

radix®

GPS CLOCKS  
KEEPS YOUR PLANT IN SYNC



[www.radix.co.in](http://www.radix.co.in)

## GPS MASTER-SLAVE CLOCKS

Radix offers GPS based solution for accurate and consistent timekeeping within a facility, whether a factory or an office.

Radix GPS based clocks, offer wireless and wired solutions for time synchronisation. Taking the time signal from GPS satellites, the GPS master device re transmits this over a wireless/wired link to all the slave clocks in range.

Radix blind RF repeaters are used to repeat the time signals to increase the range of wireless system.

Wireless slave clocks are configured as repeaters to increase range of wireless system.

A variety of sizes, display colours and materials of construction are available in compact form factor and economical package.

## FEATURES

- Time Source - GPS satellite or NTP server.
- Ethernet communication for reduced synchronizing time.
- Software for synchronizing PC time.
- Wireless solution for reduced cabling.
- Range expansion without using additional hardware.
- Built-in RTC with battery backup.
- 39 Timezones and Daylight Saving Time adjustment.
- 12H and 24H format.
- User friendly interface for configuration.
- IP65 and Flameproof compliance.
- 2.3" and 4.0" super bright seven segment LED display.
- Multiple colour options - Red, green and white colours.
- Multiple mounting arrangements like Table-top, wall mount, flush mount and hanging models.
- Health monitoring utility for Ethernet and RS485 clocks.
- Parameter configuration utility for master clocks and RS485 clocks.
- Provision to update RTC of RS485 devices.

## APPLICATIONS

- Pharma manufacturing facilities
- Automotive industries
- Auditorium
- Hospitals
- Office building
- Malls
- Government office
- Manufacturing industries

## GPS MASTER

GMC201 : RF, RS485



GMC203 : ETHERNET, RS485, RF



GMC201 : FLAMEPROOF



- Time format : 6 digit (HH:MM:SS)
- Colour : Red
- Isolation power supply and RS485 : 2000VAC, RMS, 1 minute
- Operating temperature : 0 - 50 °C
- Storage temperature : 0 - 60 °C
- Relative humidity : 0-95 %, non-condensing

- Enclosure : Gas group IIA & IIB, CMRI, Dhanbad
- Finish : Grey, Epoxy coated
- Protection : IP55 as per IS/IEC 60529-2001
- MOC : Aluminium casting alloy LM-6
- Display window : Toughened glass 8mm thick
- Cable entry : 1/2" NPT x 2 Nos.
- Cable gland : Not provided

Note : Display time accuracy - Within one second of GPS/Server time when synchronized

### SPECIFICATIONS

	GMC201	GMC203	GMC201 FLAMEPROOF
Power supply	85~265 V AC / 50 Hz	12~48 VDC, PoE (IEEE802.3af, Class 1)	85~265 V AC / 50 Hz
CPU	32 bit	32 bit	32 bit
Time source	GPS	GPS, NTP	GPS
Communication interface			
Master to slave	RF wireless, RS485 (MODBUS RTU)	RS485 (MODBUS RTU), Ethernet (10/100 Base-TX, 8-pin RJ-45X1, Auto-negotiating), RF wireless	RF wireless, RS485 (MODBUS RTU)
Utility	PC based	Browser based, PC based	PC based
Protocol	Proprietary	TCP, UDP, HTTP, DHCP, SNTP	Proprietary
LED indication	AM, PM, PPS/RTC, RFTX, RS485, LOW BAT	AM, PM, PPS, NTP, TXD, LINK, RFTX	AM, PM, PPS/RTC, RFTX, RS485, LOW BAT
Display size	0.56" (14.22 mm)	0.362" (9.19 mm)	0.56" (14.22 mm)
Material	ABS with polycarbonate	MS	Aluminium Alloy LM-6, Finish Grey, Epoxy coated
Protection	IP20	NA	IP55
Mounting	Table top & Wall mount	Wall Mount	Wall mount
GPS Antenna	External antenna (3 m)	External antenna (3 m)	External antenna (3 m)
Power consumption	4.2 watts	1.2 watts	3 watts

## SLAVE CLOCKS

### COMMON FEATURES

- Controller : 32 bit CPU
- Display colour : Red
- Material : SS304
- Mounting : Table-top, Wall mounting, Hanging, Flush mounting
- Operating temperature : 0~50 °C
- Storage temperature : 0~60 °C
- Relative humidity : Below 90%, non-condensing

### RF SLAVE CLOCK

- **Power supply**  
85~265 VAC / 50Hz
- **Master to slave link**  
RF wireless (867MHz)
- **Protocol**  
Proprietary
- **Parameter configuration**  
DIP Switch
- **LED indications**  
PM, SYNC
- **Protection**  
IP65 (on demand) /  
FLP (on demand)
- **Power consumption**  
GSC301 - 3 watts  
GSC401 - 5 watts  
GSC311 - 3.2 watts

Note :  
Display time accuracy -  
Within 1 sec of master  
time when synchronized



2.3", HH:MM, 311x117x29mm



2.3", HH:MM:SS, 424x117x29mm



4", HH:MM, 500x180x32mm



4", HH:MM:SS, 610x180x32mm



2.3", 12 Digit, HH:MM:SS, DD:MM:YY, 420x205x22mm

- LED indications  
AM, PM, SYNC

## SLAVE CLOCKS

### RS485 SLAVE CLOCK

- **Power supply**  
85~265 VAC / 50Hz
- **Master to slave link**  
RS485
- **Protocol**  
MODBUS RTU
- **Parameter configuration**  
PC based utility
- **LED indications**  
PM, SYNC
- **Protection**  
IP65 (on demand) /  
FLP (on demand)
- **Power consumption**  
GSC301 - 2.7 watts  
GSC401 - 3.5 watts



2.3", HH:MM, 311x117x29mm



2.3", HH:MM:SS, 424x117x29mm



4", HH:MM, 500x180x32mm



4", HH:MM:SS, 610x180x32mm

### ETHERNET SLAVE CLOCK

- **Power supply**  
85~265 VAC
- **Master to slave link**  
Ethernet [10/100 Base-TX,  
8-pin RJ-45X1
- **Protocol**  
TCP, UDP, HTTP, DHCP,  
SNTP, MODBUS TCP
- **Parameter configuration**  
Browser based
- **LED indications**  
PM, SYNC
- **Protection**  
FLP (on demand)
- **Power consumption**  
GSC301 - 4.5 watts  
GSC401 - 5.5 watts



2.3", HH:MM, 311x117x29mm



2.3", HH:MM:SS, 424x117x29mm



4", HH:MM, 500x180x32mm



4", HH:MM:SS, 610x180x32mm

### BLIND RF REPEATER

- **Power supply**  
85~265 VAC
- **Interface**  
Master to Repeater & Repeater to slave clocks-  
RF wireless(867 MHz)
- **LED indications**  
Repeater
- **Protection**  
IP20
- **Material**  
ABS with polycarbonate
- **Mounting**  
Table top and Wall mount
- **Power consumption**  
2.8 watts



120x80x55mm

## SLAVE CLOCKS

### FLUSH MOUNTING RF/RS485/ETHERNET SLAVE CLOCK



2.3", HH:MM, 365x190x29mm



2.3", HH:MM:SS, 480x190x29mm



4", HH:MM, 555x255x32mm



4", HH:MM:SS, 665x255x32mm

### FLAMEPROOF RF/RS485/ETHERNET SLAVE CLOCK



2.3", HH:MM, 385x211x97mm



2.3", HH:MM:SS, 600x301x105mm

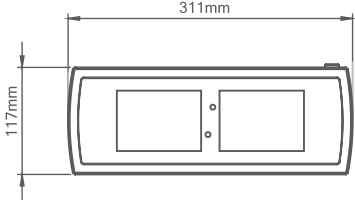
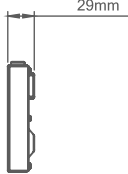
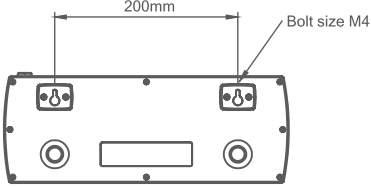
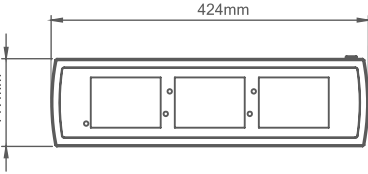
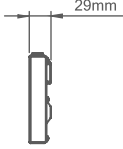
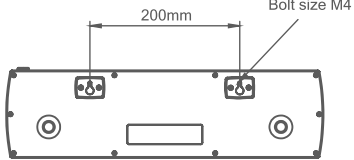
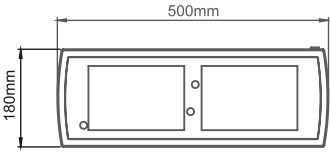

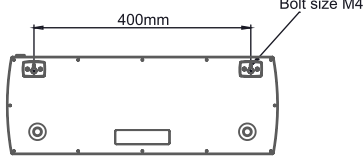
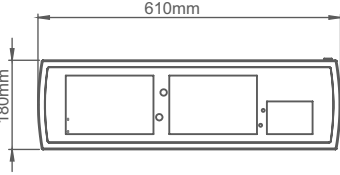
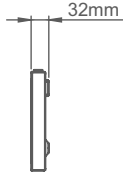
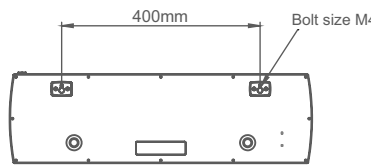
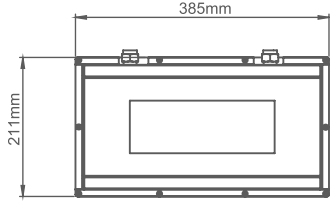
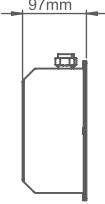
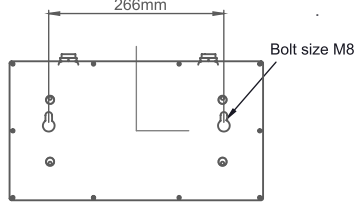
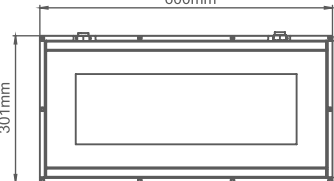
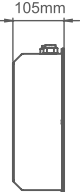
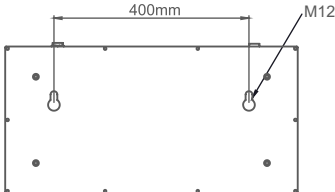


4", HH:MM, 600x301x105mm



WITHOUT SS COVER

## DIMENSIONS

Model	Front View	Side View	Rear View
GSC301 2.3" HH:MM SS304			
GSC301 2.3" HH:MM:SS SS304			
GSC401 4" HH:MM SS304			
GSC401 4" HH:MM:SS SS304			
GSC301 2.3" HH:MM SS316 FLAMEPROOF WEIGHT 6 Kg			
GSC301 / GSC401 2.3" / 4" HH:MM:SS / HH:MM SS316 FLAMEPROOF WEIGHT 16.5 Kg			

## DIMENSIONS

Model	Front View	Side View	Rear View
<b>GSC301</b> <b>2.3"</b> <b>HH:MM</b> <b>ALUMINIUM ALLOY LM-6</b> <b>FLAMEPROOF</b> <b>WEIGHT 3 Kg</b>			
<b>GSC301 / GSC401</b> <b>2.3" / 4"</b> <b>HH:MM:SS / HH:MM</b> <b>ALUMINIUM ALLOY LM-6</b> <b>FLAMEPROOF</b> <b>WEIGHT 11.5 Kg</b>			
<b>GSC301</b> <b>2.3"</b> <b>HH:MM</b> <b>SS304</b> <b>FLUSH MOUNTING</b>			
<b>GSC301</b> <b>2.3"</b> <b>HH:MM:SS</b> <b>SS304</b> <b>FLUSH MOUNTING</b>			
<b>GSC401</b> <b>4"</b> <b>HH:MM</b> <b>SS304</b> <b>FLUSH MOUNTING</b>			
<b>GSC401</b> <b>4"</b> <b>HH:MM:SS</b> <b>SS304</b> <b>FLUSH MOUNTING</b>			



## DIMENSIONS

Model	Front View	Side View	Rear View
<b>GSC311</b> <b>2.3"</b> <b>HH:MM:SS /</b> <b>DD:MM:YY</b> <b>SS304</b>			

Model	Front View	Bottom View	Side View	Rear View
<b>GRR201</b>				

Model	Front View	Side View	Bottom View
<b>FLP GMC201</b>			

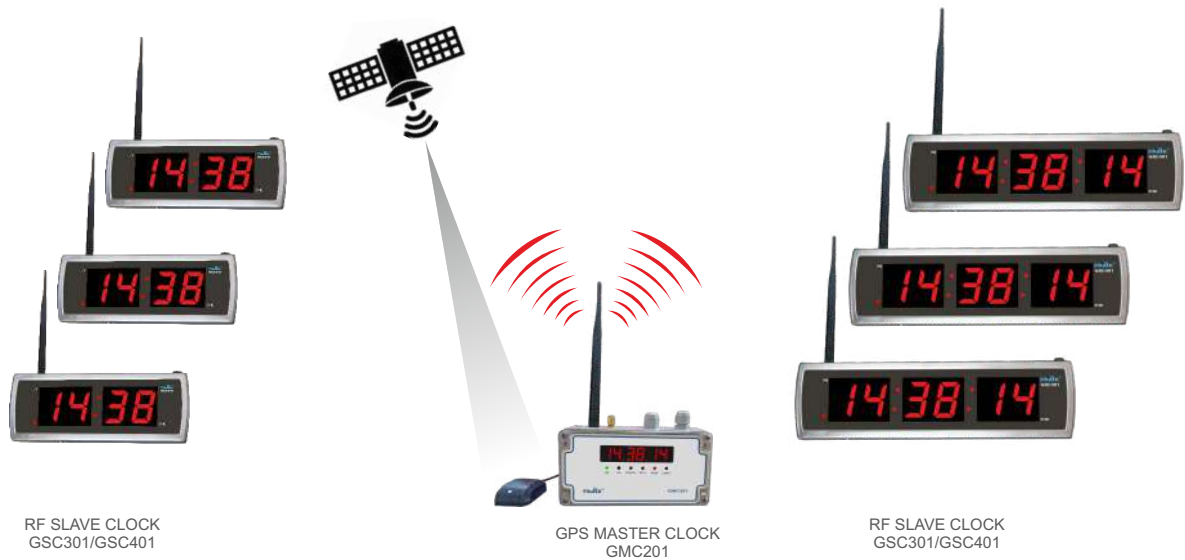
Model	Front View	Top View	Rear View	Side View
<b>GMC201</b>				

Model	Front View	Top View	Side View	Bottom View
<b>GMC203</b>				

## APPLICATION DIAGRAMS

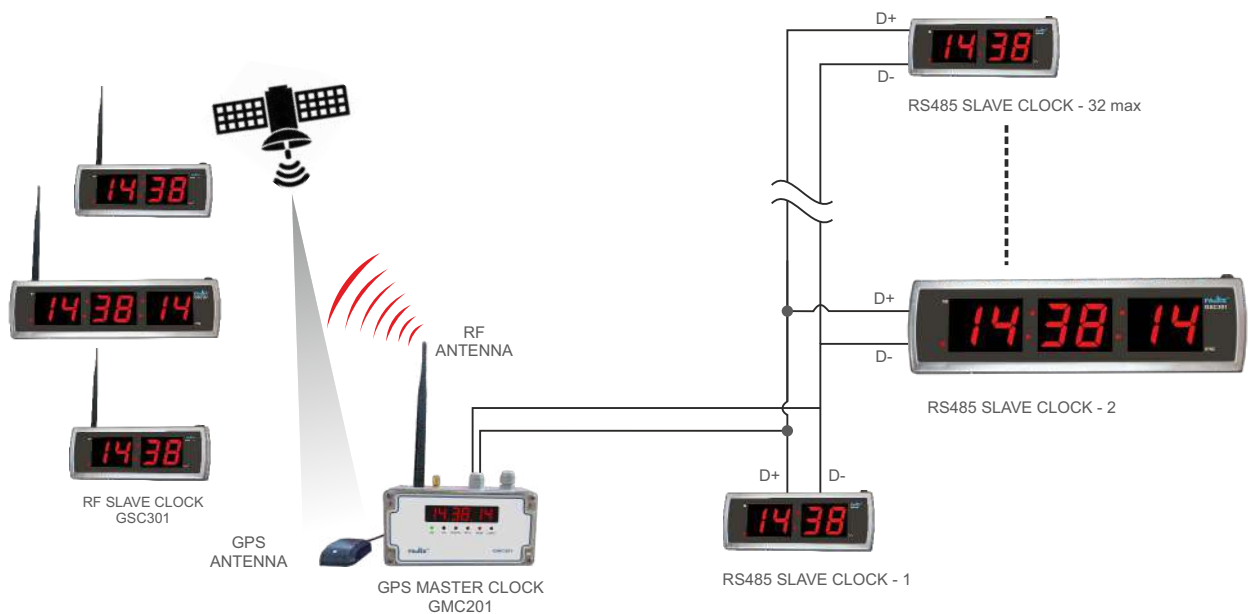
### WIRELESS MASTER SLAVES NETWORK

The GPS Master Clock takes time signal from satellites and synchronizes all the slaves within range over a wireless network.



### GPS MASTER & WIRED, WIRELESS SLAVES NETWORK

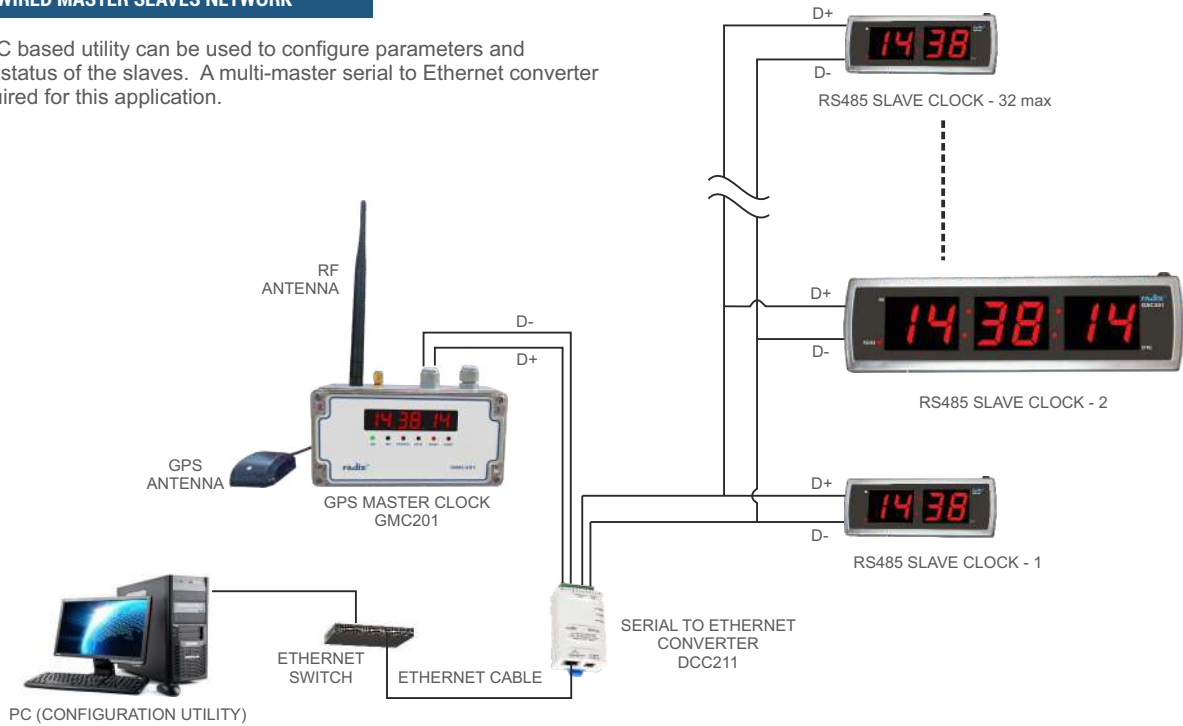
The master clock synchronizes wireless and wired slaves simultaneously.



## APPLICATION DIAGRAMS

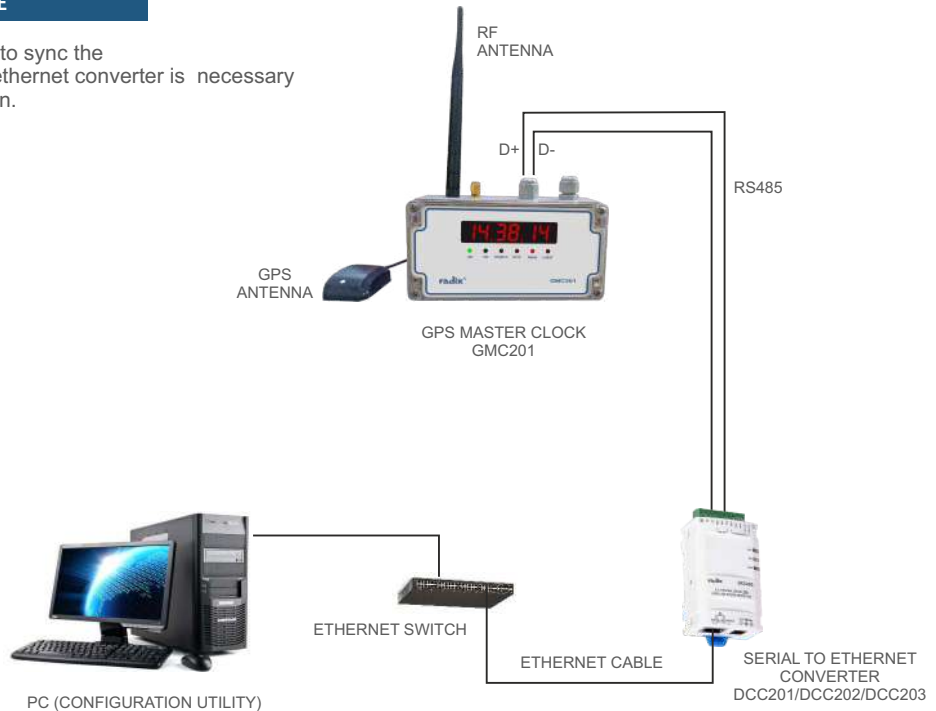
### WIRED MASTER SLAVES NETWORK

The PC based utility can be used to configure parameters and check status of the slaves. A multi-master serial to Ethernet converter is required for this application.



### STANDALONE SLAVE

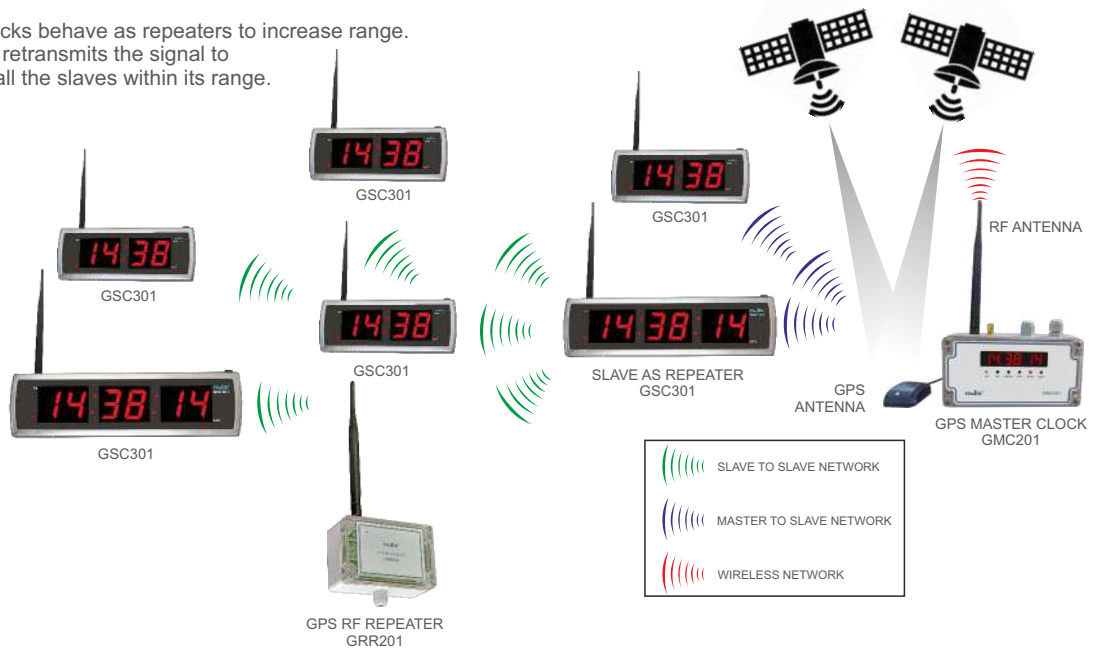
The master clock can be used to sync the PC with GPS time. A serial to ethernet converter is necessary for PC to device communication.



## APPLICATION DIAGRAMS

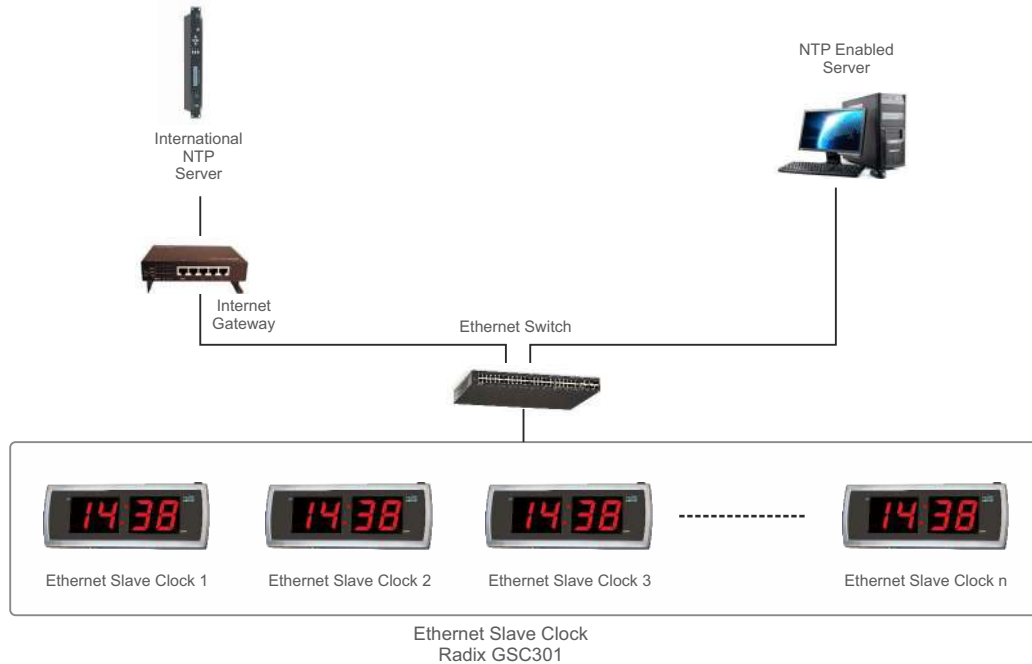
### RANGE EXPANSION

The slave clocks behave as repeaters to increase range. The repeater retransmits the signal to synchronize all the slaves within its range.



### NTP/GPS SLAVES NETWORK

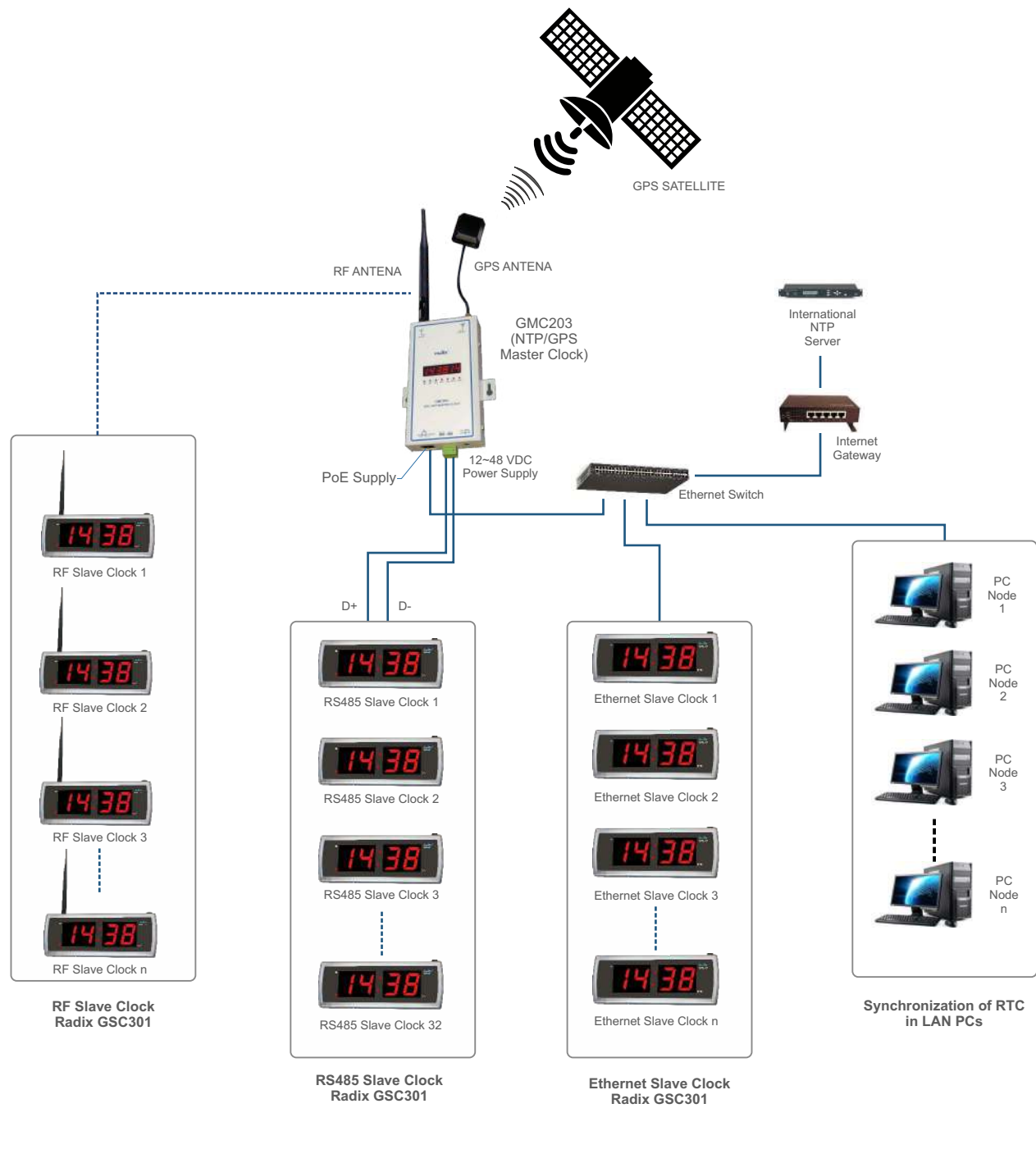
The Ethernet slaves can communicate with a NTP enabled server PC and get synchronized with NTP time.



## APPLICATION DIAGRAMS

### NTP/GPS MASTER NETWORK

The NTP master synchronizes Ethernet slave clocks, PCs and RS485 slaves to GPS/NTP time. A PC based utility is used to check status of all connected slaves.



## ORDERING INFORMATION

### RF SLAVE CLOCK

Model	Order Code	Digit Size	Display Format	Enclosure	Mounting	Interface	Power Supply
GSC301	2734	2.3"	HH:MM	SS	Wall	RF	85~265 VAC
GSC301	2735	2.3"	HH:MM:SS	SS	Wall	RF	85~265 VAC
GSC401	2736	4"	HH:MM	SS	Wall	RF	85~265 VAC
GSC401	2737	4"	HH:MM:SS	SS	Wall	RF	85~265 VAC
GSC301	2738-1	2.3"	HH:MM	FLP with SS housing	Wall	RF	85~265 VAC
GSC301	2738-2	2.3"	HH:MM	FLP without SS housing	Wall	RF	85~265 VAC
GSC301	2758-1	2.3"	HH:MM:SS	FLP with SS housing	Wall	RF	85~265 VAC
GSC301	2758-2	2.3"	HH:MM:SS	FLP without SS housing	Wall	RF	85~265 VAC
GSC401	2739-1	4"	HH:MM	FLP with SS housing	Wall	RF	85~265 VAC
GSC401	2739-2	4"	HH:MM	FLP without SS housing	Wall	RF	85~265 VAC
GSC301	2790	2.3"	HH:MM	SS	Flush	RF	85~265 VAC
GSC301	2791	2.3"	HH:MM:SS	SS	Flush	RF	85~265 VAC
GSC401	2802	4"	HH:MM	SS	Flush	RF	85~265 VAC
GSC401	2803	4"	HH:MM:SS	SS	Flush	RF	85~265 VAC
GSC311	2872	2.3"	HH:MM:SS, DD:MM:YY	SS	Wall	RF	85~265 VAC

### RS485 SLAVE CLOCK

Model	Order Code	Digit Size	Display Format	Enclosure	Mounting	Interface	Power Supply
GSC301	2740	2.3"	HH:MM	SS	Wall	RS485	85~265 VAC
GSC301	2741	2.3"	HH:MM:SS	SS	Wall	RS485	85~265 VAC
GSC401	2742	4"	HH:MM	SS	Wall	RS485	85~265 VAC
GSC401	2743	4"	HH:MM:SS	SS	Wall	RS485	85~265 VAC
GSC301	2744-1	2.3"	HH:MM	FLP with SS housing	Wall	RS485	85~265 VAC
GSC301	2744-2	2.3"	HH:MM	FLP without SS housing	Wall	RS485	85~265 VAC
GSC301	2759-1	2.3"	HH:MM:SS	FLP with SS housing	Wall	RS485	85~265 VAC
GSC301	2759-2	2.3"	HH:MM:SS	FLP without SS housing	Wall	RS485	85~265 VAC
GSC401	2745-1	4"	HH:MM	FLP with SS housing	Wall	RS485	85~265 VAC
GSC401	2745-2	4"	HH:MM	FLP without SS housing	Wall	RS485	85~265 VAC
GSC301	2853	2.3"	HH:MM	SS	Flush	RS485	85 to 265 VAC
GSC301	2854	2.3"	HH:MM:SS	SS	Flush	RS485	85 to 265 VAC
GSC401	2840	4"	HH:MM	SS	Flush	RS485	85 to 265 VAC

## ORDERING INFORMATION

### ETHERNET SLAVE CLOCK

Model	Order Code	Digit Size	Display Format	Enclosure	Mounting	Interface	Power Supply
GSC301	2746	2.3"	HH:MM	SS	Wall	Ethernet	PoE
GSC301	2747	2.3"	HH:MM:SS	SS	Wall	Ethernet	PoE
GSC401	2748	4"	HH:MM	SS	Wall	Ethernet	PoE
GSC401	2749	4"	HH:MM:SS	SS	Wall	Ethernet	PoE
GSC301	2750-1	2.3"	HH:MM	FLP with SS housing	Wall	Ethernet	PoE
GSC301	2750-2	2.3"	HH:MM	FLP without SS housing	Wall	Ethernet	PoE
GSC301	2760-1	2.3"	HH:MM:SS	FLP with SS housing	Wall	Ethernet	PoE
GSC301	2760-2	2.3"	HH:MM:SS	FLP without SS housing	Wall	Ethernet	PoE
GSC401	2751-1	4"	HH:MM	FLP with SS housing	Wall	Ethernet	PoE
GSC401	2751-2	4"	HH:MM	FLP without SS housing	Wall	Ethernet	PoE
GSC301	2850	2.3"	HH:MM	SS	Wall	Ethernet	85~265 VAC, PoE
GSC301	2837	2.3"	HH:MM:SS	SS	Wall	Ethernet	85~265 VAC, PoE
GSC401	2821	4"	HH:MM	SS	Wall	Ethernet	85~265 VAC, PoE
GSC401	2838	4"	HH:MM:SS	SS	Wall	Ethernet	85~265 VAC, PoE
GSC401	2839-1	4"	HH:MM	FLP-With SS housing	Wall	Ethernet	85~265 VAC, PoE
GSC401	2839-2	4"	HH:MM	FLP without SS housing	Wall	Ethernet	85~265 VAC, PoE
GSC301	2822	2.3"	HH:MM	SS	Flush	Ethernet	PoE
GSC301	2828	2.3"	HH:MM:SS	SS	Flush	Ethernet	PoE
GSC401	2825	4"	HH:MM	SS	Flush	Ethernet	PoE
GSC301	2856	2.3"	HH:MM	SS	Flush	Ethernet	85~265 VAC, PoE
GSC301	2857	2.3"	HH:MM:SS	SS	Flush	Ethernet	85~265 VAC, PoE
GSC401	2875	4"	HH:MM	SS	Flush	Ethernet	85~265 VAC, PoE

### BLIND RF REPEATER

Model	Product code
GRR201	2876

### MASTER CLOCK

Details	Model	Product code
With server time synchronization	GMC201	2733-1
Without server time synchronization	GMC201	2733-2

Model	Product code
GMC203	2855

## OTHER PRODUCTS

### INSTRUMENTS



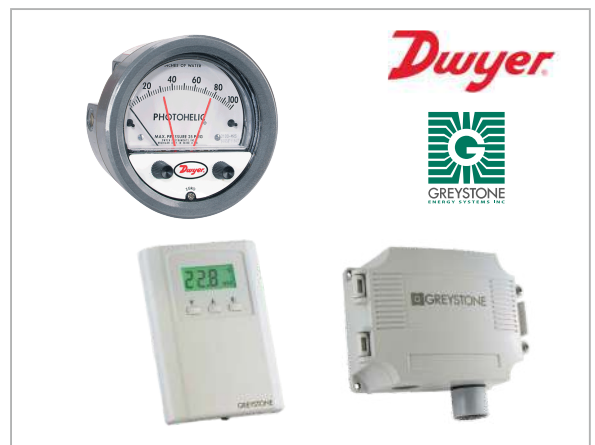
### SCR POWER REGULATORS



### LEVEL & FLOW PRODUCTS



### INTERNATIONAL PARTNERS



### RTDs & THERMOCOUPLES



### BMS PRODUCTS



#### ENQUIRIES

Instruments : sales@radix.co.in  
 Sensors : sensors@radix.co.in  
 Gauges : gauges@radix.co.in  
 Automation : automation@radix.co.in  
 Level : level@radix.co.in

RADIX ELECTROSYSTEMS PVT LTD  
 EL-135/136/137, Electronics Zone  
 TTC Indl. Area, MIDC, Mahape  
 Navi Mumbai - 400 710, India  
 + 91 22 42537707 · sales@radix.co.in