



SCUDO-SN SINGLE PHASE INVERTER

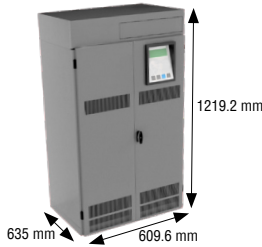
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Project Name: _____

Model Number: _____

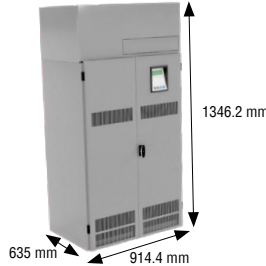
Prepared By: _____

Date: _____



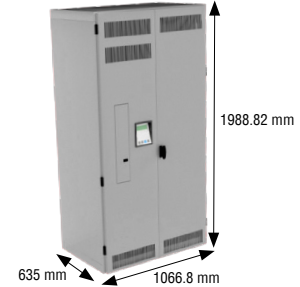
ELECTRONICS CABINET

MODELS 1.75kW - 5.0kW



ELECTRONICS CABINET

MODELS 6.25kW - 7.5kW



ELECTRONICS CABINET

MODELS 10.0kW - 16.7kW

ORDERING GUIDE

SCU-SN - - - - -

SERIES	INPUT	OUTPUT ¹	OUTPUT (KVA/KW)	BATTERY	RUNTIME	OPTIONS (REFERENCE PAGE 5 OPTIONS MATRIX)
SCU-SN	A = 120 H = 208 J = 240 B = 277 C = 347	A = 120 E = 120/277 K = 120/240 L = 277/120 P = 120/208 C = 347	1.75 kW 2.5 kW 3.75 kW 5.0 kW 6.25 kW 7.5 kW 10.0 kW 12.5 kW 16.7 kW	S (Standard - VRLA)	C (30 min) D (60 min) S (90 min) E ⁶ (120 min)	<p>Output Breakers³:</p> <p>Output:</p> <p style="padding-left: 20px;">B - Normally On N² - Normally Off</p> <p>Voltage/Poles:</p> <p style="padding-left: 20px;">A - 120V, 1-Pole H - 208V, 2-Poles J - 240V, 2-Poles B - 277V, 1-Pole D - 480V, 2-Poles C - 347V O - Other</p> <p>Amp Rating: 15, 20, 25, 30, 35, 40, 50, 60</p> <p>*Quantity³: 01 - 33 (Qty Must Be Specified)</p> <p>Warranty & On-Site Services¹⁰:</p> <p style="padding-left: 20px;">2YW - Start Up & Same Day Training 2YWT - Start Up, Same Day Training and Full Run Test 5YP - 5-Year Preventative Maintenance Plan 5YW - 5-Year Extended Electronics Warranty TR - Training On Day Other Than Start Up Date</p> <p>Options:</p> <p style="padding-left: 20px;">A - Remote Summary Alarm Panel BAT¹¹ - batteries and units are shipped together (uninstalled) or separately (3 months or 6 months) BL - Circuit Breaker Lock(s) BTM⁹ - Battery Temperature Monitor *C - Status Monitoring Contacts Dry Form C *DT - Drip Top (NEMA 2) EB - External Bypass, input/ output voltage must match and output breakers are limited to (1) only F - Fast Charge I - Inverter on Dry Form C Contact L - Load Control Relay (Line Voltage Dimmer or Switch Bypass) M⁸ - Internal Maintenance Bypass M(BBM)⁸ - Internal Maintenance Bypass "Break Before Make" O - Output Transfer Delay P - Remote Status Panel R - Remote Meter Panel S - Summary Fault Form C Dry Contacts *T³ - Output Trip Alarm (Qty Must Be Specified) V⁴ - Time Delay 15 Minutes Z⁷ - Seismic Mounting ZM - Zone Monitoring (Quantity Must Be Specified) NOTE: Not all options are described in UL file</p> <p>PICK1:</p> <p style="padding-left: 20px;">SEA - Serial to Ethernet Adapter BAC - BACnet (MSTP only) BIP - BACnet IP IoT - Inverter Connection Cloud Communications (Avail. 2024) MOD - Modbus RTU MIP - Modbus TCP/IP</p> <p>ACCESSORIES</p> <p style="padding-left: 20px;">EMBP(BBM)^{5,9} - External Maintenance Bypass SPAREF - Spare Fuses SPARES - Spare Parts Kit</p>

NOTE: ¹These items are mandatory in order configuration. ²Only single-phase voltages available. ³Normally off loads cannot exceed 20% of total kW rating with any combination of HID loads. ⁴Maximum output breakers available: 1.75kW-5kW: 11 supervised; 6.25kW-7.5kW: 16 supervised; 10kW-16.7kW: 22 supervised. Breakers provided are 20 Amps unless specified otherwise. A 2-pole breaker occupies 2 positions. ⁵15-minute retransfer time delay of normally off circuit after return of utility. ⁶Cannot purchase External Maintenance Bypass Switch with Output Breaker options. ⁷120-minute runtime is not available on 16.7 kW systems (120 Minute runtime may change system dimensions-check with factory for details). ⁸Anchorage based on calculations. ⁹Maintenance bypass switch is a "make before break". ¹⁰BTM Option is unavailable on the following sizes; 1.75, 2.5, 3.75, 5, 6.25, and 7.5kW. ¹¹Warranty is 1yr standard includes all parts for electronics; Batteries are 1yr full, 9yrs prorated. ¹²If batteries are shipped separately additional charges will apply.

SCUDO-SN SINGLE PHASE INVERTER

The SCUDO-SN is a line interactive, single-phase, solid-state interruptible* power supply ranging from 1.75kW to 16.7kW. It provides direct AC power and full illumination to all lighting sources. With industry-leading efficiencies, they run cool and reduce the overall operating costs of emergency lighting systems. Designed with industry leading compact footprint, the SCUDO-SN allows building owners to comply with emergency lighting codes without sacrificing valuable floor-space. Featuring a NEMA Type 1 space-saving design these inverters fit easily into electrical rooms where floor space is limited.

FEATURES

- 98% Efficient (Typical)
- PWM/IGBT Technology and Micro-Controller
- User Programmable with Password Protection
- Automatic Event, Test and Alarm Log
- RS232 Communications Port
- Input Circuit Breaker
- Low Audible Noise
- NEMA Type 1 Single Cabinet Space-Saving Design
- 65kAIC Interrupting Rating
- *2 milliseconds(ms) Transfer Time

SAFETY

- cUL listed to CSA C22.2 No. 141-15

SPECIFICATION

- Input 120, 208, 240, 277 or 347VAC 1 Phase 2 Wire Plus Ground
- Output 120, 120/277, 120/240, 277/120, 120/208 or 347VAC 1 Phase 2 Wire Plus Ground
- Output Load Power Factor 0.5 Lag to 0.5 Lead
- Compatible with LED Drivers
- Forced Air Cooling Only During Emergency Operation; No Filters Required
- Output Voltage Distortion Less than 3% THD for Linear Loads
- Compatible with Generators
- 30, 60, 90 and/or 120 Minute Runtime Available
- Inverter Operating Temperature 0°C to 40°C
- Battery Operating Temperature 20°C to 30°C per UL 924 Specifications

AUDIBLE ALARM

The SCUDO-SN audible alarm will activate with any of the following conditions and automatically store the 75 most recent events:

- High battery charger voltage
- Charger Fault
- High AC input voltage
- Low AC input voltage
- Near low battery voltage
- Low battery voltage
- Load reduction fault
- High Ambient temperature
- Inverter fault
- Output fault
- Output overload
- Output overload shutdown
- System Test Failure

OPTIONAL FEATURES

- Enhanced Communications
 - Expanded Building Management Protocols
 - IoT Connect Cloud Software (Available 2024)
- Internal or External Maintenance Bypass
- Summary Dry Form C Contacts
- Remote Meter Panel
- Output Circuit Breakers
- Factory Startup and Training
- Normally Off Output
- Output Trip Alarms
- Remote Summary Alarm Panel

APPLICATIONS

- Airports Terminals
- Apartment / Condominium Complexes
- Arenas / Stadiums
- Assisted Living Centers & Nursing Homes
- Casinos / Resorts
- Correctional Facilities
- Financial Institutions
- Government Buildings / Public Address Systems
- Hospitals / Clinics
- Hotels / Motels
- Industrial & Commercial Spaces
- Institutional
- Office Buildings
- Parking Structures / Garages
- Race Tracks
- Religious Facilities
- Restaurants
- Retail Department Stores & Malls
- Subways / Mass Transit Stations
- Theaters

BATTERIES

Batteries do not come pre-installed. They can be shipped together with the unit(s) or shipped separately at a later date (3 or 6 months) with additional charges.

SCUDO-SN SINGLE PHASE INVERTER

MONITORING AND CONTROL

SCUDO-SN provides operation monitoring, control, audible alarms, and diagnostics. The front-mounted control panel includes a 4-line by 20-character OLED display and a keypad for user interface. The display will be menu driven. The system will have a continuous scrolling display of the following: Date & time, System Status (AC Status, Battery Status, Charger Status) and any system faults. This allows the operator to easily “watch” system functions as they occur and check on virtually any aspect of the system’s operation. Monitoring and control are microprocessor-based for accuracy and reliability. To ensure only authorized personnel can operate the unit, the system is multi-level password protected for all control functions and parameter changes.

METER FUNCTION

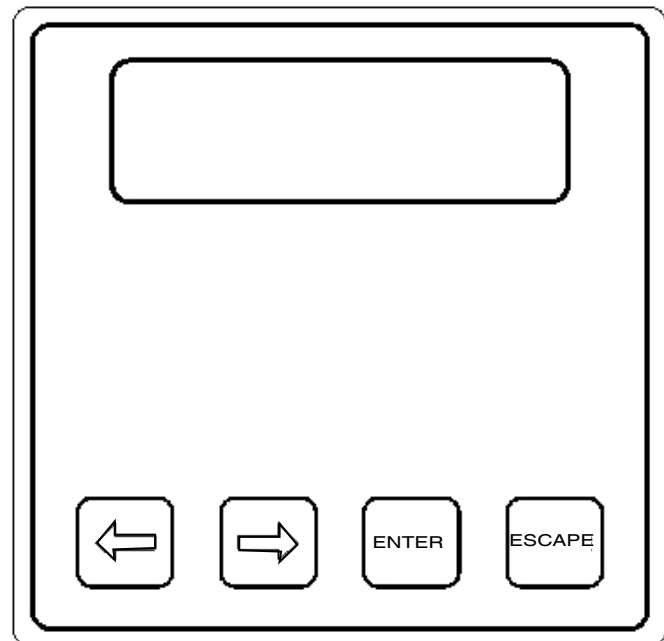
- AC Voltage Input
- AC Voltage Output
- AC Current Output
- Battery Voltage
- System Days
- Battery Current
- VA Output
- Inverter Watts
- Ambient Temperature
- Inverter Minutes

PROGRAM FUNCTIONS

- Date
- Time
- Month Test Date / Time
- Yearly Test Date / Time
- Load Fault Reduction Setting
- Low Battery Alarm
- Near Low Battery Alarm
- Low AC Voltage Alarm
- High AC Voltage Alarm
- Ambient Temperature Alarm

CONTROL FUNCTIONS

- Test Log & Event Log
 - 75 Logs Stored
 - Date, Time, Duration
 - Output Voltage
 - Output Current
 - Ambient Temperature
 - Alarms Preset
- Alarm Log
 - 75 Logs Stored
 - Date, Time, Alarm Type
 - Test
 - Buzzer On/Off



MANUAL AND PROGRAMMABLE TESTING

The SCUDO-SN incorporates a manual test function and two automatic test modes. The system will perform a programmable, self-diagnostic monthly test for 5 minutes, which is preset for the 15th of every month and the user can program the event day and time. The yearly self-diagnostic test is for full rated run time and the user can program the day and time the event is to take place. The microcontroller automatically records the last 75 test events in its own separate test result log.



SCUDO-SN SINGLE PHASE INVERTER

GENERAL SPECIFICATIONS		
INPUT	Voltage Input Frequency Synchronizing Slew Rate Protection Voltage Harmonic Distortion Power Factor	120, 208, 240, 277 or 347VAC 1-phase 2-wire +10%-20% 60Hz, +/- 3%, 50Hz Available upon request 1Hz per second nominal Input Circuit Breaker <10% (For Resistive Load) 0.5 lag/lead
OUTPUT	Voltage Static Voltage Dynamic Voltage Harmonic Distortion Output Frequency Load Power Factor Inverter Overload Protection	120, 120/277, 120/240, 277/120, 120/208 or 347VAC 1-phase 2-wire Load current change +/-4%, battery discharge +/-12.5% +/- 3% for +/-25% load step change, +/-6% for a 50% load step change <3% THD for linear load 60Hz +/-0.05Hz during emergency mode 0.5 lag to 0.5 lead 115% for 10 minutes; 150% for 16-line cycles Output Circuit Breaker
BATTERY	Type Charger Protection Disconnect	Valve-regulated lead-acid (VRLA) Microcontroller two stage charger (recharge - 24HR) Automatic low-battery disconnect; automatic restart upon utility return Circuit Breaker
ENVIRONMENTAL	Altitude Operating Temperature Storage Temperature Relative Humidity	<3000m (10,000 feet) above sea level without derating Inverter: 0°C to 40°C Battery: 20°C to 30°C -20°C to 70°C (electronics only) <95% (non-condensing)
GENERAL	Design Generator Input Control Panel Metering Alarms Communications Manual Maintenance Bypass Alarm Contacts Warranty	Stand-By IPS, PWM inverter type utilizing IGBT technology with 2ms transfer time Compatible with generators Microcontroller 4 x 20-character OLED display with touch pad controls/functions & scrolling system status. Input & Output Voltage, Battery Voltage, Battery & Output Current, Output VA, Temperature, Inverter Wattage High/Low Battery Charger Fault, Near Low Battery, Low Battery, Load Reduction Fault, Output Overload High/Low AC Input Volts, High Ambient Temperature, Inverter Fault, Output Fault, Optional Circuit Breaker Trip RS-232 port (DB9) Optional internal, or optional external without internal distribution breakers. Optional Summary Form "C" Contacts 1 year standard warranty and up to 9 Years prorated warranty on batteries.
PHYSICAL	Cabinet Cooling Cable Entry Access	Freestanding NEMA Type 1 Forced Air, during emergency mode Top and Side Front



SCUDO-SN SINGLE PHASE INVERTER

OPTIONS MATRIX

Option Code	Option Name	Description
A	Remote Summary Alarm Panel	LED indicator and Sound alert
BAT	Battery Shipment	Batteries do not come pre-installed. They can be shipped together with the unit(s) or shipped separately at a later date (3 or 6 months) with additional charges.
BTM	Battery Temperature Monitor	1. Warning alarm: warns when battery temperature is getting too high 2. Absolute alarm: when temperature reaches high temp this shuts down the string of batteries where the hot battery is.
BL	Output Circuit Breaker lock(s)	Allows customer to lock OCB in on or off position
C	Status Monitoring Contacts	5 form C dry contacts: 1. System in Bypass 2. Summary Alarm: any alarm in the FMP 3. Output trip alarm 4. Utility failure 5. Inverter on
DT	Drip Top (NEMA 2)	Metal piece designed to direct falling water away from the unit
EB	External Bypass	Input/ output voltage must match and output breakers are limited to (1) only
F	Fast Charge	Allows the system to recharge in 12 hours from LVD
I	Inverter on Dry Form C Contact	Form C dry contact which opens when inverter is on
L	Load Control Relay Dimmer or Bypass Switch	Equal to an LVS EPC-2-D
M	Internal Maintenance Bypass	Toggle switch designed to disconnect inverter from electrical system for maintenance (Make before break)
M(BBM)	Internal Maintenance Bypass Break Before Make	Same as above except break before make
O	Output Transfer Delay	A device designed to delay transfer adjustable 0-7.5 seconds, factory set at 3 seconds. Used when the control system cannot detect the fast transfer
P	Remote Status Panel (Status alarms, Requires C Option)	Single gang box showing status of alarms, requires C option
R	Remote Meter Panel	Full size meter panel mounted remotely in a NEMA 1 enclosure
S	Summary Fault Form C contacts	Relay contact showing any alarm
SEA	Serial to Ethernet Adapter	RS232 to Ethernet adapter
T	Output Trip Alarm (Qty Must Be Specified)	Alarms when any OCB is tripped, must be specified to the output breaker qty
V	Time Delay 15 minutes	Delays transfer back to utility power for up to 15 minutes, not used much anymore mostly for HID
Z	Seismic Mounting	Instructions and hardware for mounting system in standard seismic applications
ZM	Zone Monitoring (Qty must be specified)	3 zones max, used to monitor other phases in 3 phase utility system or to monitor external CB panels. Not necessary with normally on OCB's.
BAC	BACnet Communications	"MSTP" allow upload of FMP data via RS232 intermediate device. This info can then be downloaded to customer device.
BIP	BACnet IP	Same as above except allows direct communication via IP
IOT	IOT inverter Connect Cloud communication	System using the Cloud to allow monitoring of multiple systems in one location. (Available 2024)
MIP	Modbus TCP/IP	Same as BACnet IP
MOD	Modbus RTU	Same as BACnet MSTP
2YW	Startup & Same day training	Factory start up which extends electronics warranty by an additional year
2YWT	Startup & Same day training and full run test	Same as 2YW. Includes full load test using customer load or load bank
5YP	5-Year Service Plan	Annual (once or twice) visit to perform preventative maintenance
5YW	5-Year Extended Electronics Warranty	Same as 2YW except extends the electronics warranty and additional 3 years (5 total)
TR	Training (if required on separate day)	Only used if required by owner
EMBP	External Maintenance bypass switch	Maintenance bypass switch mounted external to the system. Can not use with OCB's
SPARES	Spare parts kit	Complete parts kits including PC boards
SPAREF	Spare fuses	Spare fuses only

SCUDO-SN SINGLE PHASE INVERTER

DIMENSIONS

30 MIN									
POWER RATING (KW)	VOLTAGE IN-OUT (VAC)	HEAT LOSS (BTU)	ELECTRONICS CABINET DIMENSIONS				BATTERIES		TOTAL SYSTEM WEIGHT
			WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)	WEIGHT (LBS)	NO. OF BATTERIES	WEIGHT (LBS)	
1.75	120 or 277	119	609.6	1219.2	635	247	4	287	534
1.75	347	119	1371.6	1219.2	635	396	4	287	683
2.50	120 or 277	171	609.6	1219.2	635	263	4	287	550
2.50	347	171	1371.6	1219.2	635	412	4	287	699
3.75	120 or 277	256	609.6	1219.2	635	280	6	430	710
3.75	347	256	1371.6	1219.2	635	441	6	430	871
5.00	120 or 277	341	609.6	1219.2	635	297	8	574	871
5.00	347	341	1371.6	1219.2	635	467	8	574	1041
6.25	120 or 277	426	914.4	1346.2	635	418	10	717	1135
6.25	347	426	1676.4	1346.2	635	597	10	717	1314
7.50	120 or 277	512	914.4	1346.2	635	444	12	860	1304
7.50	347	512	1676.4	1346.2	635	636	12	860	1496
10.0	120 or 277	682	1066.8	1988.82	635	940	12	860	1800
10.0	347	682	1828.8	1988.82	635	1145	12	860	2005
12.5	120 or 277	853	1066.8	1988.82	635	980	15	1076	2056
12.5	347	853	1828.8	1988.82	635	1200	15	1076	2276
16.7	120 or 277	1139	1066.8	1988.82	635	1030	20	1434	2464
16.7	347	1139	1828.8	1988.82	635	1265	20	1434	2699

60 MIN									
POWER RATING (KW)	VOLTAGE IN-OUT (VAC)	HEAT LOSS (BTU)	ELECTRONICS CABINET DIMENSIONS				BATTERIES		TOTAL SYSTEM WEIGHT
			WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)	WEIGHT (LBS)	NO. OF BATTERIES	WEIGHT (LBS)	
1.75	120 or 277	119	609.6	1219.2	635	247	4	287	534
1.75	347	119	1371.6	1219.2	635	396	4	287	683
2.50	120 or 277	171	609.6	1219.2	635	263	4	397	660
2.50	347	171	1371.6	1219.2	635	412	4	397	809
3.75	120 or 277	256	609.6	1219.2	635	280	6	595	875
3.75	347	256	1371.6	1219.2	635	441	6	595	1036
5.00	120 or 277	341	609.6	1219.2	635	297	8	794	1091
5.00	347	341	1371.6	1219.2	635	467	8	794	1261
6.25	120 or 277	426	914.4	1346.2	635	418	10	992	1410
6.25	347	426	1676.4	1346.2	635	597	10	992	1589
7.50	120 or 277	512	914.4	1346.2	635	444	12	1190	1634
7.50	347	512	1676.4	1346.2	635	636	12	1190	1826
10.0	120 or 277	682	1066.8	1988.82	635	940	12	1428	2368
10.0	347	682	1828.8	1988.82	635	1145	12	1428	2573
12.5	120 or 277	853	1066.8	1988.82	635	980	15	1785	2765
12.5	347	853	1828.8	1988.82	635	1200	15	1785	2985
16.7	120 or 277	1139	1066.8	1988.82	635	1030	20	2380	3410
16.7	347	1139	1828.8	1988.82	635	1265	20	2380	3645



SCUDO-SN SINGLE PHASE INVERTER

90 MIN									
POWER RATING (KW)	VOLTAGE IN-OUT (VAC)	HEAT LOSS (BTU)	ELECTRONICS CABINET DIMENSIONS				BATTERIES		TOTAL SYSTEM WEIGHT
			WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)	WEIGHT (LBS)	NO. OF BATTERIES	WEIGHT (LBS)	
1.53	120 or 277	104	609.6	1219.2	635	247	4	287	534
1.53	347	104	1371.6	1219.2	635	396	4	287	683
2.19	120 or 277	149	609.6	1219.2	635	263	4	397	660
2.19	347	149	1371.6	1219.2	635	412	4	397	809
3.28	120 or 277	224	609.6	1219.2	635	280	6	595	875
3.28	347	224	1371.6	1219.2	635	441	6	595	1036
4.38	120 or 277	298	609.6	1219.2	635	297	8	794	1091
4.38	347	298	1371.6	1219.2	635	467	8	794	1261
5.47	120 or 277	373	914.4	1346.2	635	418	10	992	1410
5.47	347	373	1676.4	1346.2	635	597	10	992	1589
6.56	120 or 277	448	914.4	1346.2	635	444	12	1190	1634
6.56	347	448	1676.4	1346.2	635	636	12	1190	1826
8.8	120 or 277	597	1066.8	1988.82	635	940	12	1428	2368
8.8	347	597	1828.8	1988.82	635	1145	12	1428	2573
10.9	120 or 277	746	1066.8	1988.82	635	980	15	1785	2765
10.9	347	746	1828.8	1988.82	635	1200	15	1785	2985
14.6	120 or 277	997	1066.8	1988.82	635	1030	20	2380	3410
14.6	347	997	1828.8	1988.82	635	1265	20	2380	3645

120 MIN									
POWER RATING (KW)	VOLTAGE IN-OUT (VAC)	HEAT LOSS (BTU)	ELECTRONICS CABINET DIMENSIONS				BATTERIES		TOTAL SYSTEM WEIGHT
			WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)	WEIGHT (LBS)	NO. OF BATTERIES	WEIGHT (LBS)	
1.31	120 or 277	90	609.6	1219.2	635	247	4	287	534
1.31	347	90	1371.6	1219.2	635	396	4	287	683
1.88	120 or 277	128	609.6	1219.2	635	263	4	397	660
1.88	347	128	1371.6	1219.2	635	412	4	397	809
2.81	120 or 277	192	609.6	1219.2	635	280	6	595	875
2.81	347	192	1371.6	1219.2	635	441	6	595	1036
3.75	120 or 277	256	609.6	1219.2	635	297	8	794	1091
3.75	347	256	1371.6	1219.2	635	467	8	794	1261
4.69	120 or 277	320	914.4	1346.2	635	418	10	992	1410
4.69	347	320	1676.4	1346.2	635	597	10	992	1589
5.63	120 or 277	384	914.4	1346.2	635	444	12	1190	1634
5.63	347	384	1676.4	1346.2	635	636	12	1190	1826
7.5	120 or 277	512	1066.8	1988.82	635	940	12	1428	2368
7.5	347	512	1828.8	1988.82	635	1145	12	1428	2573
9.4	120 or 277	639	1066.8	1988.82	635	980	15	1785	2765
9.4	347	639	1828.8	1988.82	635	1200	15	1785	2985
12.5	120 or 277	854	1066.8	1988.82	635	1030	20	2380	3410
12.5	347	854	1828.8	1988.82	635	1265	20	2380	3645