AXIMA
POWER

FLEXIS

MULTIFUNCTIONAL BATTERY CHARGER

Programmable, high-frequency modular traction batteries charger

MAIN FEATURES:

- OPPORTUNITY CHARGING
- TIME – SCHEDULED CHARGING
- AUTOMATIC BATTERY VOLTAGE AND CAPACITY RECOGNITION
- DEDICATED CHARGING CURVES FOR LITHIUM BATTERIES
- ESTIMATED TIME – TO – END – OF – CHARGING CYCLE

- LOW OPERATING COSTS
- MODULAR SYSTEM
- USER – FRIENDLY INTERFACE
- SETTINGS VIA OPERATING PANEL OR PC

- Efficiency up to 95%, power factor cos φ ~1
- Active PFC and soft-start
- Verification of connected battery
- Possibility to use one charger for more different batteries
- Possibility to set up preset and custom charging curves
- High resistance to mains disturbances
- Galvanic separated output mains
- Memory for 2.000 charging cycles
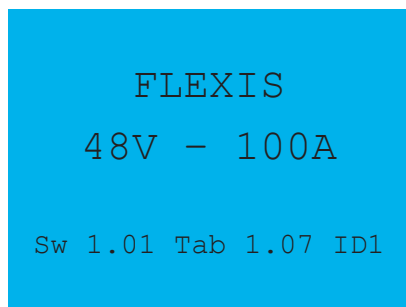- Regeneration charging - desulphation and equalization

FLEXIS is a fully programmable, high-frequency traction battery charger. FLEXIS optimizes charging technology prolongs the working life of the battery, accelerates charging and saves energy. FLEXIS charger meets the hard requirements of three-shift service in industrial areas.

SIGNALING DISPLAY

```
Voltage
Capacity
Curve
EUW
Ident. module

RETURN        SELECT
```
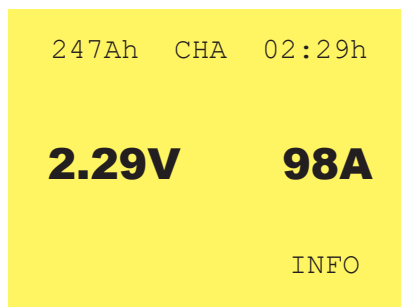
STOP
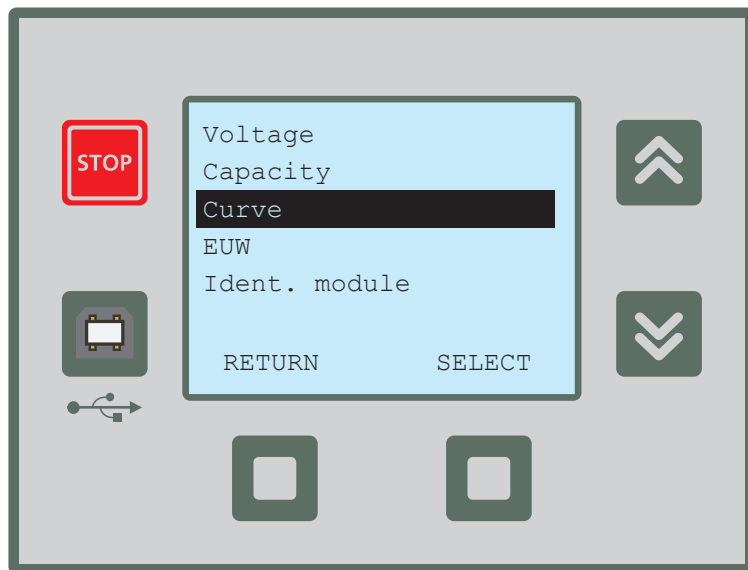
Operating panel allows to set parameters of charging – charging is adjusted to the values of battery.
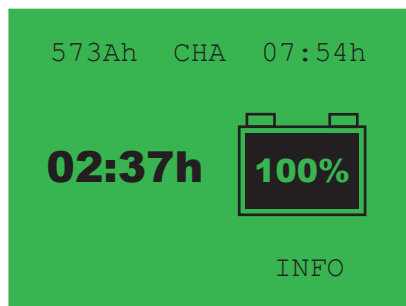
- Operating conditions are signalized by change of colour of the display important values are displayed
- Display is big and bright, all charging stages are visible from long distance and different angles
- Display shows estimated duration of the charging cycle

```
      FLEXIS
   48V – 100A

Sw 1.01 Tab 1.07 ID1
```
Standby mode

```
247Ah  CHA  02:29h

2.29V        98A

              INFO
```
Charging

```
573Ah  CHA  07:54h

02:37h   100%

              INFO
```
Charging finished

```
309Ah  CHA  03:11h

2.37V

E12          INFO
```
Error
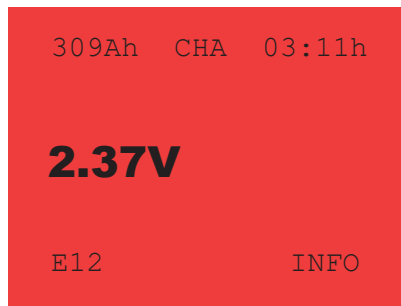
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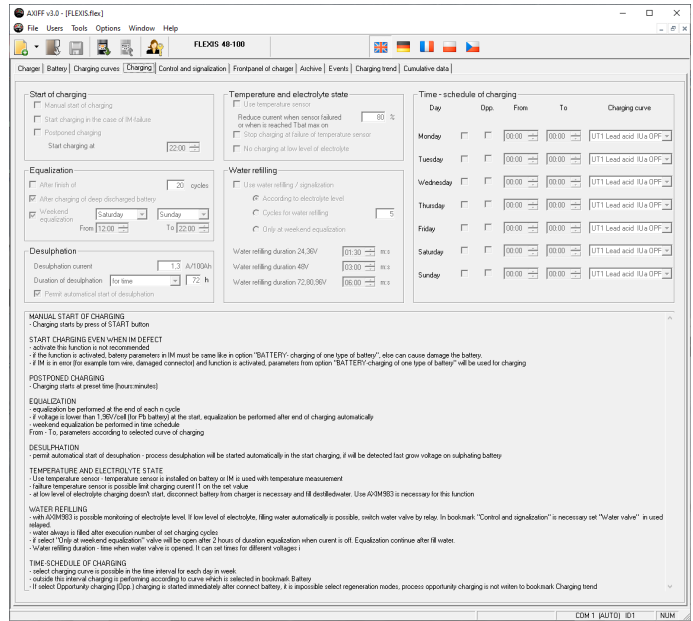
CONFIGURATION SOFTWARE

- User friendly and intuitive configuration programme
- Fully adjustable charging current and voltage
- Possibility to use one charger for plenty of different batteries by manual selection
- Setting opportunity charging
- Time schedule of charging

Opportunity charging is a way of fast battery charging by higher current than common charging. During a few short and intensive charging cycles, the time of battery service is significantly longer. Working breaks are used for opportunity charging to substantially prolong the forklift worktime without a battery exchange. This way of charging minimizes downtime in operation and increases your material handling fleet effectiveness.
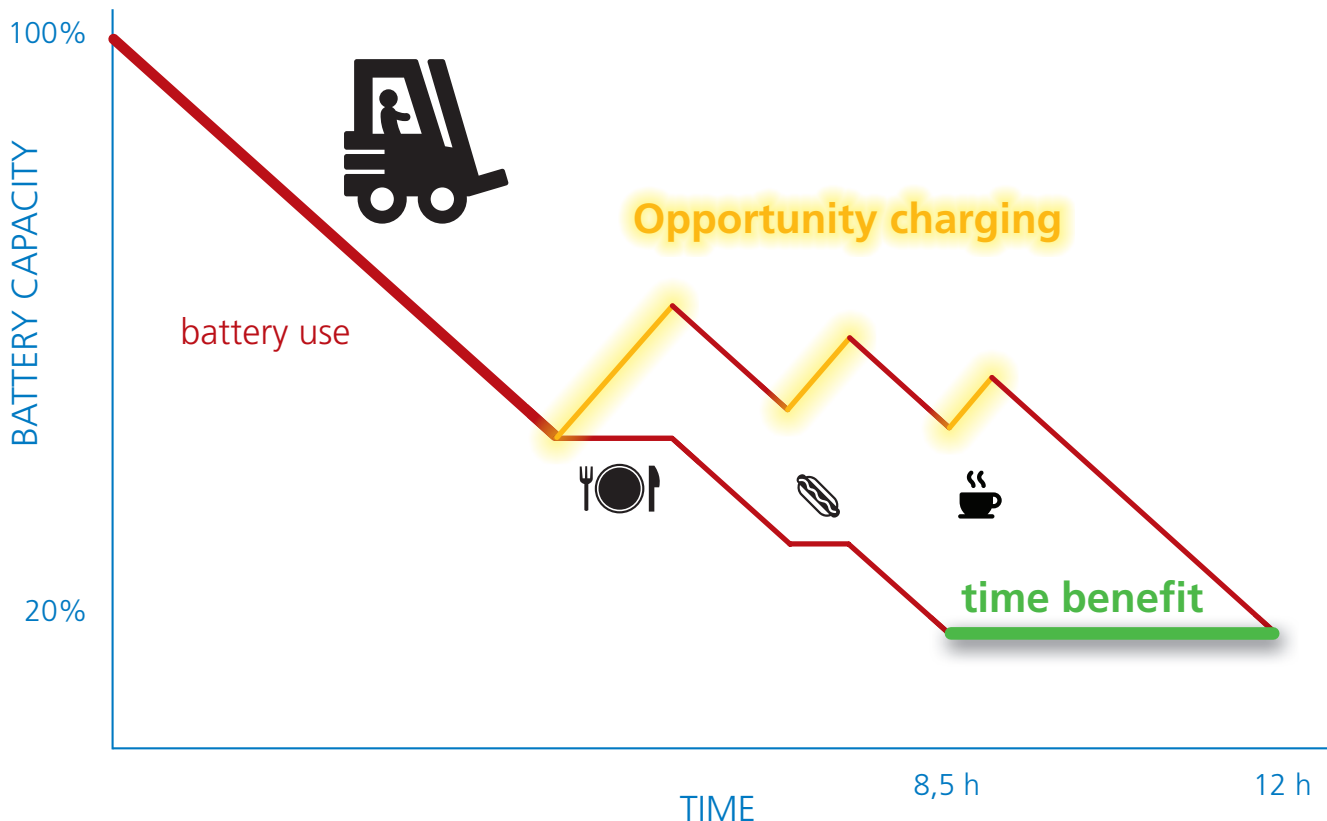
Back **analysis** of charging archive optimises operating costs, helps to save electrical energy and prolongs working life of battery

AXIFF v3.0 - [FLEXIS.flex]

File Users Tools Options Window Help

FLEXIS 48-100

Charger | Battery | Charging curves | Charging | Control and signalization | Frontpanel of charger | Archive | Events | Charging trend | Cumulative data |

Table of charging curves: 1.10

Choose	Curve number	Battery type	Cell voltage V	Curve	Umin V/cell	I1 A/100Ah	t I1 max h:m	Reaction after t I1 max	U1 V/cell	t U1 min h:m	Max. time function period U1	t U1 max h:m	Reaction after t U1max	I2 A/100Ah	dU/dt m	dU/dt EUW m	Charging factor	Charging factor EUW	t I2 min h:m	Max. time function period I2	t I2 max h:m	R
☑	T1	Lead acid	2,00	IUI0U dU	1,30	16,0	9:00	E×	2,40	0:00	tU1 - tI1	12:00	E»	5,0	35	20	1,00	1,00	0:00	-	6:00	
	T2	Lead acid	2,00	IUIa dU	1,30	16,0	9:00	E×	2,40	0:00	tU1 - tI1	12:00	E»	5,0	35	20	1,00	1,00	0:00	-	6:00	
	T3	Lead acid	2,00	IUI0U cf	1,30	16,0	9:00	E×	2,40	0:00	tU1 - tI1	12:00	E»	5,0	0	0	1,18	1,09	0:00	-	6:00	
	T4	Lead acid	2,00	IUIa cf	1,30	16,0	9:00	E×	2,40	0:00	tU1 - tI1	12:00	E»	5,0	0	0	1,18	1,09	0:00	-	6:00	
	T5	Lead acid	2,00	IU0U	1,30	16,0	9:00	E×	2,40	0:00	-	4:00	×	1,3	0	0	1,00	1,00	0:00	-	0:00	
	T6	Lead acid	2,00	IUI0U dU D	0,10	8,0	20:00	E×	2,40	0:00	-	5:00	E»	5,0	40	20	1,00	1,00	0:00	-	6:00	
	T7	Gel	2,00	IUI0U 265	1,30	16,0	9:00	E×	2,35	0:00	tU1 - tI1	12:00	E×	1,3	0	0	1,00	1,00	0:00	-	4:00	
	T8	Gel	2,00	IUI0U 280	1,30	16,0	9:00	E×	2,35	0:00	tU1 - tI1	12:00	E×	1,3	0	0	1,00	1,00	0:00	-	4:00	
	T9	Gel	2,00	IUI0U Ex	1,30	15,0	9:00	E×	2,35	0:00	tU1 - tI1	12:00	E×	1,3	0	0	1,00	1,00	1:00	tI1 + tU1	4:00	
	T10	AGM/Gel	2,00	IU0U	1,30	16,0	9:00	E×	2,40	0:00	-	4:00	×	1,3	0	0	1,00	1,00	0:00	-	0:00	
	T11	Gel	2,00	IUIa 265	1,30	16,0	9:00	E×	2,35	0:00	tU1 - tI1	12:00	E×	1,3	0	0	1,00	1,00	0:00	-	4:00	
	T12	Gel	2,00	IUIa Ex	1,30	15,0	9:00	E×	2,35	0:00	tU1 - tI1	12:00	E×	1,3	0	0	1,00	1,00	1:00	tI1 + tU1	4:00	
	UT1	Lead acid	2,00	IUa OPP	1,30	30,0	6:00	E×	2,40	0:00	-	4:00	×	3,0	0	0	1,00	1,00	0:00	-	0:00	
	UT2	Lead acid	2,00	IU0U OPP	1,30	30,0	6:00	E×	2,40	0:00	-	4:00	×	3,0	0	0	1,00	1,00	0:00	-	0:00	

COM 1 (AUTO) ID1   NUM

- Precise setting of the charging parameters ensures an optimal care of the battery
- Selection from the preset charging curves
- Possibility to modify extra charging curves to suit every type of battery
- Periodical regeneration – makes care of batteries easier

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Battery type   ⦿ Traction

Way of identification of batteries
charging of one type of battery

Traction battery parameters

Nominal battery voltage   48   V
Battery capacity   100 Ah
Charging curve   T1 Lead acid IUI0U dU
Charging current I1   16,0 A/100Ah
Use aeration   ☐

Aeration pump setting

Charging curve diagram

T1 - IUI0U dU   - Lead acid

I [A/100Ah]

16 A/100Ah

2,4 V/cell

5 A/100Ah

4 A/100Ah   2,8 V/cell

2,23 V/cell

U [V/cell]

If it is not possible to open "Aeration pump setting", it is necessary to choose type of charger with EUW in folder Charger

CHARGING OF ONE TYPE OF BATTERY
- standard charging of one battery

AUTOMATIC RECOGNITION of BATTERY
- allows automatic charging any type of Pb battery with liquid electrolyte

CHARGING OF LITHIUM BATTERY
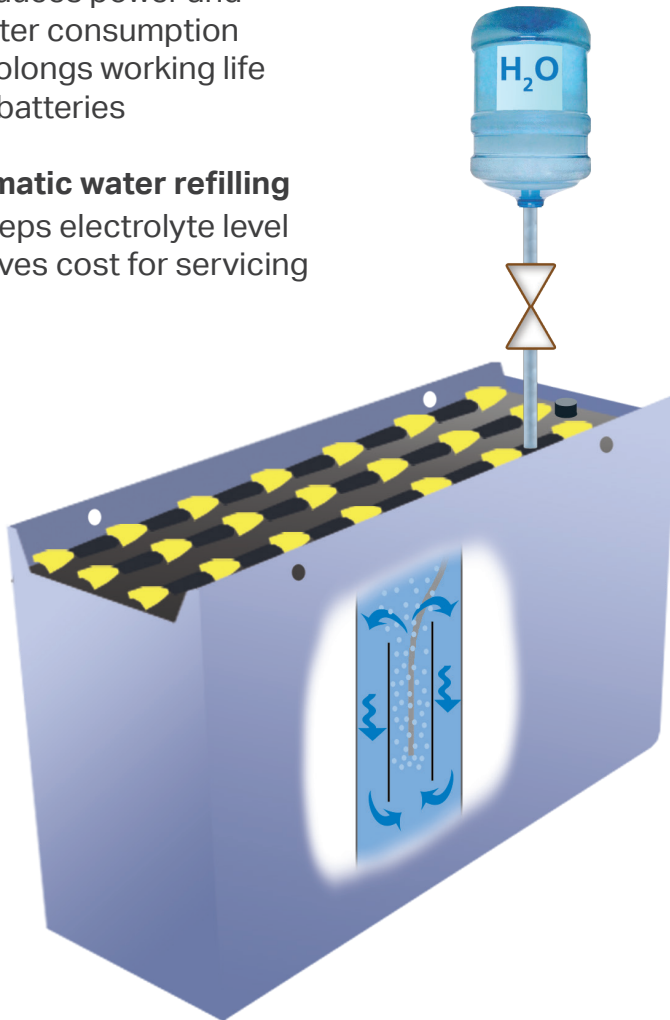- allows charging lithium battery and set the parameters

Air electrolyte circulation
- reduces charging time
- reduces power and water consumption
- prolongs working life of batteries

Automatic water refilling
- keeps electrolyte level
- saves cost for servicing

H_2O

Battery identification module AXIM
- one charger for more batteries

Temperature sensor
- compensation of charging voltage according to battery temperature

External signaling
- outputs for signal column
- 3 potential-free contacts for signaling
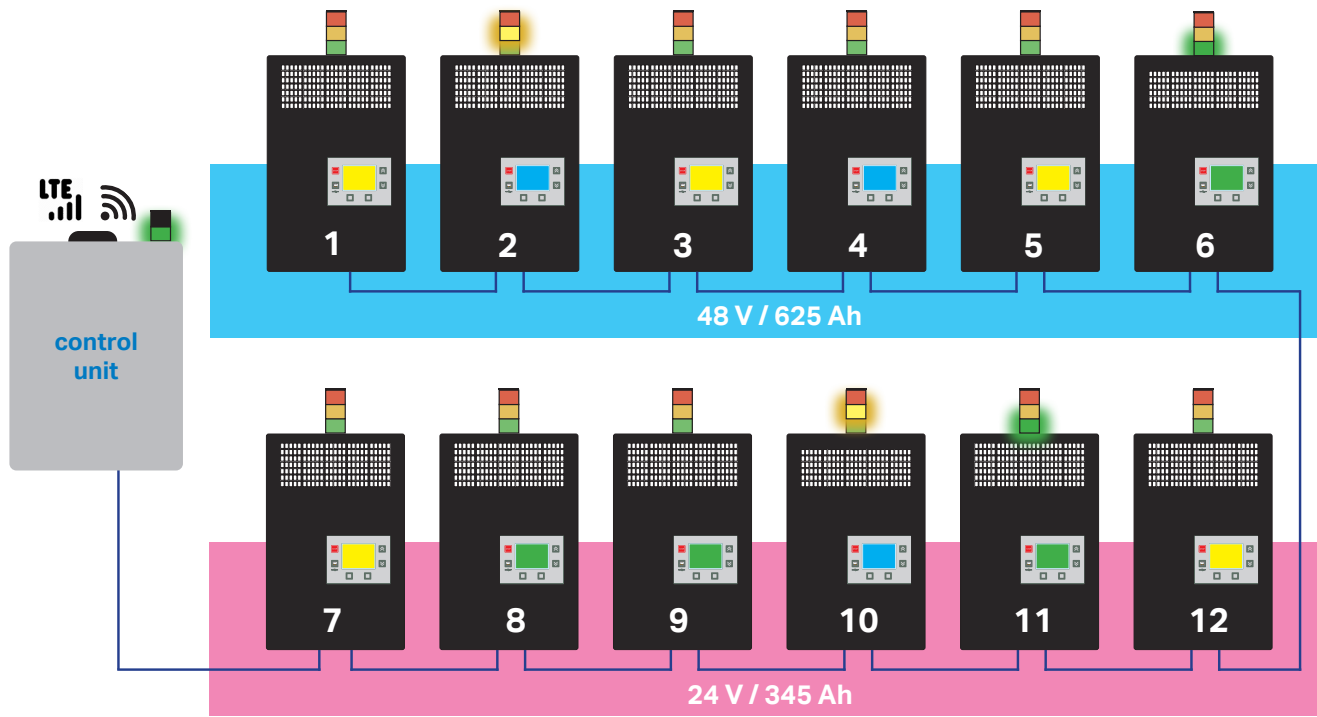
Remote control
- 2 digital inputs for remote control

AXINET

## SMART BATTERY ROTATION SYSTEM
Software for effective charging station

GROUP	PUT	TAKE
48 V / 625 Ah	2	6
24 V / 345 Ah	10	11

LTE

control unit

1 2 3 4 5 6

48 V / 625 Ah

7 8 9 10 11 12

24 V / 345 Ah

AXINET is a system that optimizes the operation of charging stations using chargers from the FLEXIS series. The system connects individual chargers into groups according to their batteries and evaluates their condition. The AXINET system increases usability of batteries and chargers, thus reducing operating costs to the minimum. The AXINET data network system can connect up to 255 FLEXIS chargers and thereby acquire an overview of the condition and utilization of the operation.
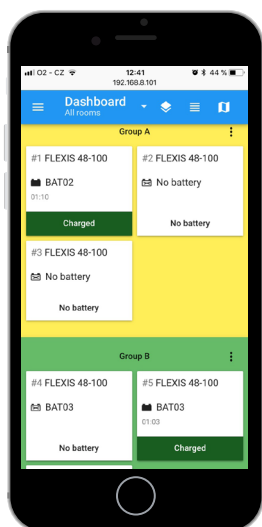
- Smart web app
- Battery return place assignment, charged battery indication
- Identification of batteries, personnel and forklifts
- Automatic reports via e-mail
- Clear visualization of individual charging points
- Archive of charging cycles
- Statistics for battery usage and operations
- Remote access via 4G

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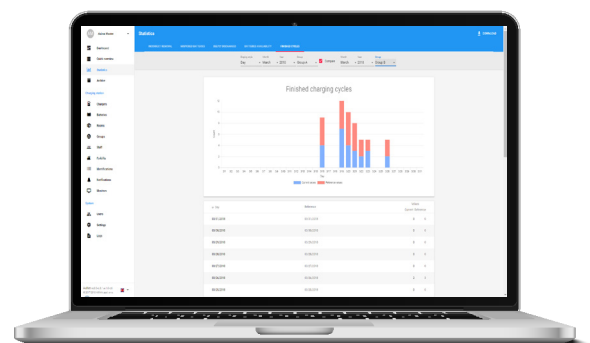
CHARGER TYPES

Nominal output voltage (V)	Output current (A)	Model Nr.	Case	Weight (lb)	Recommended circuit braker (A)	Input current at rated voltage 480V(A)
24	100	FLEXIS 24U100	FF170	49	6	4,2
	200	FLEXIS 24U200	FF250	73	10	8,4
	300	FLEXIS 24U300	FF330	97	16	12,6
36 / 48	100	FLEXIS 48U100	FF170	49	10	6,8
	200	FLEXIS 48U200	FF250	73	16	13,6
	300	FLEXIS 48U300	FF330	97	25	20,4
80	50	FLEXIS 80U50	FF170	49	10	6,8
	100	FLEXIS 80U100	FF250	73	16	13,6
	150	FLEXIS 80U150	FF330	97	25	20,4

Technical parameters	see product label
Supply voltage	3~480V +15% / -15% 50/60Hz
Input fuse	3 pole Type C or D circuit breaker
Efficiency	up to 95%
Appliance class	I
Pollution degree	2
Charger protection / after opening	IP20 / IP00

Isolation voltage in - ouput	4,2 kV DC
Output voltage tolerance	±1%
Output current tolerance	±1%
Safety	UL 1564 C22.2. No. 107.2.-01 EN 60950-1
Electromagnetic compatibility (EMC)	FCC PART 15, CLASS A ICES-003 CLASS A
Operating environment	14°F to 104°F, max.rel.humidity 80%, non-condensing
Storage	in dry conditions -13°F to +176°F max. rel. humidity 80%, non-condensing

Dimensions for mounting on a vertical surface

Case	Width	Height	Depth	X	Y
FF170	11.9	18.8	6.7	9.1	19.9
FF250	11.9	18.8	10.0	9.1	19.9
FF330	11.9	18.8	13.4	9.1	19.9

Dimensions in inches
X and Y are positions of mounting holes