



Doc No: AES/AGCU/Spec/01.

Areca Generator Controller Unit Technical Specification

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ARECA Automatic Generator Control Unit (AGCU) is designed around a high speed advanced microprocessor and is provided with sufficient input & Output capability to perform the AMF logic in Auto as well as Manual mode.

	Areca Generator Controller Unit Technical Specifications	Doc.No: AES/AGCU/Spec/01.	
		Issue No: 1	Rev. No: 00
		Page 3 of 8	

Technical Specification:

S	I/P power Supply	7 to 15 VDC
y	Reverse Polarity Protection	
S	Brown out voltage	< 5 V
S	Over voltage with stand	38 V max.
y	Minimum Operating current	60 mA (LCD Back Light OFF)
y	Maximum operating current	150 mA (LCD Back Light ON)
S	Operating Temperature Range	0°C to 70°C

Generator AC Inputs:

- S Alternator Input range 0 to 300 V AC (ph-N) @ 50 Hz (1/2/3-phases)
- y Maximum over Voltage 500 VAC
- S Alternator Input Frequency 50Hz at rated engine speed.
- S Total Harmonic Distortion 15% Permitted

Mains Inputs:

- S AC Input range 0 to 300 V AC (ph-N) @ 50 Hz (1/2/3-phases)
- y Maximum Over voltage 500 V AC
- S Total Harmonic Distortion 15% Permitted

Main Features

- y Monitors and Regulates Power Supply
- S Monitors Load Currents and Voltages
- S Information & Alarms Extended to Remote Locations.
- S DG Fuel Optimization logic.
- S Automatic periodic run of DG.
- S Event Logs with Date & Stamp.
- S DG fuel level monitoring and Display.
- S Battery health monitoring and Display.
- S Alarm extension through PFC's.

Applications

- y AMF panels at the BTS Sites
- S PIU/PMU/PCU at BTS sites.
- S Industrial Automation.
- S AMF in Diesel Generators.

Parameters Monitored

- S Commercial Power voltage 3 phases RN, YN, BN
- / DG voltages 3 phase

	Areca Generator Controller Unit Technical Specifications	Doc.No: AES/AGCU/Spec/01.	
		Issue No: 1	Rev. No: 00
		Page 4 of 8	

- S DG Frequency
- / Load Current 3 phases
- / Power Plant Battery (48V / 24V) terminal voltage
- / DG Battery (12V) terminal voltage
- S DG cylinder temperature
- S Fuel level analogue
- / Fuel level PFC
- S Engine Oil pressure as digital input

Display

4 lines, 20 characters back lit LCD

Keypad (9 keys programming keypad)

1. Auto/ Manual mode selection
2. Manual Start
3. Manual Stop
4. Up
5. Down
6. Left / Reset alarms
7. Right / Manual Load On
8. Escape
9. Enter

Visual indications through LEDs:

Mains Present	----	Green Led
Load on Mains	----	Amber Led
DG present	----	Green Led
Load on DG	----	Amber Led
Manual/Auto mode	--	Yellow Led
Low Fuel	----	Yellow Led
Global Alarm	----	Red Led
DG fault	----	Red Led

Visual Indications through LCD:

Faults/ Alarms:

- S Low Oil Pressure
- S DG failed to start
- S DG failed to stop
- S Low fuel level
- S DG volts Not OK
- S Low 12V Battery
- S Fuel Warn Level
- S DG Frequency not ok
- S Over load

	Areca Generator Controller Unit Technical Specifications	Doc.No: AES/AGCU/Spec/01.	
		Issue No: 1	Rev. No: 00
		Page 5 of 8	

- S Emergency shutoff
- S Neutral Fail
- S GCU EPROM failure
- S GCU RTC failure
- S SMS Link Fail
- S Low 48V Battery
- S Room Hot

Status Information:

- S PC Mode (AUTO/Manual)
- S Mains 1/2/3 Phases Voltages (in Volts)
- S Load on EB
- S DG 1/3 Phases Voltages (in Volts)
- S Load on DG
- S DG OFF
- y DG Running
- S DG Battery Voltage (in Volts)
- S 1/2/3 Phases load currents.(in Amps)
- S DG Run Hours (HH:MM:SS format)
- S Current fuel levels in DG (in Liters)
- S DG frequency (in Hz)
- y DG running status
- y Status Time
- S Telecom Battery Voltage (in Volts)
- S Alarms None (if Alarms are not present)
- S Room Temperature (in centigrade)
- S Current Time in 24Hours Format
- y Status Log Description

The Following Parameters are Programmable from the Keypad :



**Areca Generator
Controller Unit Technical
Specifications**

Doc.No: AES/AGCU/Spec/01.

Issue No: 1

Rev. No: 00

Page 6 of 8

Sl. No	Parameter	Minimum	Maximum	Step	Set value
1	EB Phases	1	3	1	3
2	EB Phase voltage low limit	100	200	1	120 Volts
3	EB Phase voltage high limit	240	270	1	260 Volts
4	DG Phases	1	3	2	3
5	DG maximum Run period Mins	1	360	1	120 Minutes
6	DG Rest period Mins	0	120	1	30 Minutes
7	DG Maximum off period for maintain idle run; Hours	24	168	24	48 hours
8	DG Preheat period Secs	1	180	1	3secs
9	DG Crank ON period Secs	1	10	1	5 secs
10	DG Crank Gap period Secs	5	30	1	5 secs
11	DG Crank Tries Maximum	1	10	1	3
12	DG Warm Up period Secs	0	120	5	5 secs
13	DG cool down period	5	600	5	30 secs
14	DG stop pulse period Secs	5	60	5	30 secs
15	DG Frequency low limit Hz	35	49	1	43 Hz
16	DG Frequency high limit Hz	51	65	1	57 Hz
17	DG voltage low limit Volts	180	225	5	180 Volts
18	DG voltage high limit Volts	230	275	5	260 Volts



**Areca Generator
Controller Unit Technical
Specifications**


Doc.No: AES/AGCU/Spec/01.

Issue No: 1

Rev. No: 00

Page 7 of 8

19	DG Battery low limit Volts	10.0	12.0	0.1	11 Volts
20	DG Fuel consn/Hour Liters/Hour	1	20	1	4 Liters
21	Load ON seconds after EB ON	5	600	10	5 secs
22	DG ON Seconds after EB OFF	5	600	10	5 Sec
23	DG ON if 48V Battery goes below Volts	44	50	1	44 Volts
24	DG ON if room temp goes above °C	25	40	1	35°C
25	DG ON if EB phases below 1....3	1	3	1	3
26	Power OFF on over load any phase Amps	30	50	1	30 Amps
27	OFF Time Block-1 HH:MM -> HH:MM	00.00-00	24.00-00		
28	OFF Time Block-2 HH:MM -> HH:MM	00.00-00	24.00-00		
29	OFF Time Block-3 HH:MM -> HH:MM	00.00-00	24.00-00		
30	OFF Weak Days OFF1 OFF2	NONE	sunday		
31	24 Hours time format YYYY:MM:DD – HH :mm :SS	YYYY : 2000 MM : 01 DD : 01 HH : 00 Mm : 00 SS : 00	2099 12 31 23 59 59	1 1 1 1 1 1	
32	SMS O & M Mobile No UP/ON 2 Edit 0 1 2 3 4 5 6 7 8 9 -----	0	9	1	
33	SMS SrVr Mobile No UP/ON 2 Edit 0 1 2 3 4 5 6 7 8 9 -----	0	9	1	
34	Site ID String Dist – Area – Numder -----	0 A a : ; < , > [,] = , ? @ , * ^ , - , ' ,	9 z Z		

	Areca Generator Controller Unit Technical Specifications	Doc.No: AES/AGCU/Spec/01.	
		Issue No: 1	Rev. No: 00
		Page 8 of 8	

35	SMS on time period (in Mins)	1	720	5	
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Note: 32,33,34,35 parameters are required if GSM modem is used otherwise it is optional.