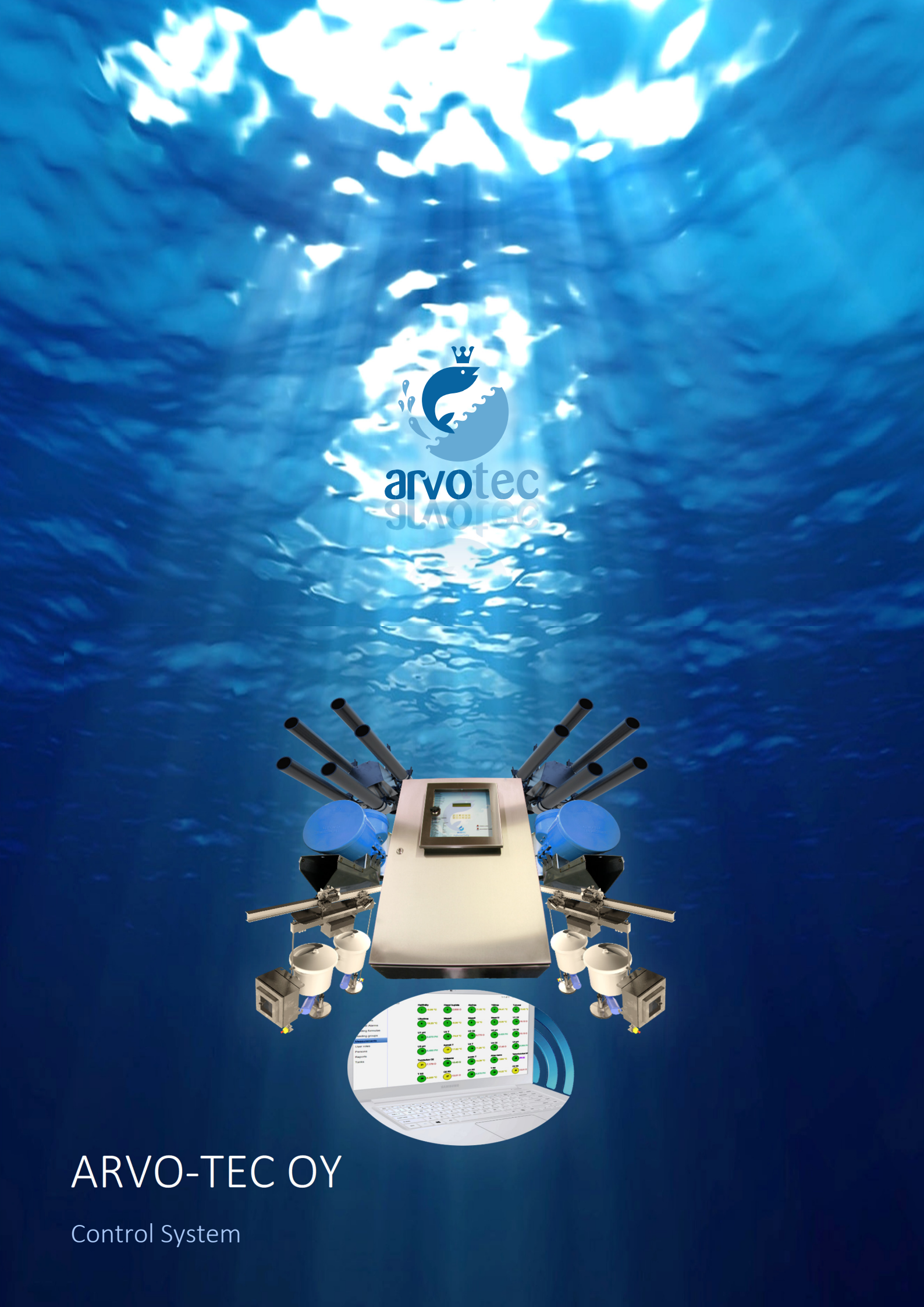


ARVO-TEC OY

Control System

ARVO-TEC FEEDING NETWORK

FEEDING PROCESS MANAGEMENT VIA WEB BASED INTERFACE

ALL INFORMATION IN ONE DATABASE

REMOTE ACCESS - ACCESS YOUR SYSTEMS ONLINE

DATALOGGING

ALARMS VIA GSM OPTIONAL

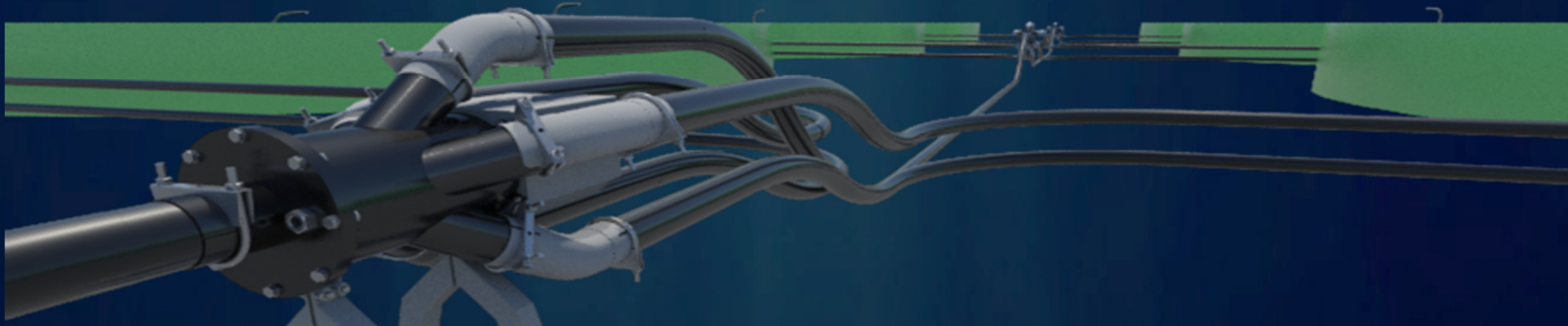
CONTROLLERS FOR MEASUREMENTS, LIGHT CONTROL AND ALARMS

LINK UP TO 30 CONTROL UNITS USING CABLE, RADIO OR LAN COMMUNICATION

INDIVIDUAL FEEDERS AND ROBOT FEEDING WORK SEPARATELY OR COMBINED TOGETHER

EACH CONTROLLER HAS 8 ANALOG AND 5 DIGITAL INPUTS FOR MEASUREMENTS AND DEVICES RESULTING IN MORE ACCURATE FEEDING AND IMPROVED WATER QUALITY

PIPEFEEDING AS PART OF THE NETWORK



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ARVOPRO WEB BASED FEEDING SOFTWARE & PC USER INTERFACE

Adding a PC connection with web based software to Arvo-Tec feeding system gives access to clear, easy to use graphic interface with optimized functions for managing your farm with ease.

Control PC works as a central user interface to the system enabling control of all WOLF-control units, probes, feeders and other connected equipment from one point.

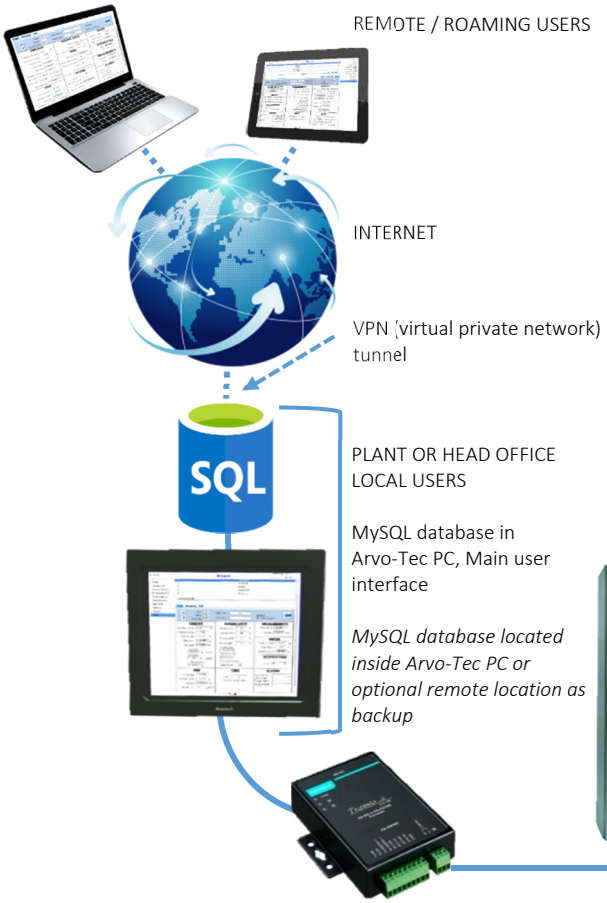
Quick overview of your measurements, alarms and detailed tank status.

Create day reports, feed reports and store all your data.

Export data to be used by 3rd party software e.g. Excel, Fishtalk.

System is accessible using a browser anywhere through VPN, enabling secure online water quality -and feeding monitoring.

PC connection enables on-line support from Arvo-Tec service team should the need arise.



Measurements View:
clear warning and alarm indicators

Feeding Perioids

Data logging, graph view

Tank View: advanced feeding controls

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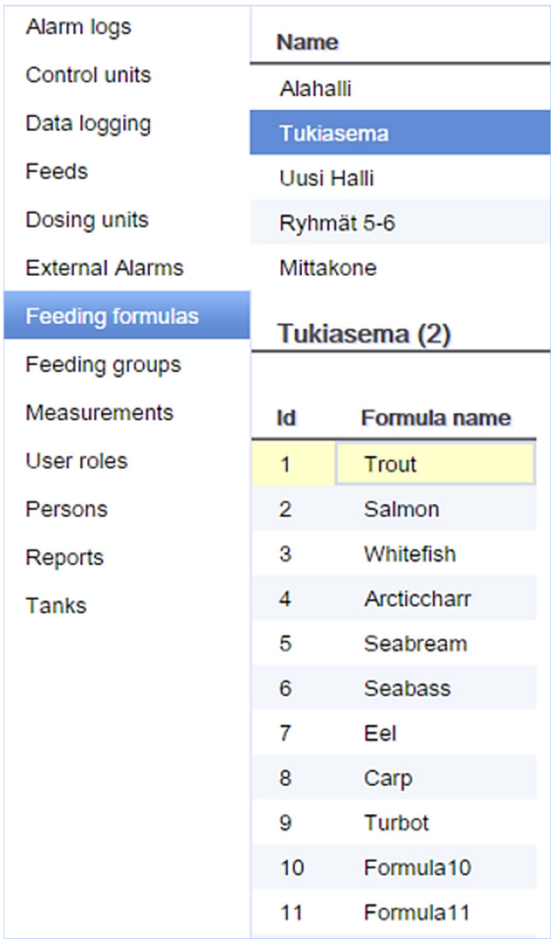
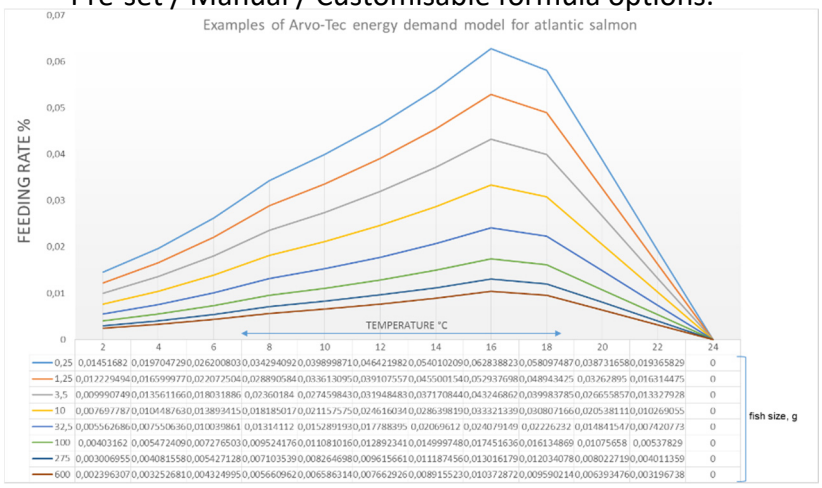


One of the several tools built in to ArvoPRO are the feeding formulas.

These formulas are unique to Arvo-Tec systems and are used globally in fisheries and hatcheries with Arvo-Tec equipment.

These formulas have been adjusted for each fish species listed, making use of an energy demand model that takes into account the water temperature and size of the fish.

Pre-set / Manual / Customisable formula options.

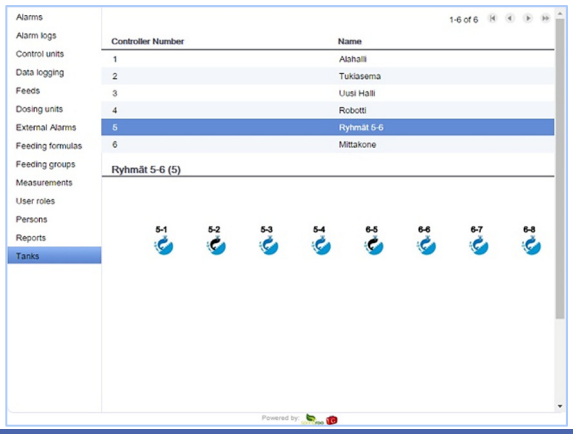


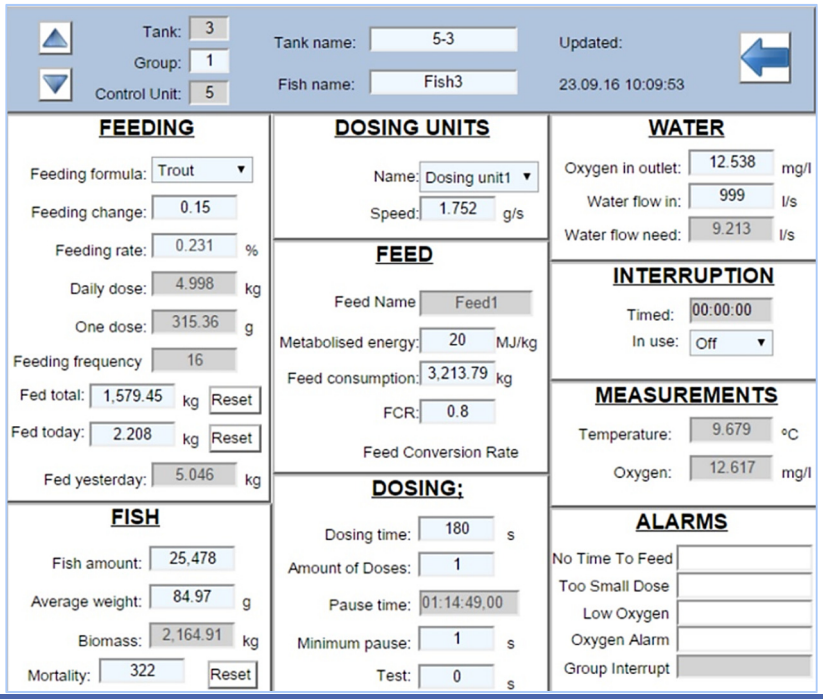
Once set up correctly ArvoPRO will log all your data, create reports, measure water quality, calculate fish growth, generate alarms and adjust feeding in real time to maximize fish growth with minimal labour.

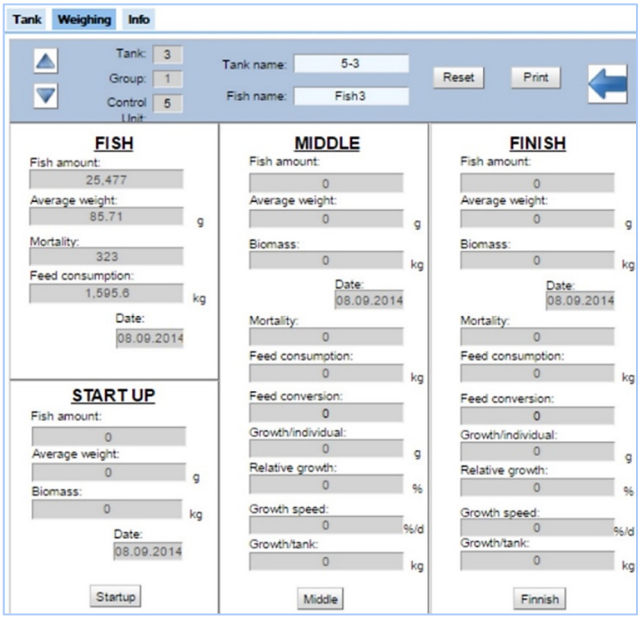
Individual tank controls

Quick access

Flexible control





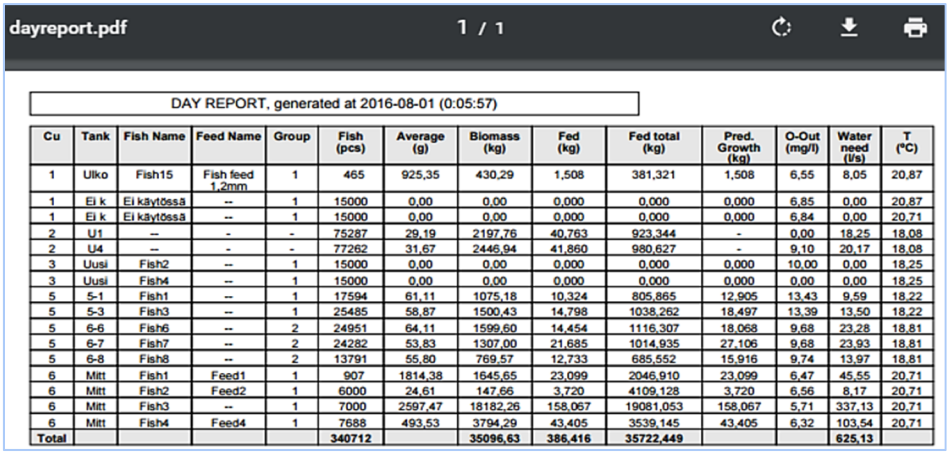


Arvo-PRO has several reporting tools for the day to day runnings of a commercial fishery.
Day reports with each tanks details are generated daily.
Separate feed reports showing today's feedings to help you manage feed stores.

Weighing report tool is an additional simple 3-stage tool for record keeping.

PDF or XLR format day- and feed reports.

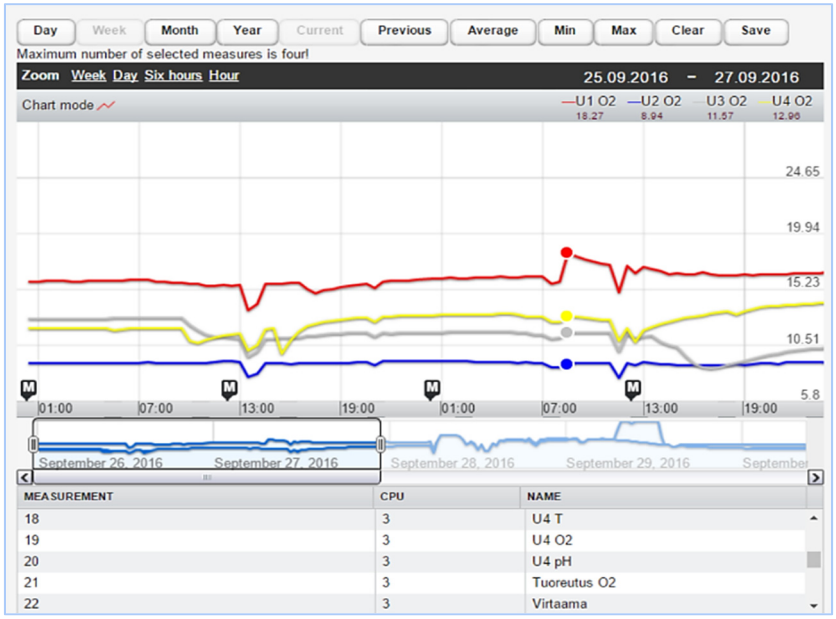
Export data to 3rd party software.



DAY REPORT, generated at 2016-08-01 (0:05:57)

Cu	Tank	Fish Name	Feed Name	Group	Fish (pcs)	Average (g)	Biomass (kg)	Fed (kg)	Fed total (kg)	Pred. Growth (kg)	O-Out (mg/l)	Water need (l/s)	T (°C)
1	Ulko	Fish15	Fish feed 1,2mm	1	465	925,35	430,29	1,508	381,321	1,508	6,55	8,05	20,87
1	Ei k	Ei käytössä	--	1	15000	0,00	0,00	0,000	0,000	0,000	6,85	0,00	20,87
1	Ei k	Ei käytössä	--	1	15000	0,00	0,00	0,000	0,000	0,000	6,84	0,00	20,71
2	U1	--	-	-	75287	29,19	2197,76	40,763	923,344	-	0,00	18,25	18,08
2	U4	--	-	-	77262	31,67	2446,94	41,860	980,627	-	9,10	20,17	18,08
3	Uusi	Fish2	--	1	15000	0,00	0,00	0,000	0,000	0,000	10,00	0,00	18,25
3	Uusi	Fish4	--	1	15000	0,00	0,00	0,000	0,000	0,000	0,00	0,00	18,25
5	5-1	Fish1	--	1	17594	61,11	1075,18	10,324	805,865	12,905	13,43	9,59	18,22
5	5-3	Fish3	--	1	25485	58,87	1500,43	14,798	1038,262	18,497	13,39	13,50	18,22
5	6-6	Fish6	--	2	24951	64,11	1599,60	14,454	1116,307	18,068	9,68	23,28	18,81
5	6-7	Fish7	--	2	24282	53,83	1307,00	21,685	1014,935	27,106	9,68	23,93	18,81
5	6-8	Fish8	--	2	13791	55,80	769,57	12,733	685,552	15,916	9,74	13,97	18,81
6	Mitt	Fish1	Feed1	1	907	1814,38	1645,65	23,099	2046,910	23,099	6,47	45,55	20,71
6	Mitt	Fish2	Feed2	1	6000	24,61	147,66	3,720	4109,128	3,720	6,56	8,17	20,71
6	Mitt	Fish3	--	1	7000	2597,47	18182,26	158,067	19081,053	158,067	5,71	337,13	20,71
6	Mitt	Fish4	Feed4	1	7688	493,53	3794,29	43,405	3539,145	43,405	6,32	103,54	20,71
Total					340712		35096,63	386,416	35722,449			625,13	

Use the datalogging tool to track, compare and study all collected data like: power consumption, water usage, water quality changes and more, to understand and improve your farms performance.

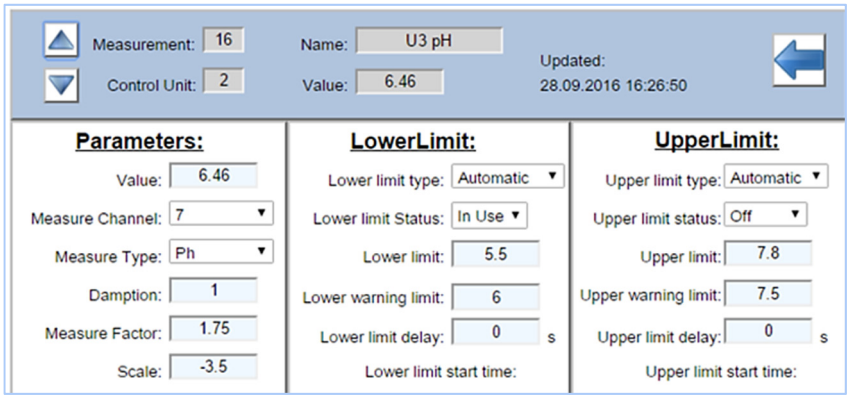


ARVOPRO – WEB BASED FEEDING SOFTWARE – MEASUREMENTS AND ALARMS

Manually enter water temperature and oxygen level to start feeding or connect the desired probes for more accurate water quality and feeding control.

Set measurement warning and alarm levels.

Clear OK-, Warning- and Alarm indicators.



Examples of supported measurements as connected probes:

Water Temperature, Co^2, pH, Oxygen, No^2, No^3, Suspended solids, Turbidity, Flow etc…

Support for selected optical sensors*

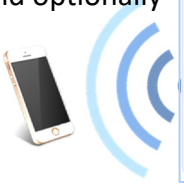
Define alarms from analog mA signal connected to the control unit.

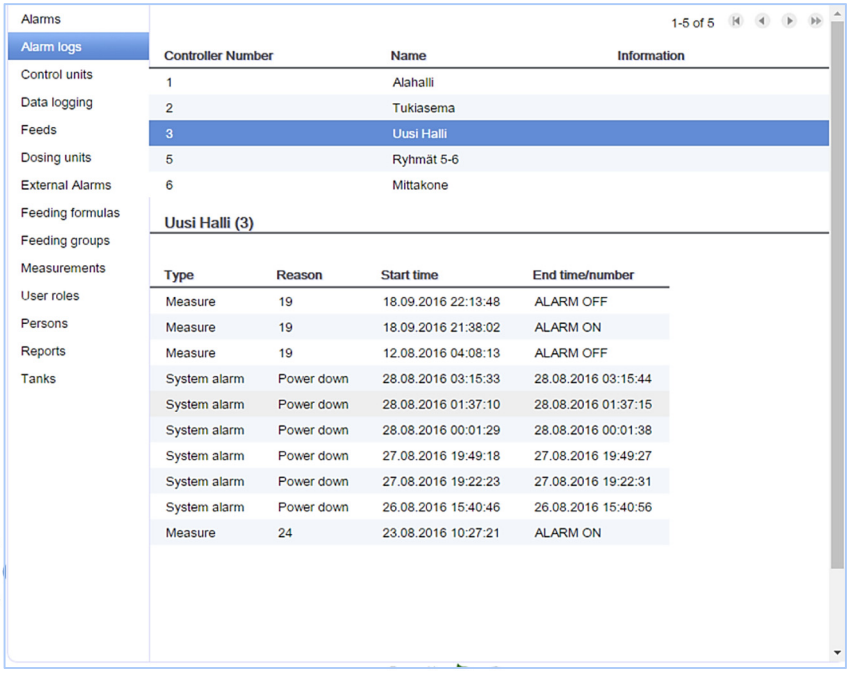
External alarms & on/off signal output.

Set individual alarm parameters for each control unit.

Multiple ways to set up alarms and alarm related behaviour for *groups and tanks.*

Keep a log of occurred alarms and optionally send out GSM alarms.





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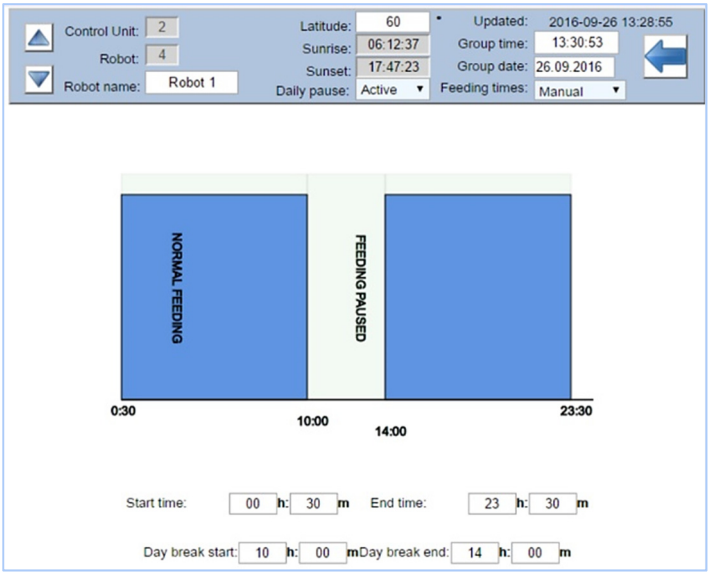
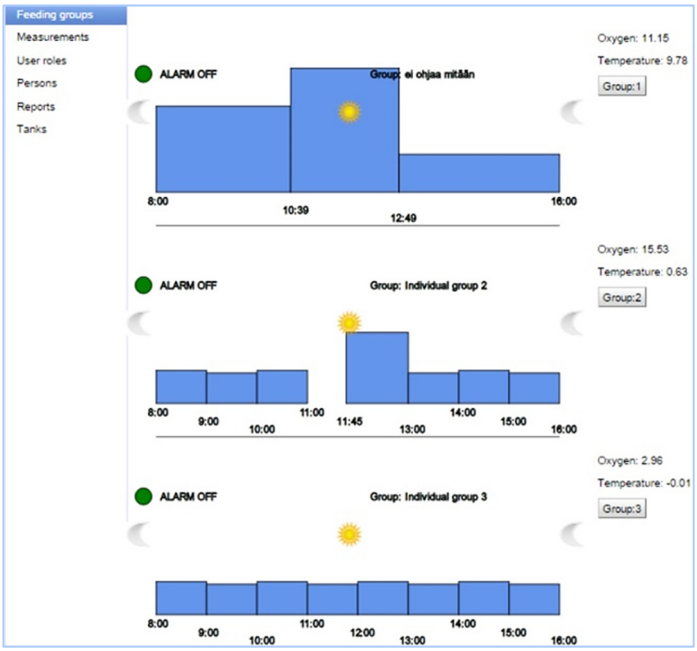


In addition to each tanks individual controls every control unit has 3 feeding groups.

Each feeding group has its own set of parameters and feeding times giving you control over several tanks at once.



Adjust feeding levels with click of a mouse

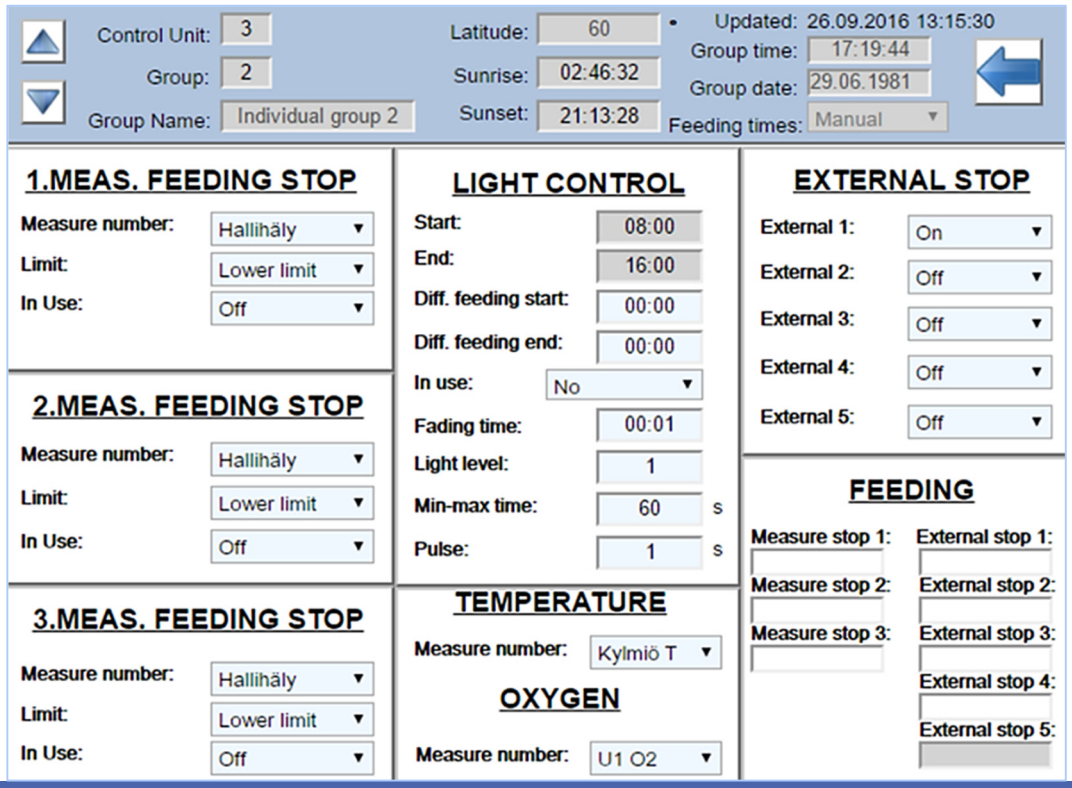
Set feeding periods

Add pause times

Automatic start-stop times

Option to simulate sunrise & sunset

Set alarms, Feeding stops, External alarms, Light control and Group measurements.



ARVO-TEC PROFESSIONAL FEEDING CONTROL SYSTEM

ARVO-TEC PROFESSIONAL CONTROLLER – WOLF

The Arvo-Tec control unit WOLF is a fully integrated feeding, measurement, photo period-light control and alarm system.

The system uses environmental parameters like water temperature, oxygen content and biomass as initial data and controls feeding according to mathematical energy demand model.

The system estimates fish growth based on the feed conversion factor. There are a number of fish species available as pre-programmed options and level of feeding can be adjusted as needed manually.
Pre-set feeding formulas for several fish species.

Control the day/night cycle of through photo period control.
Inbuilt generator controls & optional battery for barge based operation.
Menu driven display in control unit or an optional MS Windows based PC-connection with web-based software.

Arvo-Tec controller is cased in stainless steel cabinet for extreme conditions.

TECHNICAL SPECIFICATIONS

- 115 OR 240 VAC
- 8,16,24 OR 32 INDEPENDENT FEEDER CHANNELS PER CONTROL UNIT
- MAXIMUM 30 CONTROL UNITS IN ONE SYSTEM = 960 CHANNELS
- CABLE, RADIO, TCP/IP AND MOBILE COMMUNICATION OPTIONS
- 8 MEASUREMENT INPUTS PER CONTROL UNIT
- 5 DIGITAL SENSOR INPUTS (E.G. LEVEL SWITCH CIRCUITS)
- 2 ALARM/CONTROL OUTPUTS PER CONTROL UNITS
- OPTIONAL MS WINDOWS BASED PC-CONNECTION

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ARVO-TEC PROFESSIONAL CONTROLLER - WOLF

NAME		CODE	ADDITIONAL INFO
WOLF	8-Channel	3501	
WOLF	16-Channel	3502	
WOLF	24-Channel	3503	
WOLF	32-Channel	3504	

- Ready standalone versions for 8,16,24 or 32 feeders
- Link up to 30 controllers for a maximum of 960 feeders
- Wired or Radio communication options
- Standalone or with PC connection
  - Wired PC connection requires Converter and Surge Protection Board
- AISI 316 Stainless steel cabinet
- More channels can be added later by adding relay boards

Industrial multitouch panel PC with web based ArvoPRO software	3702	- Intel© Celeron? J1900 2.0GHz Panel PC - 12.1" LED 1024*768 with 5-wire resistive touch screen - RAM 4GB DDR3L SODIMM - SSD 120GB SATA - WLAN PCIe mini-card, - Intel Wireless-N 7260 Half min - WIN 10 PRO ENG 64-BIT

- Standard communication: twisted pair RS-485 cable up to 1 km
- Optional: Low power radio link for PC communication

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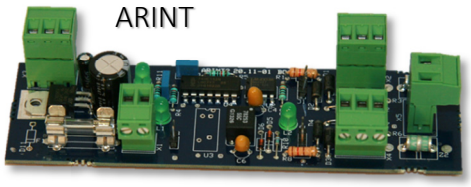
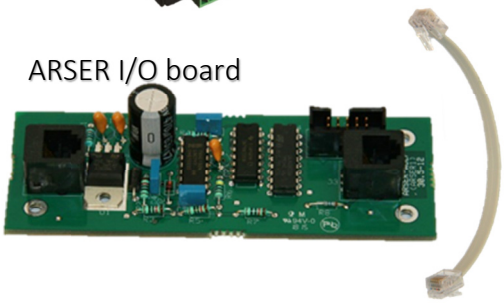
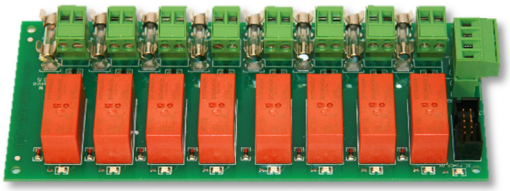
ARVO-TEC PROFESSIONAL CONTROLLER – WOLF

NAME	CODE	ADDITIONAL INFO
Overvoltage protection board ARINT 	3602	▪ Provides necessary overvoltage protection for communication between PC and controllers
Converter RS 485-232	3700	▪ Extend the distance between PC and control unit up to 10 km ▪ Add converter & ARINT-board for controller-PC communication
ARSER I/O board 	3603	▪ For expansion with relay board ▪ Includes necessary control cable
Relay board 8-channel 	3710	▪ Adds further 8 channels to your controller - up to 32 ▪ Add ARSER with each expansion relay board

ARVO-TEC PROFESSIONAL CONTROLLER - WOLF / ARVO-TEC PC CONNECTION		
Code	Description	Additional info.
3501	WOLF 8-channel	
3502	WOLF 16-channel	
3503	WOLF 24-channel	
3504	WOLF 32-channel	
3702	Arvo-Tec PC connection & software	Win 10 web based
3602	Overvoltage protection board ARINT	For communication
3700	Converter RS 485-232	For communication
3603	ARSER I/O board	Necessary with expansion relay board
3710	Relay board 8-channel	Add ARSER for expansion relay board
3701	Import-export extension for web based software	

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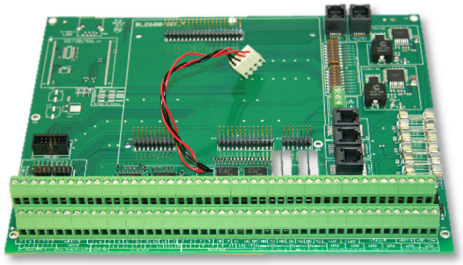
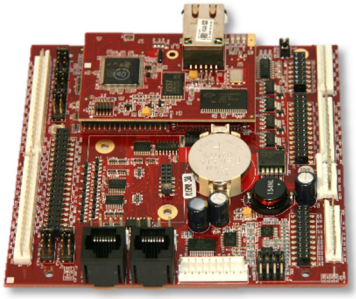
CONTROLLER-SPARES

ARIF-WOLF Motherboard
140014



CPU-WOLF
100030



Memory backup battery
CR2477N
3714

Power supply 24 VDC 2,5A

101001

Power supply 24 VDC 4,2A

101002

CONTROLLER SPARES		
Code	Description	Additional info.
140014	ARIF-WOLF Motherboard	Connection board
100030	CPU-WOLF	
3714	Memory backup battery	CR2477N
101001	Power Supply 24 VDC 2,5 A	Input AC 100-240v
101002	Power Supply 24 VDC 4,2 A	Input AC 100-240v

TIMER CONTROL

NAME	CODE	ADDITIONAL INFO
Timer Control - 3 Channel 24 VDC	3560	▪ Suitable for battery operated system ▪ Suitable for solar panel use ▪ Up to 3 feeders
Timer Control - 4 Channel	3561	▪ Simple PLC based timer control for up to 8 feeders ▪ Set feeding start & stop times ▪ Set the duration of pulse and pause time ▪ Can be used with pneumatic spreader ▪ 115 VAC version on request
Timer Control - 8 Channel	3562	

ARVO-TEC TIMER CONTROL		
Code	Description	Additional info.
3560	Timer control for 3 output – 24 VDC	Battery not included
3561	Timer control for 4 output	
3562	Timer control for 8 output	

ARVO-TEC PROFESSIONAL CONTROLLER - WOLF / ARVO-TEC PC CONNECTION		
Code	Description	Additional info.
3501	WOLF 8-channel	
3502	WOLF 16-channel	
3503	WOLF 24-channel	
3504	WOLF 32-channel	
3702	Arvo-Tec PC connection & software	ArvoPro, win 10, web based
3602	Overvoltage protection board ARINT	For communications
3703	Converter RS 485	
3603	ARSER I/O board	Necessary with expansion relay board
3710	Relay board 8-channel	Add ARSER for expansion relay board

Code	Description	Additional info.
140014	ARIF-WOLF Motherboard	Connection board
100030	CPU-WOLF	
3714	Memory backup battery	CR2477N
101001	Power Supply 24 VDC 2,5 A	Input AC 100-240v
101002	Power Supply 24 VDC 4,2 A	Input AC 100-240v
ARVO-TEC TIMER CONTROL		
Code	Description	Additional info.
3560	Timer control for 3 output – 24 VDC	Battery not included
3561	Timer control for 4 output	
3562	Timer control for 8 output	

NOTES