> <li>• Dust filter with holder for air inlet on bottom side</li> </ul> <p>To ensure accurate temperature and humidity measurements of measuring box E, it is advisable to replace the sensor element E T+RH with dust filter and holder every year at the beginning of the growing season.</p>	
3779310	Module Base+fan for measuring box E for connection with converter board for E-measuring box. Not suited for connecting with BACnet MS/TP 	
3779315	Module Base+fan for measuring box E suited for connecting with BACnet MS/TP. Not suited for connecting with converter board for E-measuring box. 	
3779311	Module T+RH for measuring box E (without sensor) 	
3779328	Dust filter with holder for air inlet on bottom side of measuring box E, used to prevent pollution of the sensors and thus realizing a prolongation of the service life cycle of the sensors. It is advisable to replace the dust filter with holder in measuring box E at least every year at the beginning of the growing season or more frequently depending on the degree of pollution. 	
3659074	Connection cable outside humidity sensor HX9x2, length 5 meter, as long as stock lasts 	
3659075	Connection cable outside humidity sensor HX9x2, length 10 meter 	
3779333	CO <sub>2</sub> sensor GMP252 with dual beam infra red absorption system for connection with CO <sub>2</sub> module of measuring box E delivered after June 1st 2018 (recognizable by green connection cable), without: CO <sub>2</sub> sensor cable and protection cover To ensure accurate CO <sub>2</sub> measurement of measuring box E, it is advisable to have the CO <sub>2</sub> sensor checked every six months by the Priva dealer, using a reference CO <sub>2</sub> sensor unit and cylinders with calibration gas 0ppm and 2,500ppm. 	

Part number	Description	Price (EUR)
3779336 	CO <sub>2</sub> sensor GMP222 with dual beam infra red absorption system for connection with CO <sub>2</sub> module of measuring box E delivered before June 1st 2018 (recognizable by orange connection cable), without: CO <sub>2</sub> sensor cable and protection cover To ensure accurate CO <sub>2</sub> measurement of measuring box E, it is advisable to have the CO <sub>2</sub> sensor checked every six months by the Priva dealer, using a reference CO <sub>2</sub> sensor unit and cylinders with calibration gas 0ppm and 2,500ppm.	
3779337	Calibration tool CO <sub>2</sub> module GM70 (Vaisala) for CO <sub>2</sub> sensor GMP222 and new CO <sub>2</sub> sensor GMP252	
3656317 	Vaisala GMH70 CO2 adapter voor MI70	
3656319 	Vaisala Field check Cable for GMP252	
3656318 	Vaisala Field Check Adapter 26150GM	
3656320 	Vaisala Field Check Adapter for GMP252	
3770882 	Temperature sensor in glass tube Ø6mm x 60mm, with NTC/thermistor 3kΩ/25°C, used in measuring boxes type T+RH (3779023), T (3779027), DP+W and S	
3770808 	Set Power Interface 24VAC/24VDC, used in measuring box T+RH (3779024) including screws	
3770807 	Set Power Interface 24VAC/24VDC, used in measuring box T (3779027) including screws	
3659031	Fan motor 24VDC-60mA with humiseal, used in measuring boxes type T+RH (3779024) and T (3779027)	
3476142 	Water tank for measuring box T+RH	
3802733 	Cable grobber for wet bulb measurement in measuring box T+RH	
3770807 	Set Power Interface 24VAC/24VDC, used in measuring box T (3779027) including screws	



Part number	Description	Price (EUR)
3660250 	Air particle filter capsule with integral seal for Guardian Plus and Guardian NG CO <sub>2</sub> monitor (3795042)	
3660252 	Pump CO <sub>2</sub> -monitor 0-3000ppm Guardian NG	
3660251 	Pump CO <sub>2</sub> -monitor 0-3000ppm Guardian Plus	
3659002 	Water trap with mounting bracket and two adapter nipples Ø4mm for connecting with air sampling tube Ø4mm x Ø6mm (3561017 and 3561018), is used to prevent that condensed water enters into inlet port of Guardian Plus CO <sub>2</sub> monitor. Water trap must be emptied frequently, interval depends on specific situation.	
3659010 	Crossland dust filter with two nipples Ø6mm, suited as particle filter at air sampling point in greenhouse (connected with Guardian Plus CO <sub>2</sub> monitor), suited to connect blue air sampling tube Ø8mm x Ø6mm (3795162)	
751664 	Push-in tee-piece Ø6mm x Ø6mm x Ø6mm for overpressure connection between outlet of Wisa air sampling pump (3659151) and inlet port of Guardian Plus CO <sub>2</sub> monitor	
3779233 	UTA interface for PAR sensor Li190SZ (3779237 and 3779232), in aluminum housing with cable glands, amplifier circuit with DIP-switches set at <b>0.4V/µA</b> . This amplifier is only suited for measurement <b>inside</b> Specifications: <ul style="list-style-type: none"> <li>• Supply voltage: 24VDC-1mA (use a galvanic isolated power supply unit)</li> <li>• Analog output signal: 0-5VDC, linear, non-isolated</li> <li>• Operating temperature range: -30 till +65°C</li> </ul>	
3779236	UTA interface for PAR sensor Li190SZ (3779235 and 3779239), in aluminum housing with cable glands, amplifier circuit with DIP-switches set at <b>0.28V/µA</b> . Because of a smaller amplification factor this amplifier is better suited for measurement <b>inside and outside</b> Specifications: <ul style="list-style-type: none"> <li>• Supply voltage: 24VDC-1mA (use a galvanic isolated power supply unit)</li> <li>• Analog output signal: 0-5VDC, linear, non-isolated</li> <li>• Operating temperature range: -30 till +65°C</li> </ul>	
3770885 	Potentiometer 1kΩ with gearwheel and screw connection terminals for external cabling, suited for vent position indicator 60° (3779032)	
3770886 	Potentiometer 1kΩ with gearwheel and screw connection terminals for external cabling, for vent position indicator 90° (3779033)	

Part number	Description	Price (EUR)
3779034 	Short stainless steel rod, length 20cm, with nylon wheel to track the opening/position of the motorized roof vent system. The short rod optimizes accuracy of the position measurement at small roof vent openings between 0 and 20%. Suitable for vent position indicators 60° (3779032) and 90° (3779033).	
3779035 	Long stainless steel rod, length 40cm, with nylon wheel to track the opening/position of the motorized roof vent system. Suitable for vent position indicators 60° (3779032) and 90° (3779033).	
3779037 	Nylon wheel for mounting on top of the short and/or long rods of the vent position indicators. Suitable for short stainless steel rod (3779034) and long stainless steel rod (3779035) of vent position indicators 60° (3779032) and 90° (3779033).	
3779014 	Insert with NTC/thermistor 3kΩ/25°C, used as replacement sensor in the protection tube 65mm of a warm water temperature sensor (3779013)	
3779227 	Encapsulated drain EC-sensor in pvc construction for Drain Sensor System DSS (379225), consisting of: <ul style="list-style-type: none"> <li>• Siphoning tube and outlet cap with Ø1.5mm hole</li> <li>• Thermistor 3kΩ/25°C for EC/pH module in Connext/Intégro</li> <li>• Connection cable for EC-sensor and thermistor, length 25cm</li> </ul>	
3779226 	Encapsulated drain EC-sensor in pvc construction for Drain Sensor System DSS (3779224), consisting of: <ul style="list-style-type: none"> <li>• Siphoning tube and outlet cap with Ø1.5mm hole</li> <li>• NTC 1kΩ/25°C for EC interface 9943 in Compass, Maximizer and C-line</li> <li>• Connection cable for EC-sensor and NTC, length 25cm</li> </ul>	
3476082 	Screen filter 15,5*60mm for drain sensor system DSS	
3770899 	Drain volume detector for Drain Sensor System DSS (379222 and 3779220), consisting of tipping spoon with magnet, reed relay and mounting bracket	
3476070 	Temperature sensor for replacement on in-line EC sensor (3779054) including thermistor 3kΩ/25°C for Connext/Intégro and Compri HX	
3476071 	Temperature sensor for replacement on EC sensor (3779044) including thermistor 3kΩ/25°C for Connext/Intégro and Compri HX	
3476073 	Temperature sensor for replacement on in-line EC sensor (3779052) including NTC 1kΩ/25°C for Compass, Maximizer and C-Line	

Part number	Description	Price (EUR)
3476074 	Temperature sensor for replacement on EC sensor (3779041) including NTC1k $\Omega$ /25°C for Compass, Maximizer and C-Line	
E490626	In-line EC sensor (3779054) with set of conversion parts. Used to install instead of an existing angled EC sensor (3779044). This set consists of: <ul style="list-style-type: none"> <li>• In-line EC sensor (3779054) with thermistor 3k<math>\Omega</math>/25°C for Connex/Intégro</li> <li>• Two pvc elbows <math>\varnothing</math>25mm x <math>\frac{3}{4}</math>" inner thread</li> <li>• Two pvc fittings <math>\varnothing</math>25mm x <math>\frac{3}{4}</math>" inner thread</li> <li>• Teflon tape and pvc pipe materials</li> </ul>	
751100 	Seal/O-ring for bayonet coupling Geka 120AC of pH-holder (part number 3770857 and older pH-holders). <ul style="list-style-type: none"> <li>• Minimum order quantity 10 pieces, price per piece</li> </ul>	
750458 	FPM/Viton o-ring for shaft paddlewheel flow sensor GF2536-P0 (750470) and GF2536-P1 (750465)	





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