ASYN205B Central Synchronizing Controller

Function

- 3 phase active power transducer , one auxiliary analog output
- Genset power output control
- Genset voltage output frequency control
- Multi-gensets' power balance control
- Selectional control mode of Forward power, reverse power and over power output
- Dual actuation signal mode: switch pulse signal and voltage analog signal
- Genset protection: reverse power protection and over power protection

Function Description

ASYN205B control the fuel supply to the genset through raise and low signal output, so as to control the running frequency, synchronizing speed and output of active power of the genset. Before parallel,ASYN205B accept the frequency deferential signal from synchronizing detector(AS215A), output raise or low speed signal to adjust the running frequency of the two genset for synchronization, then control the parallel circuit breaker close. After parallel, this controller balance the active power output of each genset by comparing the voltage between genset output and parallel line. Meanwhile, this contrller can make the running frequency stable in a pre-set range via comparing the genset running frequency with pre-set frequency. Working in an external set kilowatt level mode, after parallel, this controller make the genset stable in a pre-set kilowatt level, this mode usually is used for genset synchronize to the mains.

ASYN205B Main Function Description

1. **Active power transducer**

   This controller measure the genset active power, then transduce it into two ways of proportion DC voltage, one for internal control, another for external auxiliary output, or for external pointer indicating power rate.

2. **Genset control**

   Synchronizing control: After genset normally running before parallel, terminal #10 and #14 not be connected yet, controller receive the frequency differential actuation signal from the synchronizing detector(AS215A) by terminal #19 #20 #21, then transit the actuation signal to the genset by internal selection switch, adjust the solenoid, so as to synchronizing to the common power supply.

   Frequency control: After circuit breaker closure, it's normal open aux. contactor be closed, terminal #10 and #14 connected, if genset running in single, this controller make the genset stable in a pre-set speed range via output raise or low signal by comparing the genset output frequency with the pre-set frequency.

   Balance the load: After circuit breaker closure, it's normal open aux. contactor be closed, terminal #10 and #14 connected, if the genset parallel to another genset, this controller can balance the load except frequency control. This controller compare the genset output power with the average power of them, if higher than average, output low signal, if lower than average, output raise signal, so as to balance the output power of each genset.

   External set kilowatt level mode: After circuit breaker closure, it's normal open contactor be closed, terminal #12 and #14 contacted, genset output power has been setted in a pre-set range by an external potentiometer connected to terminal #22, #23, #24. This mode is usually used for genset synchronizing to the mains, assuring the genset output stable power .

   Soft unload control: Genset want to quit from the synchronizing system, switch on terminal #12 and #14,terminal #22,#23,#24 do not connect to any potentiometer or set the potentiometer to zero, controller decrease the output power until zero, the circuit breaker trip at this moment, for lower the impact to the synchronizing system producing by genset quit, and prolong the life of circuit breaker.

3. **Dual actuation signal mode**

   Switch pulse signal output: There is a pair of dry switch output in the relay for raise or lower speed by pulse mode, it's response speed is effected by both internal power or frequency differential and external potentiometer. This interface port can be directly used for mechanic actuation genset, plus, usually be used with digital electronic actuation speed controller.

   Voltage analog signal output: There is a model for transducing pulse signal to analog signal, it's voltage, span, sensibility of analog output can be modified by external potentiometer. This model is supplied by an internal isolative power, so this interface port is suitable for any type of analog actuation signal accepted speed controller.

4. **Auxiliary control output**

   Reverse power relay: when reverse power level is higher than the pre-set level, and lasting longer than the reverse power delay time, then "R. Power" relay output a normal close contactor signal to switch on terminal #31 and #32.This relay is used for reverse power supply protection.

   Zero power relay: when the genset power is lower than zero power level, the "Z. power"

relay output a signal to switch on the terminal #33 and #34.This relay is used for automatic trip the circuit breaker when the soft unload genset's power is closed to zero.

Forward power relay: when forward power level is higher than the "Forward Power/ON" pre-set level, the "F. Power" relay output a signal to switch on terminal #35 and #36, when forward power level is lower than the "Forward power/OFF" pre-set level, the "F. Power" relay stay, terminal #35 and #36 can not be connected. This relay is used for controlling the genset parallel to or quit from the synchronizing system which depends on the variability of the load.

Over power relay: when the output power is higher than the "Over Load/Level" pre-set level, and lasting longer than the over load delay time, then the "O. Power" output a signal to switch on terminal #37 and #38. This relay is used for genset over load protection.

External Potentiometer Function:

potentiometer	Function	Variability
OFFSET	Analog actuation signal output pre-set	0-10 V
SPAN	Analog actuation signal output span pre-set	0.25-2.5 V
RESPOSE	Actuation response time	5-60 S
P-RATE	Actuation output pulse rate	0.1-7 S
P-LENTH	Actuation output pulse wide	0.1-1.5 S
METER CALIBRATION	Analog power output calibration	0-20 mA
FREQ.	Genset running frequency	48-52 Hz
LOAD	Power proportion calibration	+/- 10%
OUTPUT ADJUST	Analog actuation output adjust	12VDC
FORWARD ON	Forward power action valve value	55-100%
FORWARD OFF	Forward power restore valve value	15-55%
REVERSE POWER LEVEL	Reverse power pre-set	-1- -15%
REVERSE POWER DELAY	Reverse power delay pre-set	0-30 S
OVER LOAD LEVEL	Over power rate pre-set	95%
OVER LOAD DELAY	Over power delay pre-set	0-30S
ZERO POWER LEVEL	Zero power pre-set	1%-15%

Status Lamp Indicator:

LAMP INDICATER	FUNCTION	COLOUR
R. POWER	Reverse power index	Red
Z. POWER	Zero power index	Red
F. POWER	Forward power index	Red
O. LOAD	Over power index	Red
RAISE	Raise speed index	Green
LOWER	Lower speed index	Green
L1	Breaker closed index	Green
L2	Soft unload or constant power output index	Green
L3	Manual operation mode(actuation adjust) index	Green
DC POWER	DC power supply	Green

Connection Terminal:

TERMINAL NO.	TERMINAL TYPE		REMARK
1	**GA** phase input		Power supply detected, 3 phase 4 line, 0-300V Phase voltage
2	**B** phase input		
3	**C** phase input		
4	**N** line input		
5	**A** phase current input	**S1**	
6		**S2**	
7	**B** phase current input	**S1**	
8		**S2**	
9	**C** phase current input	**S1**	
10		**S2**	
11	Breaker closed signal		Actived by connecting to the common contactor
12	Soft unload/power pre-set signal		
13	Manual signal		
14	Common contactor		
15	Frequency differential signal	+	Current signal from synchronizing controller(+/-10mA)
16		-	
17	Synchronizing parallel line	+	From other Parallel panel
18		-	
19	Raise speed signal input		Actived by connecting to the common contactor
20	Common contactor		
21	Lower speed signal input		
22	Power pre-set		External 5K resistance
23			
24			
25	Control frequency output voltage reset		Switch on #25 and #26 for reset control voltage
26			
27	DC power supply	+	24V/12V
28		-	
29	Power meter output	+	Full capacity adjusted, 0-10mA, pre-set 1mA
30		-	
31	Reverse power signal output		When reverse power higher than pre-set value and delay time out, this contactor output signal
32			
33	Zero power signal output		When power lower then pre-set value, this contactor output signal
34			

35	Forward power signal output		When power higher then pre-set value, this contactor output signal
36			
37	Over power signal output		When power higher then pre-set value, this contactor output signal
38			
39	Raise speed signal output		Actived by connecting to the common contactor, control speed of the genset
40	Common contactor		
41	Lower speed signal output		
42	Electronic actuation speed control		Connect to the actuation board of genset
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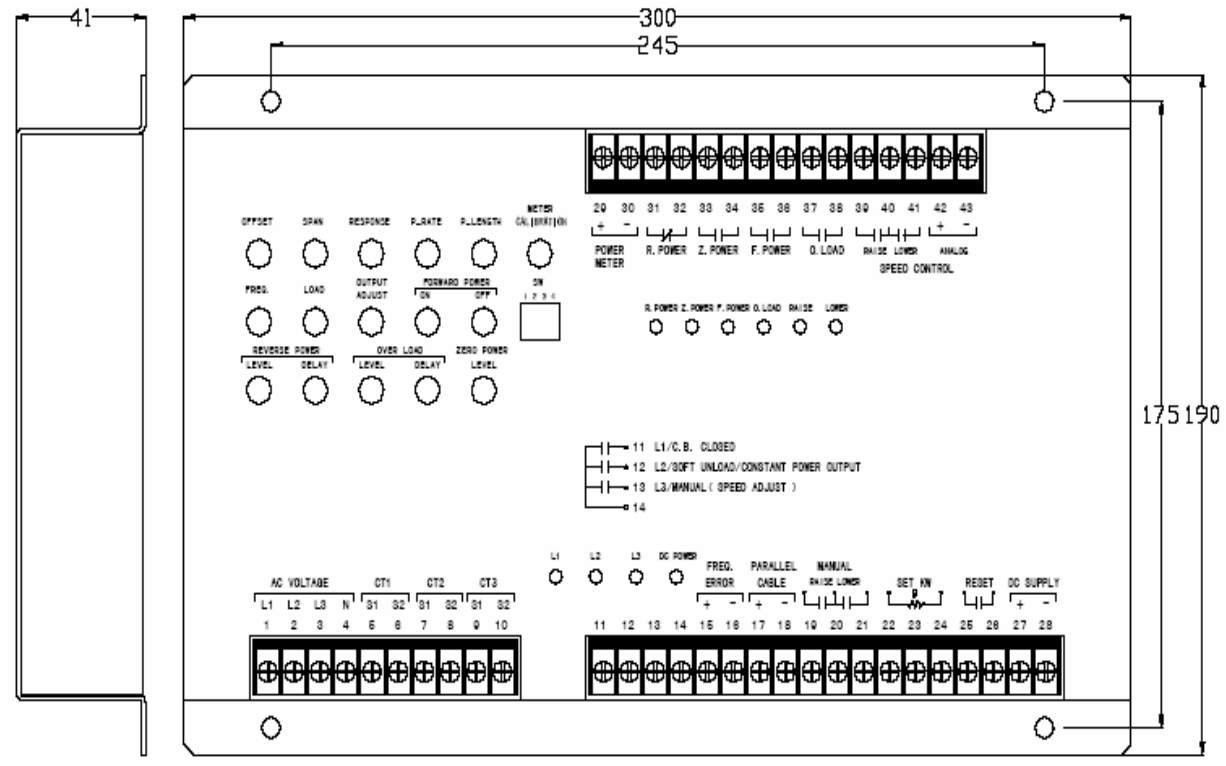
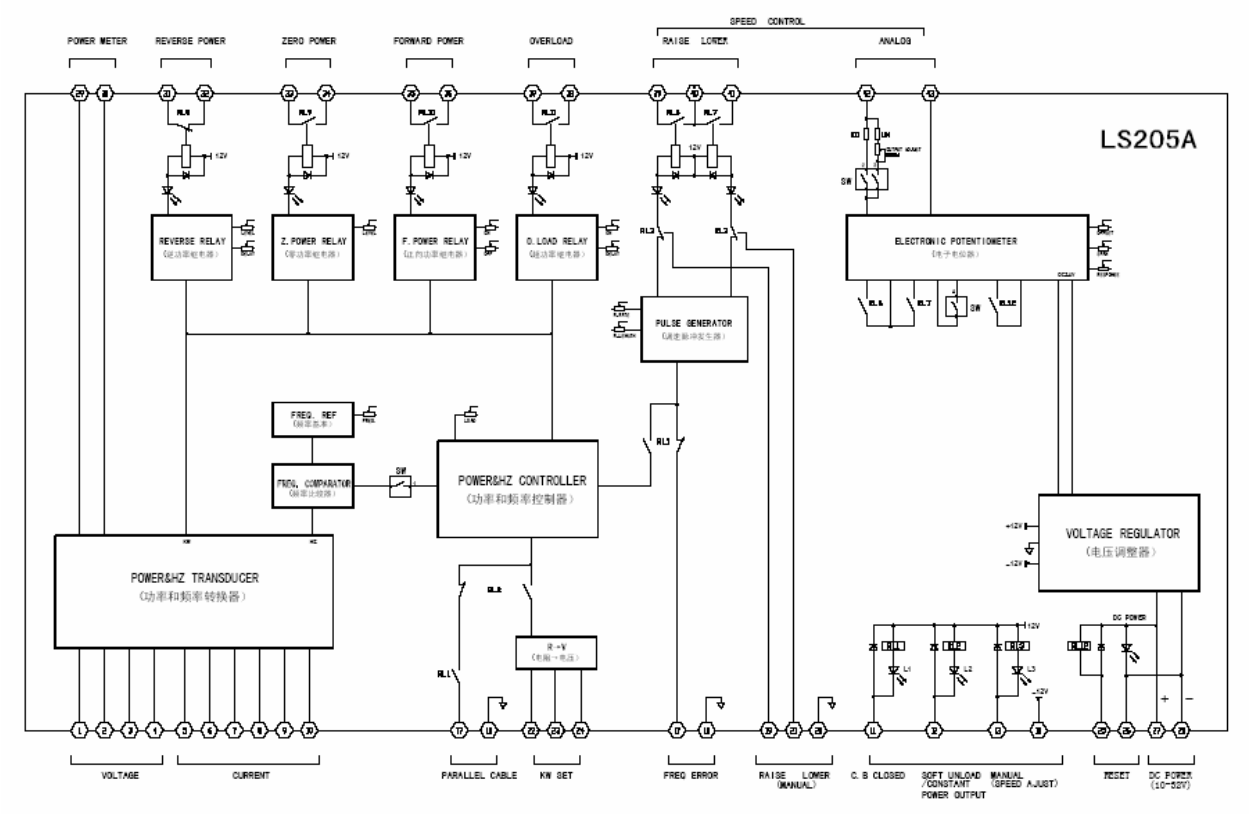
Mounting Index

1. Settle down the controller, connect the terminals according to typical connection figure and actual requirement of the customer, please note that:
   - The AC power supply can not be over the normal working span, if over, please use transformer.
   - Don't wrongly connect the two power supply import, make sure terminal #1 and #2 is connected to common power supply, and terminal #3 and #4 is connected to genset.
   - Asuring the import power supply is the same.

2. Size



Internal structure:



Typical connection: