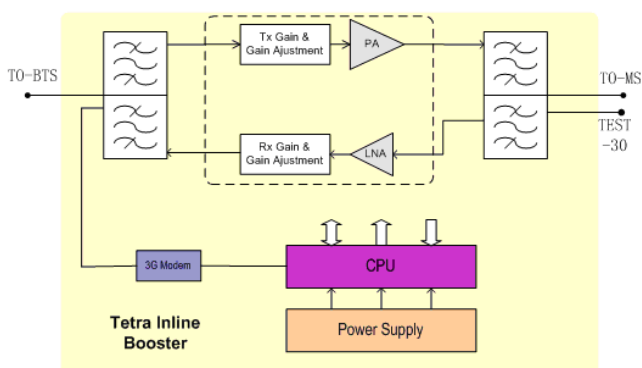


Model : STR400-LA-F1'F2/F3'F4-P

Highlight

- Comply with ETSI standard
- Support 350-520MHz
- Support up to 7MHz Bandwidth (Typical 5MHz and 5MHz Guardband)
- Optional remote alarm/control/monitoring/statistics by ethernet or sms
- Optional different kinds of redundancy configuration

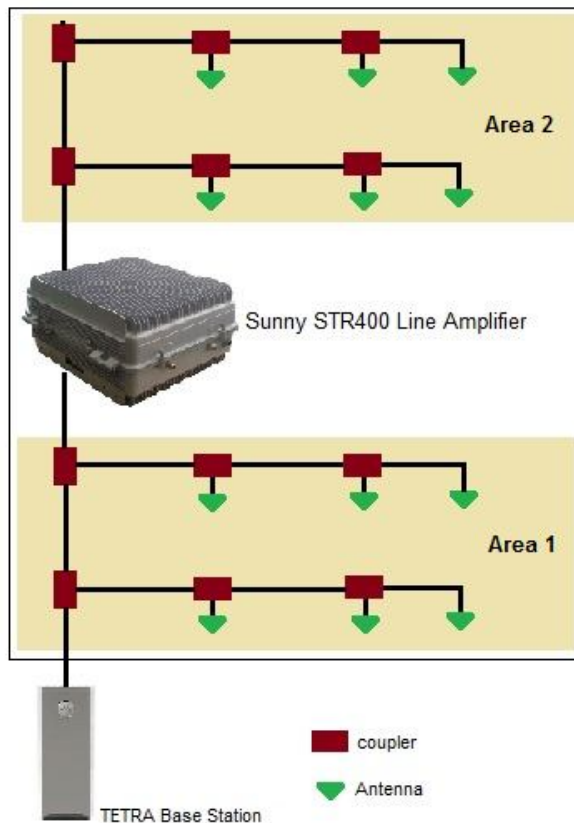
System Block Diagram



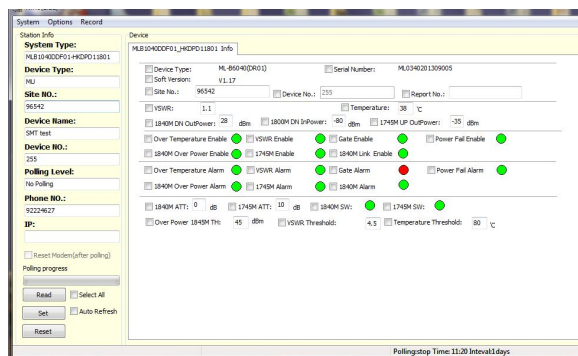
System Outlook



Application Example



Remote Software





Electrical Specification

Items	Uplink	Downlink
Frequency Range	F1-F2MHz (within 350-520MHz)	F3-F4MHz (within 350-520MHz)
Bandwidth	≤7MHz (typ 5MHz)	≤7MHz (typ 5MHz)
Guardband (F3 minus F4)	≥3MHz	≥3MHz
Output Power	30±2dBm	37±2dBm 40±2dBm 43±2dBm
Max Gain	45±3dB	
ALC	△Po≤±1 dBm	
Time Delay	≤2us	
Noise Figure	≤5dB	
Gain Adjustment Step	1dB	
Gain Adjustment Range	≥30dB	
Gain	10dB	±1.0dB
Adjustable	20dB	±1.0dB
Linear	30dB	±1.5dB
Intermodulation attenuation	ETSI TS 101 789, EN 300 394	
IP3	≥40dBm	≥68dBm
VSWR	BS/MS Port	1.5
Compliance	ETSI TS 101 789, EN 300 394, EN 60950, EN 301489	

Power Supply and Mechanical Specification

RF Connector	N-Female/50ohm
Operating Temperature	-25°C ~+55°C
Relative Humidity	Max. 95%
Dimensions (Packing Size)	750x500x310mm
Weight	N.W.33.5kg, G.W.36kg
MTBF	Min. 100000 hours
Power Supply	230VAC, 50/60Hz
Weather Proof	IP65
Remote Monitoring Function	Real-time alarm for Door Status, Temperature, Power Supply, VSWR, Output Power
Remote Control Module	RS232/USB (Standard) Wireless Modem (option STR400-RFM) Ethernet (option STR400-ETH)

Ordering Information:

Model: STR400-LA-F1'F2/F3'F4-P

Step 1 :

Confirm uplink/downlink frequency. F1 to F2 and F3 to F4 are within 350-520MHz (typically 5MHz, optional ≤7MHz)

F3 minus F2 must be ≥3MHz

Step 2 :

Confirm Maximum Downlink output power (P in dBm) : **43, 40 or 37**

Step 3 : Choose the option needed

STR400-RFM: Sunny Remote Control by RF Modem (SMS)²

STR400-ETH: Sunny Remote Control by Ethernet²

STR400-UPS: Sunny Uninterruptible Power Supply

STR400-45-HSPSU: Sunny Hot Standby Power Supply Unit¹

STR400-45-HSRU: Sunny Hot Standby RF Module Unit¹

STR400-45-HSWU: Sunny Hot Standby Whole Unit¹

SUN-OMS: Sunny Remote Control Software

¹ & ² need to order together with main unit ^{1,2} order either option only

Step 4 : Finalize the model and options

Technical data are subjected to change without notice – File: STR400-LA-F1'F2/F3'F4-P datasheet 2016V1.0



STR400 Series – TETRA RF Repeater

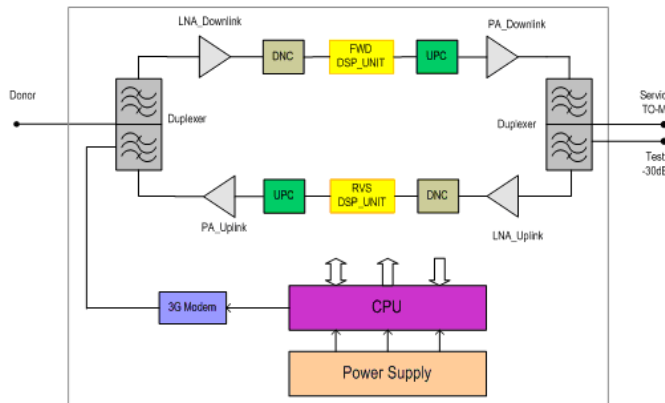
TETRA RF Repeater is used to extend the coverage area for both outdoor and indoor environment by picking up the signal through donor antenna, then amplifier and broadcast to the serving area by serving antenna(s). Sunny STR400 Series – TETRA RF Repeater provides wide range of configurations to address different customer requirement.

Model: STR400-RP-F1'F2/F3'F4-P

Highlight

- Comply with ETSI standard
- Support 350-520MHz
- Support up to 7MHz Bandwidth (Typical 5MHz and 5MHz Guardband)
- Support up to 90dB Gain
- Optional remote alarm/control/monitoring/statistics by ethernet or sms
- Optional different kinds of redundancy configuration

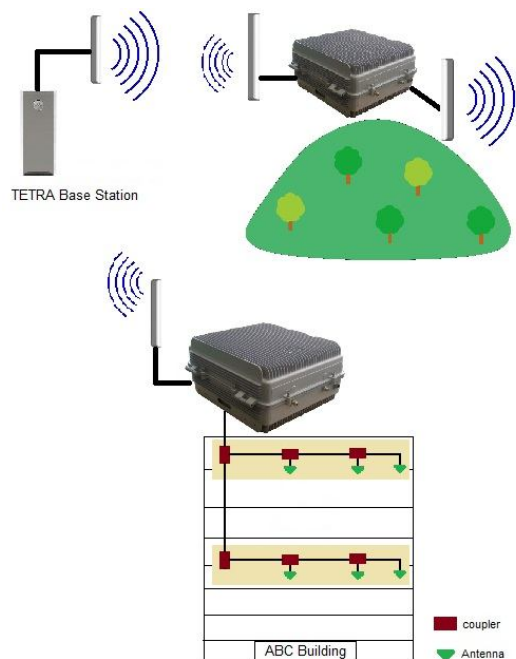
System Block Diagram



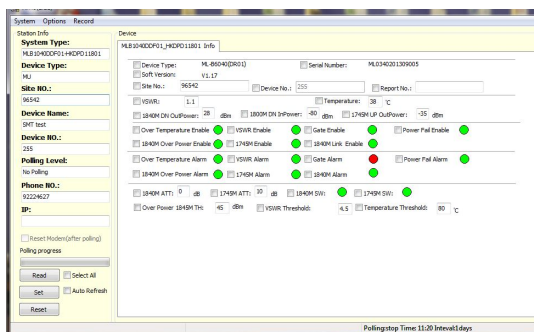
System Outlook



Application Example



Remote Software





Electrical Specification

Items	Uplink	Downlink
Frequency Range	F1-F2MHz (within 350-520MHz)	F3-F4MHz (within 350-520MHz)
Bandwidth	≤7MHz (typ 5MHz)	≤7MHz (typ 5MHz)
Guardband (F3-F4)	≥3MHz	≥3MHz
Output Power	30±2dBm	37±2dBm 40±2dBm 43±2dBm
Max Gain	90±3dB	
ALC	△Po≤±1 dBm	
Time Delay	≤2us	
Noise Figure	≤5dB	
Gain Adjustment Step	1dB	
Gain Adjustment Range	≥30dB	
Gain	10dB	±1.0dB
Adjustable	20dB	±1.0dB
Linear	30dB	±1.5dB
Intermodulation attenuation	ETSI TS 101 789, EN 300 394	
IP3	≥40dBm	≥68dBm
VSWR	BS/MS Port	1.5
Compliance	ETSI TS 101 789, EN 300 394, EN 60950, EN 301489	

Power Supply and Mechanical Specification

RF Connector	N-Female/50ohm
Operating Temperature	-25°C ~+55°C
Relative Humidity	Max. 95%
Dimensions (Packing Size)	750x500x310mm
Weight	N.W.33.5kg, G.W.36kg
MTBF	Min. 100000 hours
Power Supply	230VAC, 50/60Hz
Weather Proof	IP65
Remote Monitoring Function	Real-time alarm for Door Status, Temperature, Power Supply, VSWR, Output Power
Remote Control Module	RS232 (Standard) Wireless Modem (option STR400-RFM) Ethernet (option STR4007-ETH)

Ordering Information:

Model: STR400-RP-F1'F2/F3'F4-P-TU

Step 1:

Confirm uplink/downlink frequency. F1 to F2 and F3 to F4 are within 350-520MHz and typically 5MHz (Optional ≤7MHz);
F3 minus F2 must ≥3MHz

Step 2:

Confirm Maximum Downlink output power (P, dBm): **43, 40 or 37**

Step 3: Choose the option needed

STR400-RFM: Sunny Remote Control by RF Modem (SMS)²

STR400-ETH: Sunny Remote Control by Ethernet²

STR400-UPS: Sunny Uninterruptible Power Supply

STR400-45-HSPSU: Sunny Hot Standby Power Supply Unit¹

STR400-45-HSRU: Sunny Hot Standby RF Module Unit¹

STR400-45-HSWU: Sunny Hot Standby Whole Unit¹

SUN-OMS: Sunny Remote Control Software

¹ & ² need to order together with main unit ^{1,2} order either option only

Step 4: Finalize the model and options

Technical data are subjected to change without notice – File: STR400-RP-F1'F2/F3'F4-P datasheet 2016V1.0



STR400 Series – TETRA Fiber Optic Repeater

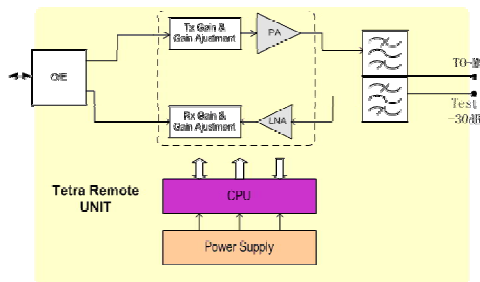
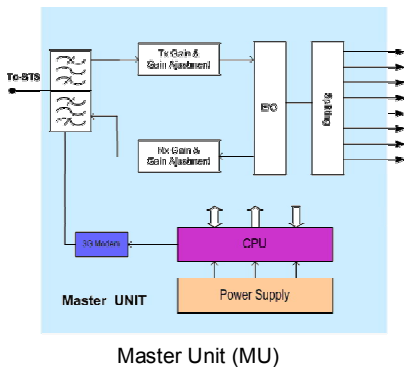
TETRA Fiber Optic Repeater is used to extend the wide coverage site such as campus, tunnel and building. in passive distribution antenna system (DAS). Sunny STR400 Series – TETRA Fiber Optic Repeater, is included with Master Unit (MU) and Remote Units (RU) connected by fiber cable, provides wide range of configurations to address different customer requirement.

Model : STR400-MUx-F1'F2/F3'F4-P, STR400-RU-F1'F2/F3'F4-P

Highlight

- Comply with ETSI standard
- Support 350-520MHz
- Support up to 7MHz Bandwidth (Typical 5MHz and 5MHz Guardband)
- Single MU support up to RU x 8
- Optional remote alarm/control/monitoring/statistics by ethernet or sms
- Optional different kinds of redundancy configuration

System Block Diagram



System Outlook

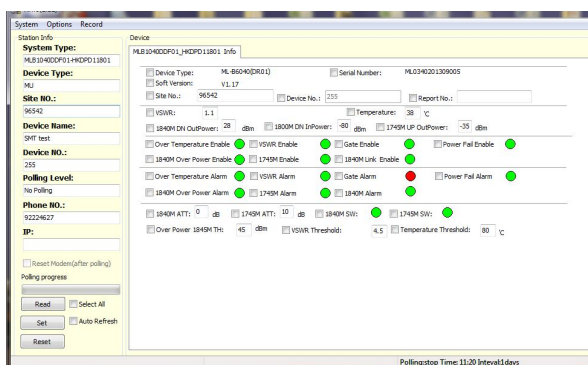


Master Unit (MU)

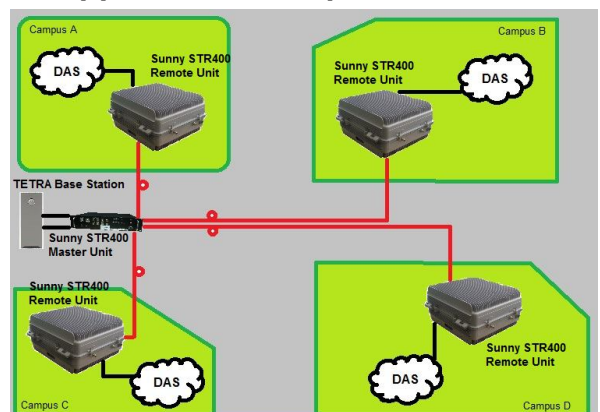


Remote Unit (RU)

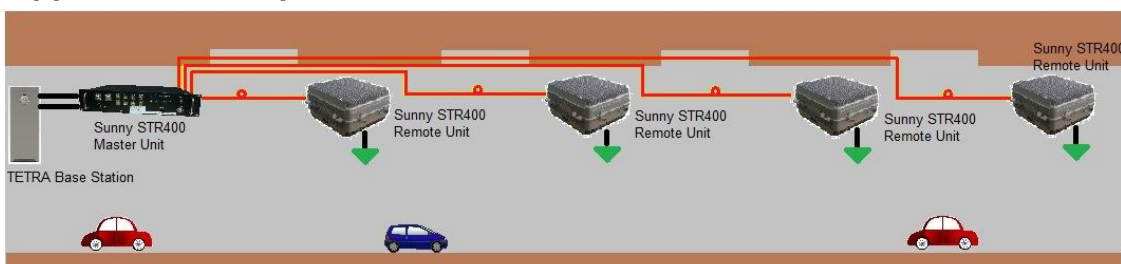
Remote Software



Application Example



Application Example





MU Electrical Specifications

Items	Downlink	Uplink
Working Frequency	350-520MHz	350-520MHz
RF Input level range for each RF input port	-5dBm~0dBm	/
Max RF input without damage	0dBm	/
RF Output Level	/	-5±2dBm
Intermodulation attenuation	ETSI TS 101 789, EN 300 394	
IP3	≥68dBm	≥40dBm
VSWR	≤1.5	
RF Connector	N-Female, 50ohm	
Compliance	ETSI TS 101 789, EN 300 394, EN 60950, EN 301489	

MU Optical Specifications

Items	Downlink	Uplink
Optical Output Power	0dBm±3dB	/
Optical Max Input power	/	+4dBm
Optical Min Input power	/	-15dBm
TX Optical length	1310nm	
Optical Loss	≤10dB	
Optical Connector	LC/PC	

MU Power Supply and Mechanical Specifications

Power Supply	AC220V±60V,45~55Hz
Max. Power Consumption	50W
Operating Temperature	-5~+45℃
Operating Humidity	≤85%
Environmental Class	IP20
MTBF	≥100000 hours
Monitor Interface	Local Monitor: RS-232 Remote Monitor: GSM/GPRS MODEM or Ethernet
Alarm Type	No Power, Over Temperature, RU Failed
Dimension	435mm*312mm*90mm
Weight	10kg

RU Electrical Specifications

Items	Downlink	Uplink
Working Frequency	F1-F2MHz (within 350-520MHz)	F3-F4MHz (within 350-520MHz)
Bandwidth	≤7MHz	≤7MHz
Guardband (F3-F4)	≥3MHz	≥3MHz
Max Gain	55±3dB	53±3dB
Max Input without damage	--	0dBm
Max Input RF level	--	-25dBm
Noise Figure	--	≤5dB
Gain Adjustable Range/Step	≥25dB/1dB	
Gain Adjustable Error	Gain adjustable range is 0~20dB, errors≤1dB; ≥21dB, errors≤1.5dB	
Ripple	≤2dB	
ALC	When adding ≤10dB at max. Output level, output variation ≤±2dB, When adding >10dB, output variation ≤±2dB or be off.	
Max Output Power	37±2dBm	/
Intermodulation attenuation	ETSI TS 101 789, EN 300 394	
IP3	≥68dBm	≥40dBm
VSWR	≤1.5	
RF Connector	N-Female, 50ohm	
Compliance	ETSI TS 101 789, EN 300 394, EN 60950, EN 301489	

RU Optical Specifications

Items	Downlink	Uplink
Optical Output Power	/	0~3dBm
Optical Max Input power	+4dBm	/
Optical Min Input power	-15dBm	/
Optical length	1550nm	
Optical Loss	≤10dB	
Optical Connector	FC/PC	
Numbers Of Optical Ports	1 pair	



RU Power Supply and Mechanical Specifications

Power Supply	AC220V±60V,45~55Hz
Max. Power Consumption	1000W
Operating Temperature	-25~+55℃
Operating Humidity	≤95%
Environmental Class	IP65
MTBF	≥100000 hours
Monitor Interface	Local Monitor: USB port
Alarm Type	No Power, PA Failure, VSWR, Over Power, Over Temperature
Dimension	750x500x310mm
Weight	N.W.33.5kg, G.W.36kg

Ordering Information:

Model:

STR400-MUx-F1'F2/F3'F4-P

STR400-RU-F1'F2/F3'F4-P

Step 1 :

Confirm x in MU: how many RU will be connect to each MU and typically is 4 or 8

Step 2 :

Confirm uplink/downlink frequency. F1 to F2 and F3 to F4 are within 350-520MHz and typically 5MHz (Optional ≤7MHz);

F3 minus F2 must ≥3MHz

Step 3 :

Confirm Maximum Downlink output power (P, dBm): **43, 40 or 37**

Step 4 : Choose the option needed

STR400-RFM: Sunny Remote Control by RF Modem (SMS)²

STR400-ETH: Sunny Remote Control by Ethernet²

STR400-UPS: Sunny Uninterruptible Power Supply

STR400-RU-HSPSU: Sunny Hot Standby Power Supply Unit¹

STR400-RU-HSRU: Sunny Hot Standby RF Module Unit¹

STR400-RU-HSWU: Sunny Hot Standby Whole Unit¹

STR400-MU-HSPSU: Sunny Hot Standby Power Supply Unit³

STR400-MU-HSRU: Sunny Hot Standby RF Module Unit³

STR400-MU-HSWU: Sunny Hot Standby Whole Unit³

SUN-OMS: Sunny Remote Control Software

^{1&2&3} need to order together with main unit

^{1,2,3} order either option only

Step 5: Finalize the model and options

Technical data are subjected to change without notice – File: STR400-37-MU/RU-F1'F2/F3'F4-P datasheet 2016V1.0



Sunny STR400 Series – TETRA Line Amplifier in 800MHz

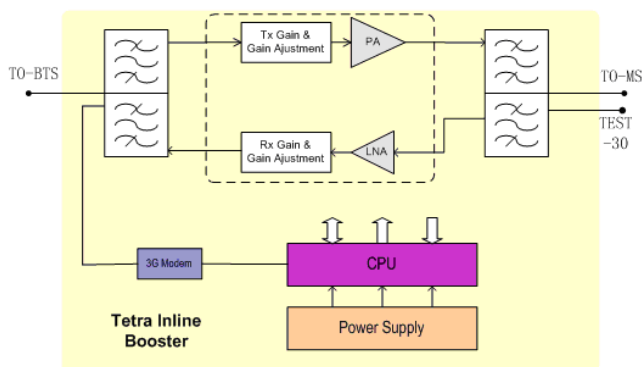
TETRA Line Amplifier (LA) is used to extend the coverage area in passive distribution antenna system (DAS) connecting by coaxial cables. Sunny STR400 Series – TETRA Line Amplifier provides wide range of configurations to address different customer requirement.

Model : STR400-LA-806'825/851'870-P

Highlight

- Comply with ETSI standard
- Optional remote alarm/control/monitoring/statistics by ethernet or sms
- Optional different kinds of redundancy configuration

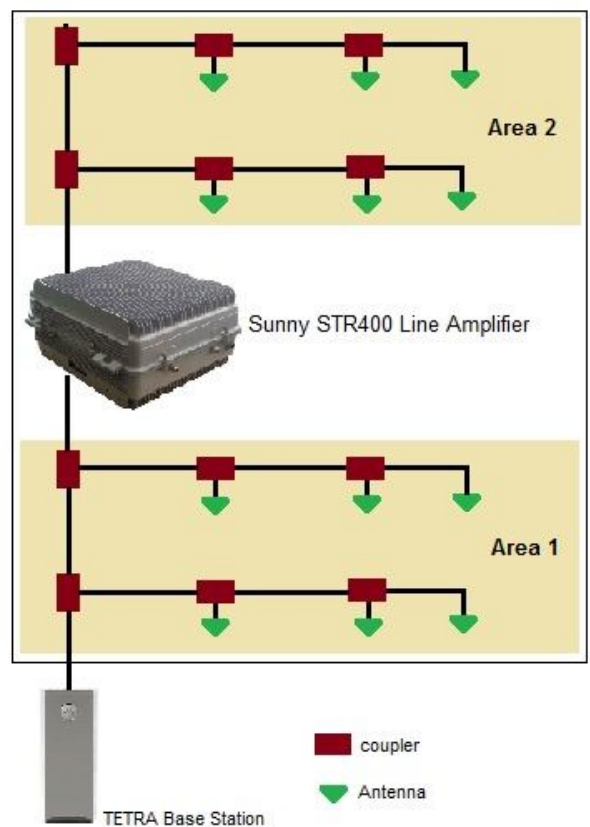
System Block Diagram



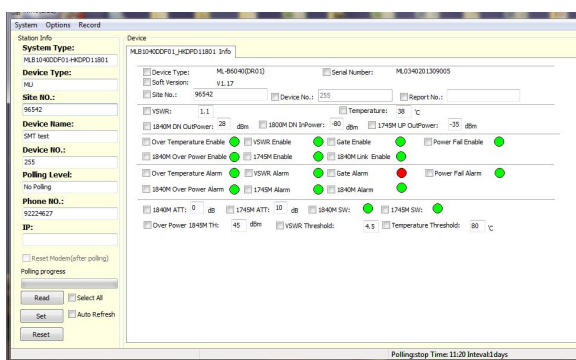
System Outlook



Application Example



Remote Software





Electrical Specification

Items	Uplink	Downlink
Frequency Range	806-825MHz	851-870MHz
Output Power	30±2dBm	37±2dBm 40±2dBm 43±2dBm
Max Gain	45±3dB	
ALC	△Po≤±1 dBm	
Time Delay	≤5us	
Noise Figure	≤5dB	
Gain Adjustment Step	1dB	
Gain Adjustment Range	≥30dB	
Gain	10dB	±1.0dB
Adjustable	20dB	±1.0dB
Linear	30dB	±1.5dB
Intermodulation attenuation	ETSI TS 101 789, EN 300 394	
IP3	≥40dBm	≥68dBm
VSWR	BS/MS Port	1.5
Compliance	ETSI TS 101 789, EN 300 394, EN 60950, EN 301489	

Power Supply and Mechanical Specification

RF Connector	N-Female/50ohm
Operating Temperature	-25°C ~+55°C
Relative Humidity	Max. 95%
Dimensions (Packing Size)	750x500x310mm
Weight	N.W.33.5kg, G.W.36kg
MTBF	Min. 100000 hours
Power Supply	230VAC, 50/60Hz
Weather Proof	IP65
Remote Monitoring Function	Real-time alarm for Door Status, Temperature, Power Supply, VSWR, Output Power
Remote Control Module	RS232/USB (Standard) Wireless Modem (option STR400-RFM) Ethernet (option STR400-ETH)

Ordering Information:

Model: STR400-LA-806'825/851'870-P

Step 1 :

Confirm Maximum Downlink output power (P in dBm) : **43, 40 or 37**

Step 2 : Choose the option needed

STR400-RFM: Sunny Remote Control by RF Modem (SMS)²

STR400-ETH: Sunny Remote Control by Ethernet²

STR400-UPS: Sunny Uninterruptible Power Supply

STR400-45-HSPSU: Sunny Hot Standby Power Supply Unit¹

STR400-45-HSRU: Sunny Hot Standby RF Module Unit¹

STR400-45-HSWU: Sunny Hot Standby Whole Unit¹

SUN-OMS: Sunny Remote Control Software

¹ & ² need to order together with main unit ^{1,2} order either option only

Step 3 : Finalize the model and options

Technical data are subjected to change without notice – File: STR400-LA-806'825/851'870-P datasheet 2016V1.0



STR400 Series – TETRA RF Repeater for 800MHz

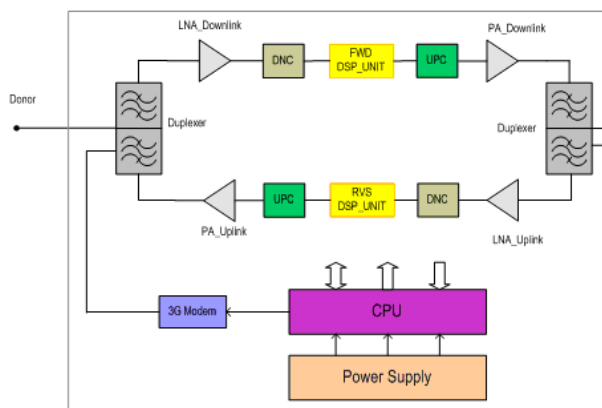
TETRA RF Repeater is used to extend the coverage area for both outdoor and indoor environment by picking up the signal through donor antenna, then amplifier and broadcast to the serving area by serving antenna(s). Sunny STR400 Series – TETRA RF Repeater provides wide range of configurations to address different customer requirement.

Model: STR400-RP-806'825/851'870-P

Highlight

- Comply with ETSI standard
- Support up to 90dB Gain
- Optional remote alarm/control/monitoring/statistics by ethernet or sms
- Optional different kinds of redundancy configuration

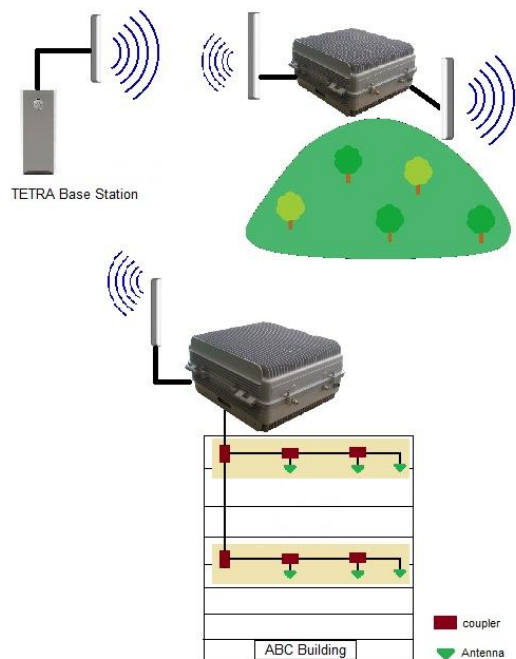
System Block Diagram



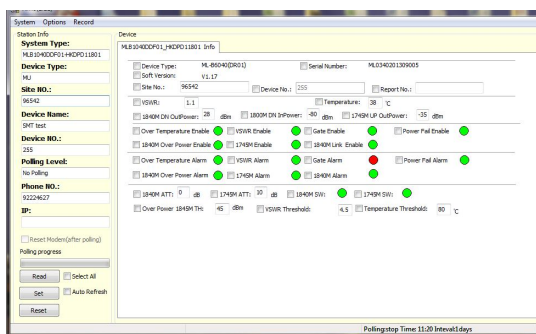
System Outlook



Application Example



Remote Software





Electrical Specification

Items	Uplink	Downlink
Frequency Range	806-825MHz	851-870MHz
Output Power	30±2dBm	37±2dBm 40±2dBm 43±2dBm
Max Gain	90±3dB	
ALC	△Po≤±1 dBm	
Time Delay	≤2us	
Noise Figure	≤5dB	
Gain Adjustment Step	1dB	
Gain Adjustment Range	≥30dB	
Gain	10dB	±1.0dB
Adjustable	20dB	±1.0dB
Linear	30dB	±1.5dB
Intermodulation attenuation	ETSI TS 101 789, EN 300 394	
IP3	≥40dBm	≥68dBm
VSWR	BS/MS Port	1.5
Compliance	ETSI TS 101 789, EN 300 394, EN 60950, EN 301489	

Power Supply and Mechanical Specification

RF Connector	N-Female/50ohm
Operating Temperature	-25°C ~+55°C
Relative Humidity	Max. 95%
Dimensions (Packing Size)	750x500x310mm
Weight	N.W.33.5kg, G.W.36kg
MTBF	Min. 100000 hours
Power Supply	230VAC, 50/60Hz
Weather Proof	IP65
Remote Monitoring Function	Real-time alarm for Door Status, Temperature, Power Supply, VSWR, Output Power
Remote Control Module	RS232 (Standard) Wireless Modem (option STR400-RFM) Ethernet (option STR4007-ETH)

Ordering Information:

Model: STR400-RP-806'825/851'870-P

Step 1:

Confirm Maximum Downlink output power (P, dBm): **43, 40 or 37**

Step 2: Choose the option needed

STR400-RFM: Sunny Remote Control by RF Modem (SMS)²

STR400-ETH: Sunny Remote Control by Ethernet²

STR400-UPS: Sunny Uninterruptible Power Supply

STR400-45-HSPSU: Sunny Hot Standby Power Supply Unit¹

STR400-45-HSRU: Sunny Hot Standby RF Module Unit¹

STR400-45-HSWU: Sunny Hot Standby Whole Unit¹

SUN-OMS: Sunny Remote Control Software

¹ & ² need to order together with main unit ^{1,2} order either option only

Step 3: Finalize the model and options

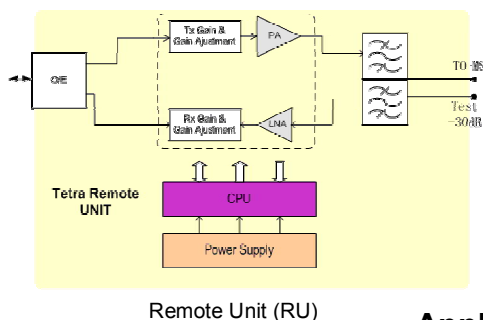
Technical data are subjected to change without notice – File: STR400-RP-806'825/851'870-P datasheet 2016V1.0



Model : STR400-MUx-806'825/851'87-P, STR400-RU-806'825/851'87-P

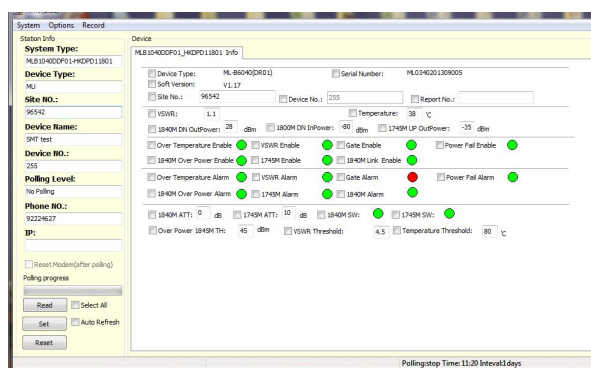
- Comply with ETSI standard
- Single MU support up to RU x 8
- Optional remote alarm/control/monitoring/statistics by ethernet or sms
- Optional different kinds of redundancy configuration

The diagram illustrates the internal architecture of the Master Unit (MU). It features a central CPU (purple block) connected to a Power Supply (orange block) at the bottom. The CPU is also connected to a 3G Modem (blue block) on the left. The 3G Modem is connected to a Te-BTS (black dot) on the far left. The CPU is also connected to a Te-Gain & Gain Adjustment block (white) and an Rx-Gain & Gain Adjustment block (white). These two gain adjustment blocks are connected to an ECU (white block). The ECU is connected to a Charging block (white), which in turn is connected to multiple output lines (black arrows) on the right. The entire system is labeled 'Master UNIT' at the bottom.



Remote Unit (RU)

Remote Unit (RU)

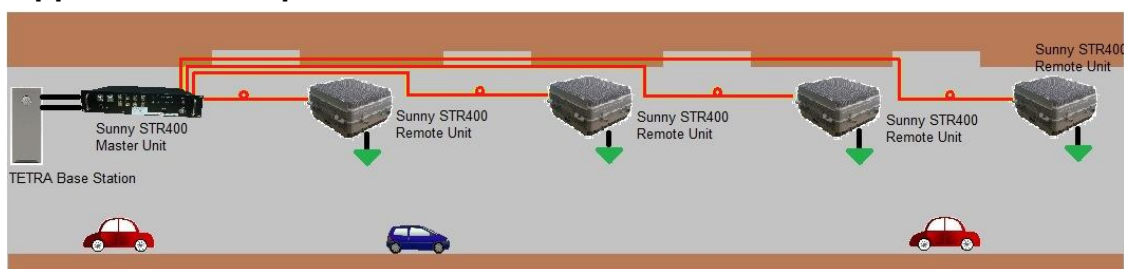


The diagram illustrates a TETRA Base Station (Sunny STR400 Master Unit) connected to four remote units (Sunny STR400 Remote Unit) across four campuses (A, B, C, and D). The base station is centrally located and connected to each remote unit via a red line. Each remote unit is also connected to a DAS (Distributed Antenna System) cloud. Campus A and B are green, while Campus C and D are yellow.

- Campus A:** Sunny STR400 Remote Unit connected to DAS.
- Campus B:** Sunny STR400 Remote Unit connected to DAS.
- Campus C:** Sunny STR400 Remote Unit connected to DAS.
- Campus D:** Sunny STR400 Remote Unit connected to DAS.

The TETRA Base Station is labeled "TETRA Base Station" and "Sunny STR400 Master Unit".

Application Example





MU Electrical Specifications

Items	Downlink	Uplink
Working Frequency	851-870MHz	806-825MHz
RF Input level range for each RF input port	-5dBm~0dBm	/
Max RF input without damage	0dBm	/
RF Output Level	/	-5±2dBm
Intermodulation attenuation	ETSI TS 101 789, EN 300 394	
IP3	≥68dBm	≥40dBm
VSWR	≤1.5	
RF Connector	N-Female, 50ohm	
Compliance	ETSI TS 101 789, EN 300 394, EN 60950, EN 301489	

MU Optical Specifications

Items	Downlink	Uplink
Optical Output Power	0dBm±3dB	/
Optical Max Input power	/	+4dBm
Optical Min Input power	/	-15dBm
TX Optical length	1310nm	
Optical Loss	≤10dB	
Optical Connector	LC/PC	

MU Power Supply and Mechanical Specifications

Power Supply	AC220V±60V,45~55Hz
Max. Power Consumption	50W
Operating Temperature	-5~+45℃
Operating Humidity	≤85%
Environmental Class	IP20
MTBF	≥100000 hours
Monitor Interface	Local Monitor: RS-232 Remote Monitor: GSM/GPRS MODEM or Ethernet
Alarm Type	No Power, Over Temperature, RU Failed
Dimension	435mm*312mm*90mm
Weight	10kg

RU Electrical Specifications

Items	Downlink	Uplink
Working Frequency	851-870MHz	806-825MHz
Max Gain	55±3dB	53±3dB
Max Input without damage	--	0dBm
Max Input RF level	--	-25dBm
Noise Figure	--	≤5dB
Gain Adjustable Range/Step	≥25dB/1dB	
Gain Adjustable Error	Gain adjustable range is 0~20dB, error≤1dB; ≥21dB, error≤1.5dB	
Ripple	≤2dB	
ALC	When adding ≤10dB at max. Output level, output variation ≤±2dB, When adding >10dB, output variation ≤±2dB or be off.	
Max Output Power	37±2dBm	/
Intermodulation attenuation	ETSI TS 101 789, EN 300 394	
IP3	≥68dBm	≥40dBm
VSWR	≤1.5	
RF Connector	N-Female, 50ohm	
Compliance	ETSI TS 101 789, EN 300 394, EN 60950, EN 301489	

RU Optical Specifications

Items	Downlink	Uplink
Optical Output Power	/	0~3dBm
Optical Max Input power	+4dBm	/
Optical Min Input power	-15dBm	/
Optical length	1550nm	
Optical Loss	≤10dB	
Optical Connector	FC/PC	
Numbers Of Optical Ports	1 pair	



RU Power Supply and Mechanical Specifications

Power Supply	AC220V±60V,45~55Hz
Max. Power Consumption	1000W
Operating Temperature	-25~+55℃
Operating Humidity	≤95%
Environmental Class	IP65
MTBF	≥100000 hours
Monitor Interface	Local Monitor: USB port
Alarm Type	No Power, PA Failure, VSWR, Over Power, Over Temperature
Dimension	750x500x310mm
Weight	N.W.33.5kg, G.W.36kg

Ordering Information:

Model:

STR400-MUx-806'825/851'870-P

STR400-RU-806'825/851'870-P

Step 1 :

Confirm x in MU: how many RU will be connect to each MU and typically is 4 or 8

Step 2 :

Confirm Maximum Downlink output power (P, dBm): **43, 40 or 37**

Step 3 : Choose the option needed

STR400-RFM: Sunny Remote Control by RF Modem (SMS)²

STR400-ETH: Sunny Remote Control by Ethernet²

STR400-UPS: Sunny Uninterruptible Power Supply

STR400-RU-HSPSU: Sunny Hot Standby Power Supply Unit¹

STR400-RU-HSRU: Sunny Hot Standby RF Module Unit¹

STR400-RU-HSWU: Sunny Hot Standby Whole Unit¹

STR400-MU-HSPSU: Sunny Hot Standby Power Supply Unit³

STR400-MU-HSRU: Sunny Hot Standby RF Module Unit³

STR400-MU-HSWU: Sunny Hot Standby Whole Unit³

SUN-OMS: Sunny Remote Control Software

^{1&2&3} need to order together with main unit

^{1,2,3} order either option only

Step 4: Finalize the model and options

Technical data are subjected to change without notice – File: STR400-MU/RU-806'825/851'870-P datasheet 2016V1.0