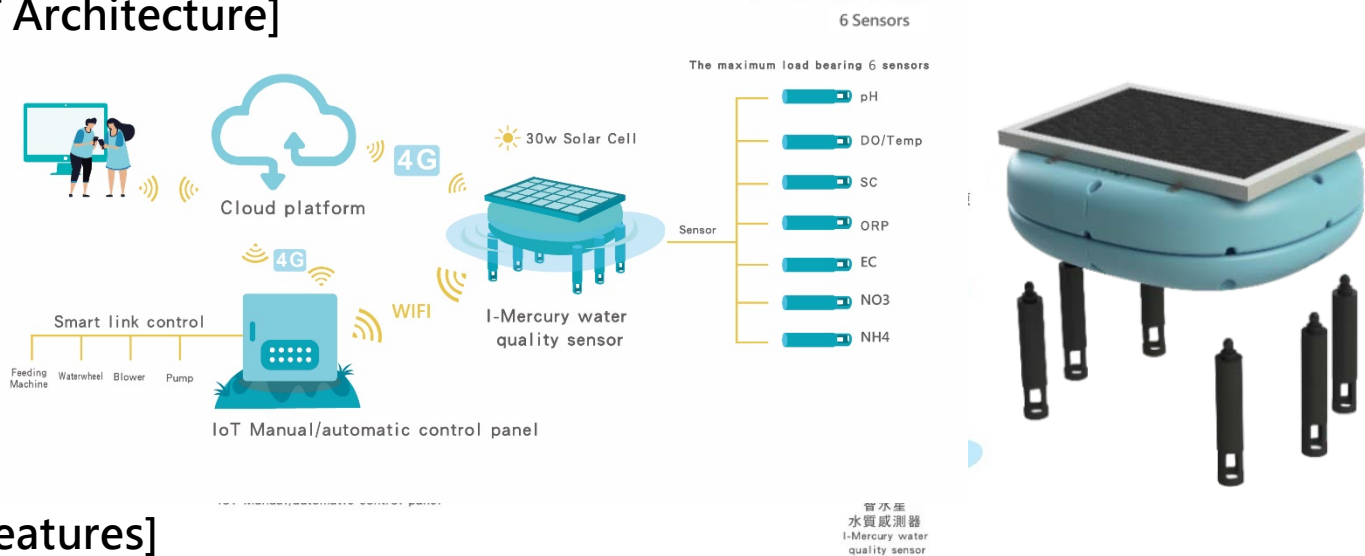


[IoT Architecture]

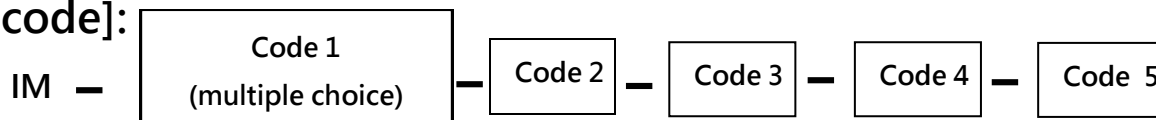


[Features]

- Save energy power efficiency 100%. Green energy supply 365 days without shutdown.
- Automatic cleaning to save manpower. Lower the cost of 80%.
- Line notification which reduce risk and loss.
- Quick installation and upgrade which increase industrial profits.
- Intelligent control waterwheel/feeding machine /water treatment, etc.

[Applications]: Aquaculture, rivers, reservoirs, lakes, oceans, sewage, reclaimed Water.

[Optional code]:



Code 1	Auto-cleaning sensors (multiple choice)	Code 2	Communication	Code 3	Wireless	Code 4	Power	Code 5	Output voltage
pH	pH/Temp	N	None	N	None	N	None	12	12V (≤3 pcs sensors)
DO	DO/Temp								
ORP	ORP/Temp								
SC	SC/Temp	4GO	4G + external antenna	N	None	30W	30W solar panel and 50Ah lithium battery	12	12V (≤3 pcs sensors)
NH4	NH4/Temp Apply to freshwater								
NO3	NO3/Temp Apply to freshwater	NB	NB-IOT	W	wifi	12V	Waterproof power supply 110/220 VAC to 12VDC	VC12	12V+ power board (≤6 pcs sensors)
SS	SS/TB (Turbidity)								
EC(L)	EC(0~20mS/cm)Temp								
EC(H)	EC(0~200mS/cm)Temp								

1.IM Host

[Features]

- Provide Web service.
- Sleeping mode and setting scheduling.
- The solar power voltage/solar power current/solar charging current/battery power can be read out.
- It can be intelligently judged whether it is necessary to clean the solar panel.

[Specifications]

IM Host		
Power	Adapter	◆Input:AC 100-240V ◆Output:DC 12V maximum 2A current
	Equipment	◆ DC12 ~ 36V ◆Power consumption:5.4W(3 pcs sensors)
Environment	Operating temp	-20~70°C / 0 ~ 95%RH non-condensing (WiFi 0~70°C)
	Storage temp	-30~70°C
Communication	Ethernet interface	RJ-45 Ethernet with Web Service, Modbus TCP
	Communication interface	A set of RS-485
	Communications Protocol	Modbus RTU
	Wireless communication	4G
Physical conditions	Dimension(mm)	252 x 175 x 60 (W× H× D)
	Weight	<0.7kg
Housing	Material	PC + Anti-UV
Ingress Protection Rating	IP68	
Certificate	CE ,FCC	
Patent	R.O.C Patent NO.M429156 & NO.M474956 & NO.M594326 China Patent NO. 2514208 & NO.3968342	

2.Sensor

pH Specification		Temperature Specification	
Measuring range	0~14.00pH Slope reading 70~130% Zero potential -50~50mv	Temperature principle	NTC30K
		Measuring range	-10~120° C(ATC)
		Accuracy	±0.2°C
Accuracy	±0.1 pH	Resolution	0.1°C
Resolution	0.01 pH	Reproducibility	0.1°C
Electrode withstand voltage	Max. 50 Psig	Other Specification	
Operating temperature	0~60°C	Link above	3/4" NPT
		Link below	M42
Response time	T90 1 second	Housing Material	PP, acid and alkali resistance/food grade/ zero dissolution
		Electrode material	glass
Communication	RS-485Modbus RTU Web Browser direct reading	Dimension	ø45*L214mm
		Weight	≤340g
		Power	12 VDC
Certificate	CE,FCC	Power consumption	1.6w
		Line length	2m
		Ingress Protection Rating	IP68

DO Specification		Temperature Specification	
Measuring range	0~20mg/L 0~200% Slope 70~130%	Temperature principle	NTC30K
		Measuring range	-10~120°C(ATC)
		Accuracy	±0.2°C
Accuracy	±0.2mg/L(0~8mg/L)	Resolution	0.1°C
	±0.3mg/L(8~20mg/L)	Reproducibility	0.1°C
Resolution	0.01mg/L	Other Specification	
Reproducibility	±0.5% F.S	Link above	3/4" NPT
Electrode withstand voltage	Max. 100 Psig	Link below	M42
Operating temperature	0~50°C	Housing Material	PP, acid and alkali resistance/food grade/ zero dissolution
Water velocity	Maximum 3M/S	Electrode material	silver / zinc electrode
Response time	T90 120 seconds	Dimension	ø45*L214mm
Communication	RS-485Modbus RTU Web Browser direct reading	Weight	≤350g
		Power	12 VDC
		Power consumption	1.6w
Certificate	CE,FCC	Line length	2m
		Ingress Protection Rating	IP68

ORP Specification		Other Specification	
Measuring range	-2000~2000mv Slope reading 70~130% Zero potential -50~50mv	Link above	3/4" NPT
		Link below	M42
		Housing Material	PP, acid and alkali Resistance /food grade/zero dissolution
Accuracy	±5mv	Electrode material	glass
Resolution	0.1mv	Dimension	ø45*L214mm
Electrode withstand voltage	Max. 50 Psig	Weight	≤340g
Operating temp.	0~60°C	Power	12 VDC
		Power consumption	1.6w
Response time	T90 3 seconds	Line length	2m
Communication	RS-485Modbus RTU Web Browser direct reading	Ingress Protection Rating	IP68
Certificate	CE,FCC		

SC Specification		Temperature Specification	
Measuring range	0~100ppt, PSU,g/k Slope reading70~130%	Temperature principle	NTC30K
		Measuring range	-10~120°C(ATC)
		Accuracy	±0.2°C
Accuracy	±2% reading	Resolution	0.1°C
Resolution	0.1 ppt	Reproducibility	0.1°C
Electrode withstand voltage	Max. 100 Psig	Other Specification	
Operating temp	0~60°C	Link above	3/4" NPT
		Link below	M42
Response time	T90 1 second	Housing Material	PP, acid and alkali resistance/food grade/ zero dissolution
		Electrode material	Graphite
Communication	RS-485Modbus RTU Web Browser direct reading	Dimension	ø45*L214mm
		Weight	≤340g
		Power	12 VDC
		Power consumption	1.6w
Certificate	CE,FCC	Line length	2m
		Ingress Protection	IP68

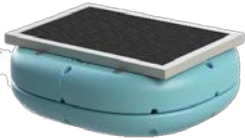
EC Specification		TDS	Temperature Specification	
Measuring range	L : 0~20mS / cm	L : 12800mg/L H : 128000mg/L	Temperature principle	NTC30K
	H : 0~200mS / cm		Measuring range	-10~120°C(ATC)
	Slope reading 70~130%		Accuracy	±0.2°C
Accuracy	±1% F. S	±1% F. S	Resolution	0.1°C
Resolution	0.01 ms Repeatability ±1% of reading	±0.1 mg/L	Reproducibility	0.1°C
Electrode withstand voltage	Max. 100 Psig		Other Specification	
Operating temp	0~70°C		Link above	3/4" NPT
			Link below	M42
Response time	T90 1 second		Housing Material	PP, acid and alkali resistance/food grade/ zero dissolution
			Electrode material	Graphite
Communication	RS-485Modbus RTU Web Browser direct reading (192.168.1.80)		Dimension	ø45*L214mm
			Weight	≤340g
			Power	Automatic cleaning:12 or 24VDC(optional) No automatic cleaning:9 ~ 36VDC
Certificate	CE,FCC		Power consumption	Automatic cleaning:1.6W No automatic cleaning:0.8W
			Ingress Protection	IP68

NO3 Specification		Temperature Specification		
Measuring range	0 ~ 1000 mg/L (ppm)	Temperature principle	NTC30K	
	Slope reading 70~130%	Measuring range	-10~120°C(ATC)	
	Zero point potential -50~50mv	Accuracy	±0.2°C	
Accuracy	±5%reading ±0.5mg/L	Resolution	0.1°C	
Resolution	0.01 mg/L	Reproducibility	0.1°C	
Reproducibility	±3%reading ±0.5 mg/L	Other Specification		
Electrode withstand voltage	Max. 50 Psig	Link above	3/4" NPT	
Operating temp	0~40°C	Link below	M42	
Operating pH	pH4~11	Housing Material	PP, acid and alkali resistance/food grade/ zero dissolution	
Response time	T90 ≤120 seconds	Dimension	ø45*L214mm	
Communication	RS-485Modbus RTU Web Browser direct reading (192.168.1.80)		Weight	≤340g
			Power	Automatic cleaning:12 or 24 VDC(optional) No automatic cleaning:9 ~ 36VDC
Certificate	CE,FCC		Power consumption	No automatic cleaning:0.8w Automatic cleaning:1.6w
			Ingress Protection	IP68

NH4 Specification		Temperature Specification	
Measuring range	0 ~ 1000mg/L(ppm)	Temperature principle	NTC30K
	Slope reading 70~130%	Measuring range	-10~120°C(ATC)
	Zero point potential -50~50mv	Accuracy	±0.2°C
Accuracy	±5% reading±0.5mg/L	Resolution	0.1°C
Resolution	0.01 mg/L	Reproducibility	0.1°C
Reproducibility	±3% reading±0.5 mg/L	Other Specification	
Electrode withstand voltage	Max. 50 Psig	Link above	3/4" NPT
Operating temp	0~40°C	Link below	M42
Response time	T90 ≤ 120 seconds	Housing Material	PP, acid and alkali resistance/food grade/ zero dissolution
		Dimension	ø45*L214mm
Communication	RS-485Modbus RTU Web Browser direct reading (192.168.1.80)	Weight	≤340g
		Power	Automatic cleaning:12 or 24 VDC(optional) No automatic cleaning:9 ~ 36VDC
Certificate	CE,FCC	Power consumption	Automatic cleaning:1.6w No automatic cleaning:0.8w
		Ingress Protection	IP68

3.Power Supply

[Single crystal Solar panel]

	Solar panel specification			
	Model	S30	Open circuit voltage (Voc)	21.6 (V)
	Maximum power	30 (W)	short-circuit current (Isc)	2 (A)
	Maximum operating current (Imp)	1.84 (A)	Dimension (mm)	530 x 350 x 25
	Maximum operating voltage (Vmp)	17.5 (V)	Weight	2(kg)
	Certificate	CE		
	Lithium battery specification			
	Capacity	7.4 VDC 50Ah		
	Function	With over charge/over discharge /high temperature and other safety protection functions		

4. Kickboard

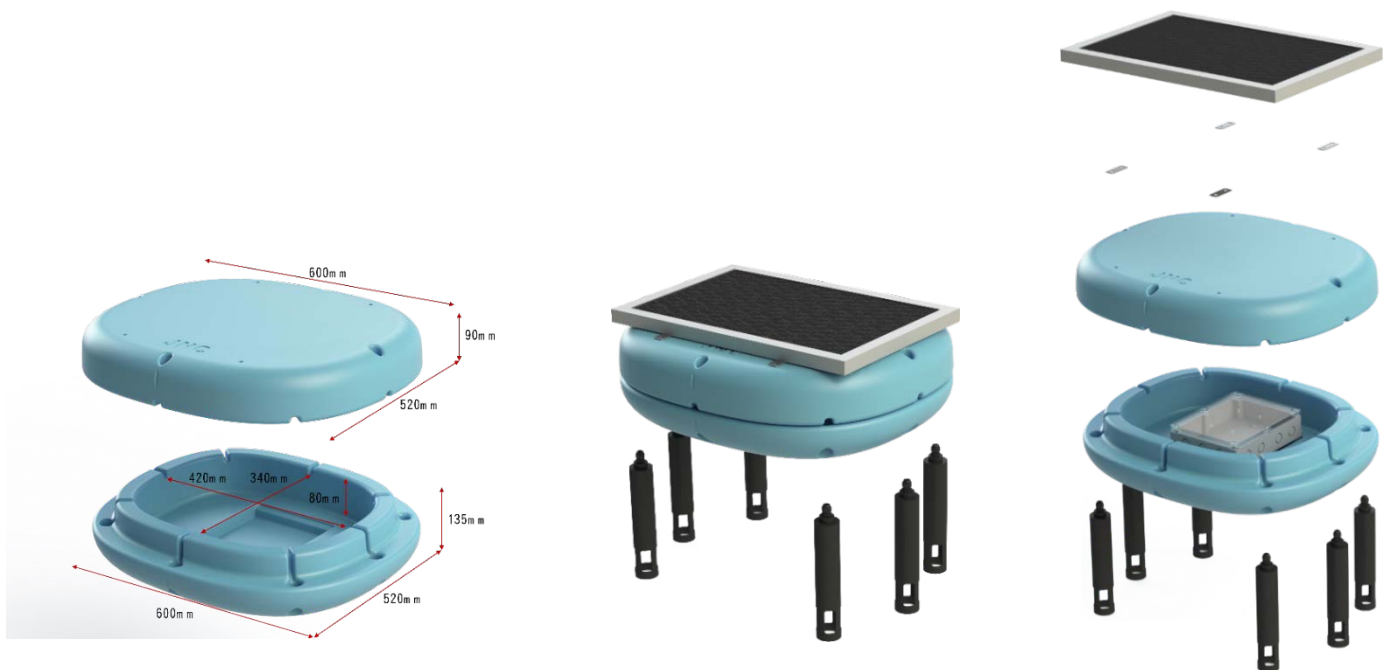
[Features]

- It can carry 6 pcs of sensors at the same time.
- The control box can place battery/air pump/IOT host, etc.
- It can carry 30W solar panel.
- With 4 sets of mooring rope fixing points.
- Mechanism design to prevent misalignment of marking electrodes.
- Protection wave overturning design.
- Hollow chamber design, the overturning still floats on the water surface.
- Weather resistance which can place at sea for a long time. Acid and alkali resistance/food grade / zero dissolution.
- The buoyancy exceeds 8kg.

[Specifications]

Kickboard dimension	600×520×182mm
Weight	5.3kg
Buoyancy	≥ 8kg
Material	PE, weather resistance , acid and alkali resistance/zero dissolution.

[IM schematic diagram]



Kickboard internal diagram

Kickboard equips with solar panels and sensors

Exploded views