

Plantarray - Intelligent screening system



Technical Data

Plantarray is a high-throughput, physiological-based, precise phenotyping system that performs simultaneous SPAC (Soil-Plant-Atmosphere-Continuum) measurements for the whole-plant response to different environments, in an easy to use, non-destructive and non-invasive setup.

The 3rd party products integrated in the Plantarray solution were chosen very carefully and tested for many years under almost every condition, to make sure they meet Plant-DiTech's uncompromising approach to accurate and reliable measurement.

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Each PIU (Electric Card) has 3 digital (SDI-12) ports, 1 Analog port and 1 port for the weighing lysimeter ; all sensors are measured simultaneously and continuously

	Measurement	Device	Measurement Range	# per plant	# in System	Communication protocol	Technical information
Soil Sensors	Soil Moisture Sensors (Volumetric Water Content – VWC %)	Decagon GS3	0 - 100%	Up to 3	No limitation	DIGITAL SDI-12	GS3 Manual
		Decagon 5TM	0 - 100%	Up to 3	No limitation	DIGITAL SDI-12	5TM Manual
		Decagon 5TE	0 - 100%	Up to 3	No limitation	DIGITAL SDI-12	5TE Manual
		Decagon GS1	0 - 57%	Up to 1	No limitation	ANALOG	GS1 Manual
		Decagon 10HS	0 - 57%	Up to 1	No limitation	ANALOG	10HS Manual
	Soil Salinity (Electrical conductivity -dS/m)	Decagon GS3	0 - 25	Up to 3	No limitation	DIGITAL SDI-12	GS3 Manual
		Decagon 5TE	0 - 23	Up to 3	No limitation	DIGITAL SDI-12	5TE Manual
	Soil Temperature	Decagon GS3	-40°C - 60°C (-40°F - 140°F)	Up to 3	No limitation	DIGITAL SDI-12	GS3 Manual
		Decagon 5TM	-40°C - 60°C (-40°F - 140°F)	Up to 3	No limitation	DIGITAL SDI-12	5TM Manual
Decagon 5TE		-40°C - 60°C (-40°F - 140°F)	Up to 3	No limitation	DIGITAL SDI-12	5TE Manual	
Plant	Load cell	Anyload 108TA	0 - 10kg (22lbs)	Up to 1	No limitation	ANALOG	Anyload_108TA
		Anyload 108TA	0 - 50kg (110lbs)	Up to 1	No limitation	ANALOG	Anyload_108TA
	Pot Size	Small SPAC container	12 - 16cm (4.7 - 6.3in) Ø	1	No limitation	-	Fit most commercial pots
		Large SPAC container	27 - 31cm (10.6 - 12.2in) Ø	1	No limitation	-	Fit most commercial pots



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	Measurement	Device	Measurement Range	# per plant	# in System	Communication protocol	Technical information
Atmosphere	Atmospheric Temperature	WatchDog 2000 Mini-Stations	-32°C - 100°C (-25.6 – 212°F)	Non	One	USB	WatchDog 2000 Manual
	Ambient Light (PAR) $\mu\text{mol}/\text{m}^2/\text{s}$	WatchDog 2000 Mini-Stations	0 - 2,500	Non	One	USB	WatchDog 2000 Manual
	Atmospheric Humidity	WatchDog 2000 Mini-Stations	10% - 100%	Non	One	USB	WatchDog 2000 Manual
	Atmospheric Temperature	Decagon VP-4	-40°C - 80°C (-40 - 176°F)	Up to 3	No limitation	DIGITAL SDI-12	VP-4 Manual
	Vapour Pressure	Decagon VP-4	0.01 kPa	Up to 3	No limitation	DIGITAL SDI-12	VP-4 Manual
	Atmospheric Humidity	Decagon VP-4	0 - 100% RH	Up to 3	No limitation	DIGITAL SDI-12	VP-4 Manual
	Barometric Pressure	Decagon VP-4	49 - 109 kPa	Up to 3	No limitation	DIGITAL SDI-12	VP-4 Manual
Irrigation and treatment	Solenoid Valves	Baccara G75-A	-	Up to 2	No limitation	ANALOG	www.baccara-geva.com
	Metering Pump (used for adding solutions for treatments e.g. fertilizers, salts, bio stimulants etc.)	Dosatron	5 - 500 l/h (1 - 132 gph)	Up to 2	No limitation	-	www.dosatron.com
		Tefen MixRite 3.5	50 – 3500 l/h (13 - 924 gph)	Up to 2	No limitation	-	Tefen MixRite 3.5