



# Hoimyung ICT Products

Premier Partner for Smart Solution



HOIMYUNG ICT

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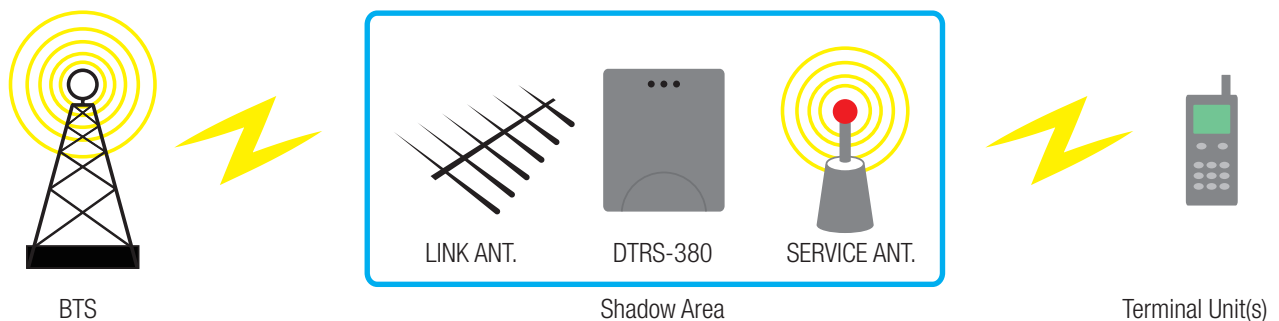
Communication Network Solution

# TETRA Repeater

**Model: HMR-380-20**

## 1. 380MHz Digital TRS Repeater

Hoimyung ICT supplies highly qualified excellent communication via digital TRS repeater(Model: HMR-380-20) to be able to search TETRA TRS (380MHz bandwidth) signal with less noisy frequency in the difficult installation places where a BTS(Base Transceiver Station) is not easy to set such as underground shopping center, tunnel, and other shadow areas.



## 2. Expectation

- Advance stability through dual protection in the core parts
- Supply adjustable function for weaken frequency receipt
- Offer feedback and alarm functions
- Provide outdoor and indoor types
- Be able to select RF and/or RF optical type.  
(Option: TETRA modem)



# TETRA Repeater

**Model: HMR-380-20**

## 3. Repeater Specifications

Section	Description	Remarks
Reg. Frequency	Forward Direction: 390~395Mhz Reverse Direction: 380~385Mhz	
Input Range	-60~-50dBm	
Frequency Bandwidth	5MHz	
Output	10mW	
Noisy	Below 7dB	Reverse direction
Gain Spec.	60dB (58~62dB)	
Spurious	-Below 50dBm/1KHz@9KHz~150KHz	
	-Below 36dBm/10KHz@150KHz~30MHz	
	-Below 36dBm/100KHz@30MHz~1GHz	
	-Below 30dBm/1MHz@1GHz~12.75GHz	
Mutual Modulator	50dBc	
V.S.W.R	1:1.5	
ALC Range	Over 20dB	
Gain Adjustable Function	Below 20dB, 1dB interval	
Remote Monitor	Transit output, power, module condition	TETRA Modem
Bandwidth Stability	1.5dB	
Operating Temperature	-10~+60°C	
Input Power	AC 220V, outer mounted adaptor	
Connector	N(f) Type RF In/Out Ports	
Alarm	Indicate power, overpower, equipment condition	
Overpower Protection	SHUT DOWN function	
Size	170 x 190 x 43 (W x H x D)mm	Outer mounted adaptor

\* The above values of the parameters can be vary by development or improvement of the devices without any notification.

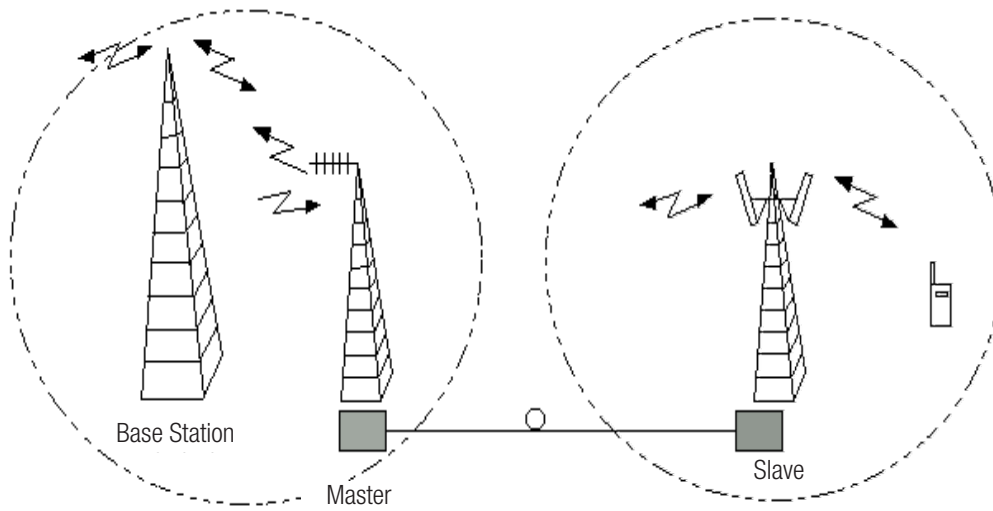


# Optical Digital Master/Slave Repeater

**Model: HMMOR-800-43, HMSOR-800-43**

## 1. Optical Digital TRS Repeater

Hoimyung ICT supplies 'Optical TRS master and slave' via digital TDMA(Time Division Multiple Access). It defines as a wireless optical amplifying repeater to solve radio shadow area and to expand service area under bi-directional frequency between mobile switching office(MSO) and base stations. This equipment accesses over 4CH and connects to master 1 unit and slave 2(or 4) units. (1:4)



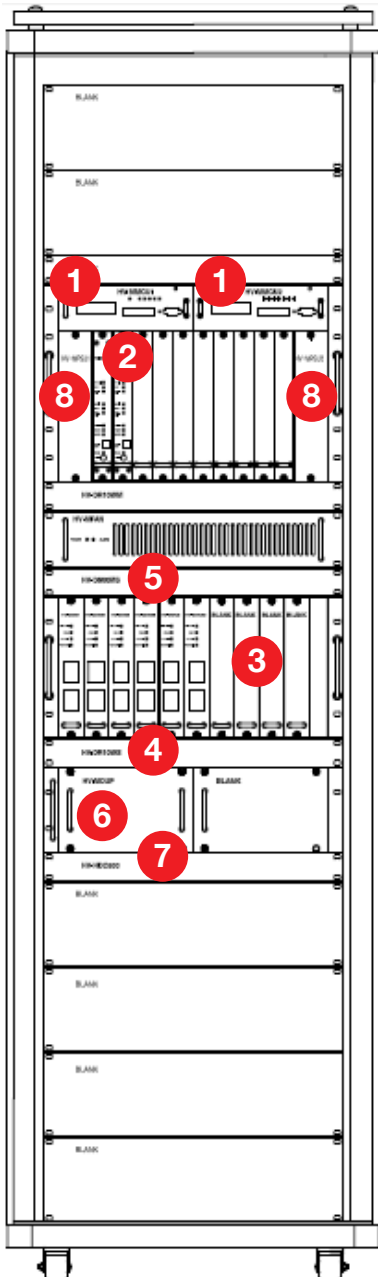
## 2. Benefits

- Base Station: Provide stable quality transmission between master and base station
- Master: Connect to slaves via optical cables
- Save line service fees through WDMA
- Master and slave repeater to build CH module to improve calling quality and frequency interruption
- Service expandability based on master 1 unit and slave 2 (4) units to improve multi connection quality
- Repeat multi channel
- Reduce installation fee

# Optical Digital Master/Slave Repeater

**Model: HMMOR-800-43**

## 3. Specification (HMMOR-800-43)



No	Module Name	QTY	Remarks
1	HV-MMCU ½	2	Residual
2	HV-MCHU ½	2	
3	HV-MOTU 1~3 MOTE 1~3	3 3	Residual
4	HW-DR10W M/S	1	
5	HV-D800MS	1	
6	HV-MDUP	1	
7	HV-HDC800	1	
8	HV-MPSU 1/2	2	Residual

# Optical Digital Master/Slave Repeater

**Model: HMMOR-800-43**

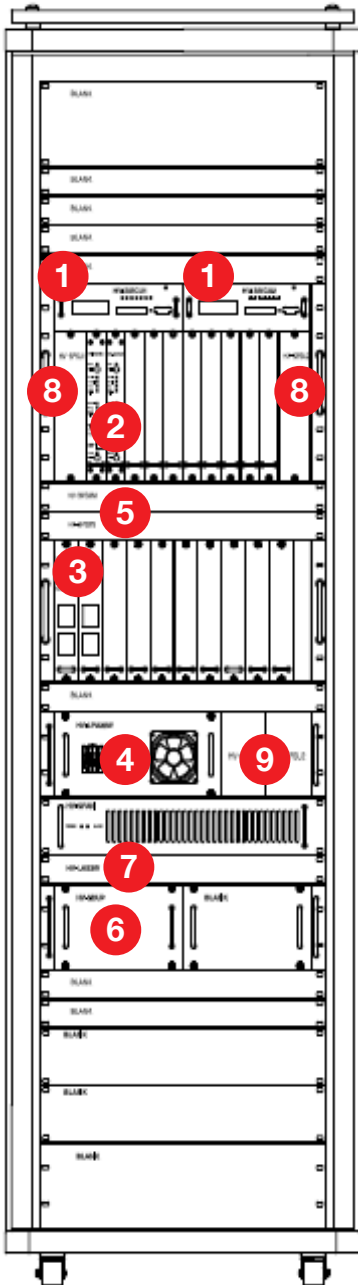
## 4. Specifications (HMMOR-800-43)

Test		Description	Unit	Remarks
GAIN	TX 851 ~ 867MHz	10±1	dB	Incl. Temp 5dB
	RX 806 ~ 822MHz	10±1		
Bandwidth Flatness		2	P-P	
Frequency Delay		5 MAX.	μs	
Voltage Standing Wave Ratio (VSWR)		1.5:1 MAX.	dB	
Max. Output Range		TX :10 RX :-32	dBm	
Intermodulation Distortion (IMD)		-60 dBc MAX.	dBc	
ATTEN Accuracy	Atten(TX)	0 ~ 15 ±1	dB	TEMP5+ AGC10
	Atten(RX)	0 ~ 15 ±1	dB	TEMP5+ AGC10
FWD,RVS module (Isolation)		-70 MAX.	dBc	
Out CPL		20±1	dBc	
Power		9V/2.5A		
In/Output impedance		50Ω		
In/Output connector type		Trumpet Connector - Female Type		

# Optical Digital Master/Slave Repeater

**Model: HMSOR-800-43**

## 5. Specification (HMSOR-800-43)



No	Module Name	QTY	Remarks
1	HV-SMCU ½	2	Residual
2	HV-SMCHU ½	1	
3	HV-SOTU 1 HV-SOTE 1	1 1	Residual
4	HV-LPA30W	1	
5	HV-BP2WM/S	2	
6	HV-SDUP	1	
7	HV-LAS2W	1	
8	HV-SPSU 1	2	Residual
9	HV-LPSU 1	2	Residual



# Optical Digital Master/Slave Repeater

**Model: HMSOR-800-43**

## 6. Specifications (HMSOR-800-43)

Test		Description	Unit	Remarks
GAIN	TX 851 ~ 867MHz	10±1	dB	Incl. Temp 5dB
	RX 806 ~ 822MHz	10±1		
Bandwidth Flatness		2	P-P	
Frequency Delay		5 MAX.	μs	
Voltage Standing Wave Ratio (VSWR)		1.5:1 MAX.	dB	
Max. Output Range		TX :5 RX :-15	dBm	
Intermodulation Distortion (IMD)		-60 dBc MAX.	dBc	
ATTEN Accuracy	Atten(TX)	0 ~ 30 ±1	dB	TEMP5+ AGC10 ALC15
	Atten(RX)	0 ~ 15 ±1	dB	TEMP5+ AGC10
FWD,RVS module (Isolation)		-70 MAX.	dBc	
Out CPL		20±1	dBc	
Power		9V/2.5A		
In/Output impedance		50Ω		
In/Output connector type		Trumpet Connector – Female Type		

# Train-Radio Network Monitoring System (T-NMS)

**Model: HM-V-NMS**

## 1. Introduction

Normally, the monitoring & maintenance of train-radio system is difficult because it is installed along the railroad, passing through stations, tunnels and the equipment in tunnels, etc.

HMICT's T-NMS is based on All-IP, a construct with total monitoring solution which connects to the base station, tunnel repeater, Bi-Directional Amplifier(BDA) and Line Detector(LD). It allows an administrator to be able to monitor the system in a remote site and respond quickly. As a result, the system's efficiency is maximized.

## 2. Features & Functions

- The GUI Environment is easy for users to recognize
- Several NMS console connection for 1 T-NMS main device (1:N composition)
- Easy to expand system by designed for 19" standard Rack type
- Provides multiple connections such as Train-radio VHF equipment, FM equipment and Train-radio Protection & Prevention equipment

## 3. Appearance



# Train-Radio Network Monitoring System (T-NMS)

**Model: HM-V-NMS**

## 4. Standard

Parameter	Standard
Main Board	ATX Board or higher
Processor	Intel Xeon E5506 or higher
Main Memory	DDR3 ECC 4GB or higher
Graphic	Onboard VGA
Ethernet	1000BASE-T, RJ45 output
HDD	SATAII 1TB HDD Disk x 2EA (Raid Level1:Mirror)
ODD	DVD-Multi (SATA) or higher
PSU	PSU : PS/2 800W or higher
DIM	19" 4U Rack-Mount Chassis
OS	Windows Svr Std 2008 or higher

\* The above values of the parameters can be vary by development or improvement of the devices without any notification.

# Train-Radio Central Processing Unit(CPU) & Operating Apparatus(OA)

**Model: HM-MCSS/HM-OPC**

## 1. Introduction

The Control System of Control Center needs to be more accurate and expeditious. HMICT's MCSS is a system for communication between a base station and a running train. You can instantly send a command to an individual or all of the stations & trains together by touching a screen, and monitor the equipment in the station. Moreover, you can control all of the stations and devices joined to MCSS to maximize work efficiency.

## 2. Features & Functions (MCSS)

- Expeditious selection of a base station and channel control by touch screen
- Monitoring combined signals of VHF transceiver & receiver from a base station through SUMMING AMP
- Providing NMS for the joined stations & devices
- Display transmission/receiving level for each purpose
- Optimized GUI for Control

## 3. Features & Functions (OPC)

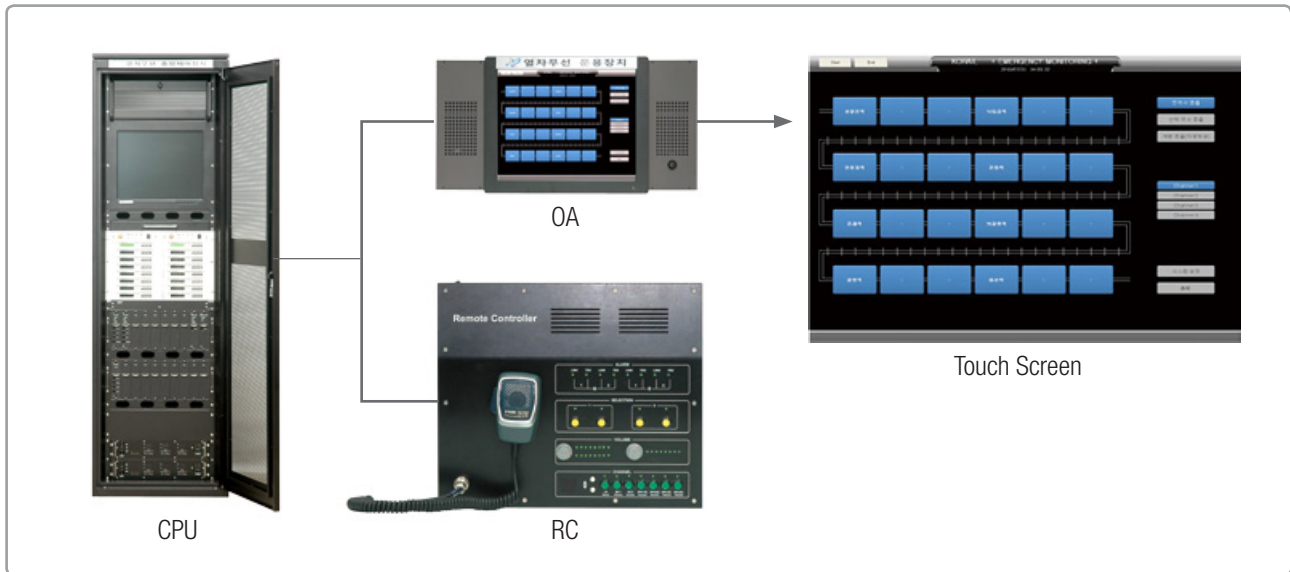
- Consisting of dualized main part / Built-in Auto-recovery Solution
- TEST UNIT for maintenance
- LED Display design is easy for recognizing alarms & main status
- Easy handling by modular typed detachable unit
- Controlling I/O signal level & Setting Repeater
- Transceiving on the Control Console by interlocking with Train-radio transceiver
- Receiving signals from monitoring receiver on the Control Console by consisting of monitoring line



# Train-Radio Central Processing Unit(CPU) & Operating Apparatus(OA)

**Model: HM-MCSS/HM-OPC**

## 4. Appearance



## 5. Standard (OPC)

- Number of Basement Connection : 24
- Receiving Voice Output : 20W or higher (with 8Ω) / Can be Linear controlled
- Voice Frequency Range: 300~3,400Hz
- Line Impedance : 600Ω
- Line Output Level : 0dBm±3dB
- SINAD : 40dB or higher

## 6. Standard (MCSS)

- Voice Frequency Range : 300~3,400Hz
- I/O Level : 0dBm±3dB
- SINAD : 40dB or higher
- Distortion Rate : Less than 5%
- Temperature : -10°C~50°C

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# Train-Radio Master Unit (MU)

**Model: HMVM-150-20**

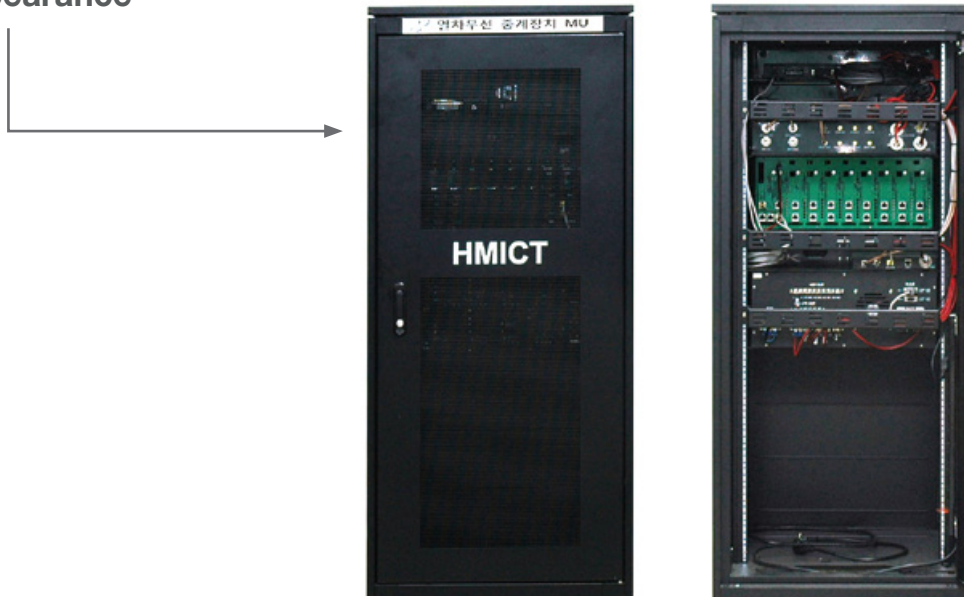
## 1. Introduction

HMICT's HMVM is installed at the base station to communicate between a control center and an engineer. It is capable of having a number of remote users such as Control Console and Remote Controller. It provides an effective, stable communication environment in the tunnel through the system, combining Base Station, Line Distributor, MU, Dual PSU and BATTERY.

## 2. Features & Functions

- Designed to be possible to add an extra unit for switchovers when a unit breaks down
- LED Display-easy to recognize alarms & main status
- Control Repeater & I/O signal level
- CASCADE connection method ensures high reliability
- Optical connection with RU makes minimizes transmission loss
- Being able to work with a battery for emergencies in a blackout situation
- Consisting of main- & sub-Power supply

## 3. Appearance



# Train-Radio Master Unit (MU)

**Model: HMVM-150-20**

## 4. Standard

Parameter	Standard
VHF Transceiver	Satisfied Std. KRS CM 0005-06
VHF Receiver	Satisfied Std. KRS CM 0006-06
Receiver	Input Voltage : AC 220V $\pm$ 10% Output Voltage : DC 13.8V $\pm$ 10%(Changeable) Output Current Capacity: 20A or higher
Wired-Wireless Combiner	Wireless combiner Transmission level: -4 dBm $\pm$ 10dB ( flexible ) Wired $\rightarrow$ wireless MIC Input Level: 0 $\rightarrow$ -30dBm( flexible by ATT ) Output Impedance: 600 $\Omega$ SINAD : 40dB or higher Distortion Rate : Less than 5% Detection for Breakdown : An interruption to the Power Supply, RF OUTPUT Breakdown
Optical Transmission	Wavelength : M 1,300~1,320nm, 1,540~1,560nm Optical Output : 3dB $\alpha$ ( $\pm$ 30%) Band With : 100MHz~200MHz
Power	Input Voltage: AC 220V $\pm$ 10%60 Hz Output Voltage: DC 13.8V $\pm$ 10%(Flexible) Output Current Capacity: 20A or higher

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# Train-Radio Remote Unit (RU)

**Model: HMVR-150-20**

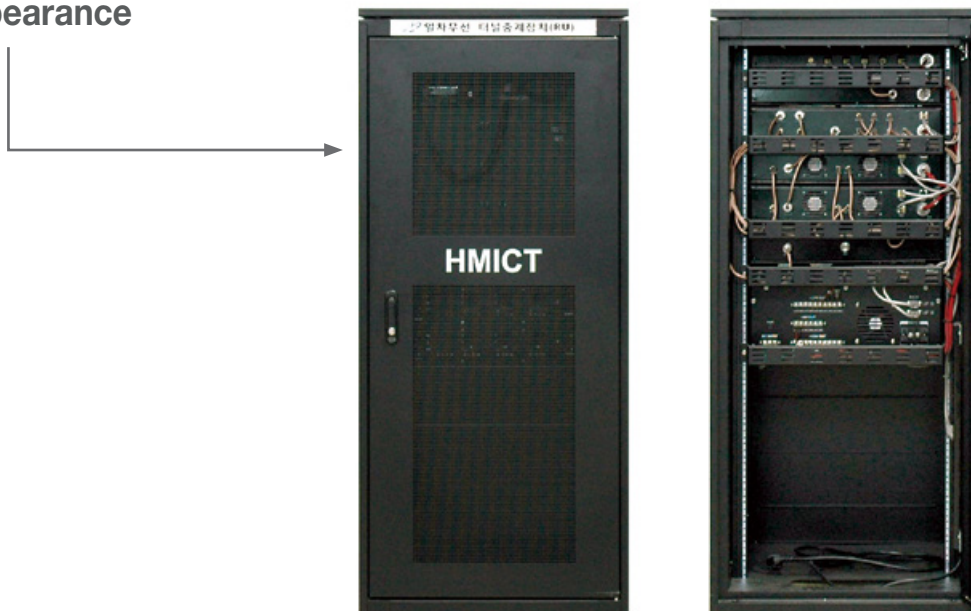
## 1. Introduction

A tunnel repeater needs to be stable for seamless voice call between tunnels and trains. HMICT's HMVR-150-20 is installed at the entrance of the tunnel to repeat broadcast signals from the base station to the tunnel & the radio shadow areas. It adopts an optical transmission method to minimize loss generated from the line. A Built-in Automatic-switchover Dualized RF Amplifier provides stable voice quality in the tunnel.

## 2. Features & Functions

- Easy handling by the built-in modular typed transceiver
- Built-in TEST UNIT is able to make a test call between service areas
- CASCADE connection method ensures high reliability
- Optical connection with MU makes minimizes transmission loss
- Providing Auto-disconnecting function with built-in dualized amplifier
- Consisting of main & sub Power supply

## 3. Appearance





# Train-Radio Remote Unit (RU)

**Model: HMVR-150-20**

## 4. Standard

Parameter	Standard
RF Amplifier	High Frequency Output: 15W(Max 20%, Min 50%) Output Impedance: 50 $\Omega$ Spurious Suppression: Less than -60dBc (a carrier wave)
Transmitter	Modulation way: 16K0F3E(Wideband), 8K5F3E(Narrowband) FM Noise Control: Less than -40dB (with 1kHz, 70% Modulation) Frequency Stability: $\pm 0.0005\%$ Modulated Frequency Feature: 6dB/OCT $\pm 3$ dB Pre-Emphasis(0.3~3KHz) Low Frequency Distortion Rate: Less than 5% (with 1kHz, 70% Modulation) Maximum Frequency Deviation: $\pm 5$ kHz(Wideband), $\pm 2.5$ kHz(Narrowband)
Receiver	Bandage: with -6dB 12.5kHz or higher(Wideband), with -6dB 8kHz or higher(Narrowband) Adjacent Channel Selectivity: with -70dB Less than 25kHz (Wideband), with -60dB Less than 12.5kHz (Narrowband) Receiving Sensitivity: Less than 0.5 $\mu$ V (with 20dB Noise Suppression) Squelch Sensitivity: Less than 0.25 $\mu$ V Low Frequency Output: 0dBm $\pm 3$ dB SINAD : 40dB or higher(1KHz 70%) Low Frequency Distortion Rate: Less than 5%(1kHz, 70%)
Optical Transmitter	Wavelength : M;1300~1320nm, S;1540~1560nm Optical Output: 3dBo( $\pm 30\%$ ) Band With : 100MHz ~200MHz RF Link Gain : 0dBm $\pm 1$ dB Optic Connector : SC/APC
Controller	Low Frequency Output: 1W or higher(4 $\Omega$ , 10% Distortion) SINAD: 40dB or higher Low Frequency Distortion Rate: Less than 5% (1kHz, 70%)
Power	Input Voltage: AC 220V $\pm 10\%$ 60Hz Output Voltage: DC 13.8V $\pm 10\%$ (Flexible) Output Current Capacity: 20A or higher

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# Train-Radio Remote Controller (RC)

Model : HMRCA-150

## 1. Summary

It requires a wide range to command to other bases & mobile stations. HMICT's HMRCA-150 can connect up to 4 MU at the most. Users are able to control various works such as Voice Call, Channel Switching and Observation, etc. from the remote site station.

## 2. Features & Functions

- Built-in dualized controller and speaker
- Strong, alternative and connector-typed MicroPhone
- Designed in order to transmit Remote PTT, Channel Switching, Voice Call signal and Wireless Receiver signal, etc. by using solid line & DTS line
- Built-in Line multiplier which can synthesize a wired line of 600Ω
- Built-in Channel Display & Speaker, VOLUME, Level Meter, Transceiver Display Lamp
- Controlling 4 Master Units at most
- Built-in Combined Recording Output port

\* The above values of the parameters can be vary by development or improvement of the devices without any notification.



# Train-Radio Remote Controller (RC)

Model : HMRCA-150

## 3. Appearance



## 4. Standard

- Circuit System: TONE REMOTE or E/M System
- Voice Transceiving 4 way, Voice Receiving 4 way, Recording 1 way
- Impedance : 600
- Output: 0dBm  $\pm$ 5dB
- Low Frequency Output: 4 $\Omega$ , 2W or higher
- MIC Input: -40dBm( $\pm$ 5 dB)
- Power: DC 13.8V  $\pm$ 10%

\* The above values of the parameters can be vary by development or improvement of the devices without any notification.

# Bi-Directional Amplifier BDA

Model : HME-LAMP

## 1. Summary

There are many RF reduction causes in tunnels. HMICT's HME-LAMP amplifies the signals which weaken in the tunnel and RCX, LCX cables. It provides seamless communication service between a base station and a mobile station (an engineer). It has a built-in Automatic By-Pass function to minimize all kinds of risks in the emergency situations.

It amplifies various frequencies from FM band to TRS band to provide a composite Line Repeater Solution.

## 2. Features & Functions

- Amplification for each RF signal such as FM Radio (88~108MHz), VHF Station communication (146~174MHz), Fire Communication /Train Protection (440~470MHz), Ground-wave DMB(174~214MHz), Police wireless communication(800~900MHz)
- Appropriate Solution for train environment which has various types of communication, offering compatibility for Digital TRS Repeater & other repeaters
- Applying for NMS, and Observing & control function at the end of the LCX cable by interlocking with LD
- Built-in Automatic By-PASS function

## 3. Appearance



\* The above values of the parameters can be vary by development or improvement of the devices without any notification.



# Train-Radio Master Unit (MU)

Model : HME-LAMP

## 4. Standard

Parameter		Standard	
Frequency	FM Radio	88 ~ 108MHz	
	Station Communication (VHF)	146 ~ 174MHz	
	Ground-wave DMB	174 ~ 214MHz (option)	
	Fire Communication/Train Protection	440 ~ 470MHz	
	Police Communication (TRS)	800 ~ 900MHz (option)	
Gain		<b>FWD</b>	<b>REV</b>
	FM Radio	30dB	-
	Station Communication (VHF)	30 dB	30dB
	Ground-wave DMB	-	-
	Fire Communication/Train Protection	30 dB	-
	Police Communication (TRS)	-	-
Pass Band Ripple		3dB p-p	3dB p-p
V.S.W.R		1 : 1.5	

\* The above values of the parameters can vary by development or improvement of the devices.


**No. 10-1205784**

# Line Detector LD

Model : HME-LD

## 1. Summary

It's hard to check the system personally in the tunnels because of running trains.

HMICT's HME-LD is a wireless observation device that you can install at the underground or at the end of the tunnel. It is installed at the end of LCX, RCX so that it can monitor and observe RSSI using radio frequencies. Therefore, yourself or an administrator can check the equipment inside the tunnel at the remote site.

## 2. Features & Functions

- Distribution for each FM Radio (88~108MHz), VHF Station communication (146~174MHz), Fire Communication /Train Protection (440~470MHz), Ground-wave DMB(174~214MHz), Police wireless communication(800~900MHz)
- Appropriate Solution for train environment which has various types of communication, offering compatibility for Digital TRS Repeater & other repeaters
- Applying for NMS, and Observing & control function in tunnel by interlocking with BDA

## 3. Appearance



# Line Detector LD

Model : HME-LD

## 4. Standard

Parameter		Standard
Frequency	FM Radio	88 ~ 108MHz
	Station Communication (VHF)	146 ~ 174MHz
	Ground-wave DMB	174 ~ 214MHz (option)
	Fire Communication/Train Protection	440 ~ 470MHz
	Police Communication(TRS)	800 ~ 900MHz (option)
Power		AC 220V
RF Input Socket		N type Female Matching 50 Ohm
RF Output Socket		N type Female Matching 50 Ohm
LED		RUN : Green Alarm : Green for alarm
Size		350*250*120
Alarm		Check Power

\* The above values of the parameters can vary by development or improvement of the devices.

# FM Repeater

Model : HMFMM-98-40 / HMFMR-98-40

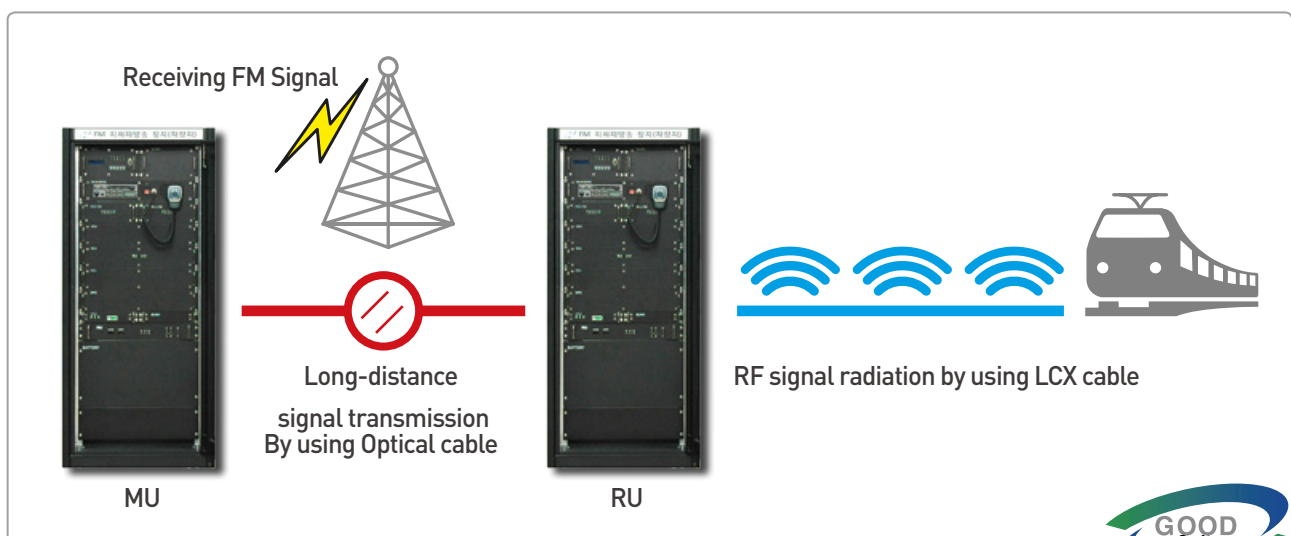
## 1. Summary

Passengers require seamless broadcasting services not only in daylight but also underground or in a tunnel. HMIC's HMFMM-98-40 & HMFMR-98-40 are FM Repeaters which provide repeating FM broadcast service in the places where FM broadcast doesn't work by applying active digital filters and amplifying each radio frequency. They have built-in Emergency Broadcast functions for situations such as a national disaster. We designed the system to minimize loss by using LCX cables for lines among devices.

## 2. Features & Functions

- FM Emergency Broadcast
- Filtering & Amplification of exterior signal
- RU repeats received optical signal in tunnel after converting & amplifying
- Remote System Control & Observation
- Built-in FM Broadcast Monitoring System
- Stable FM Repeating by consisting of dualized main part
- Applied active digital filter

## 3. Appearance





# FM Repeater

**Model : HMFMM-98-40 / HMFMR-98-40**

## 4. Standard

Parameter	Standard
House	19 inch Rack Type Size : W 650mm X D 750mm X H 1400mm Material : Cold Rolled Carbon Steel
Monitor	Output Power : 1.5W or higher (8Ω LOAD) SINAD : 60dB or higher Distortion Rate : Less than 2% ( 1KHz, 1W OUT, 8Ω LOAD ) Practical Speed : Less than 20μV (S/N 30dB, 1mV INPUT, 75 kHz MOD)
Emergency Broadcast	Frequency Range : 300Hz ~ 3kHz(-3dB Down Point ) SINAD : 40dB or higher Distortion Rate : Less than 1%
FM Receiving Distributor	Frequency Range : 88MHz ~ 108MHz I/O Impedance : 50Ω Input Socket : 1 Output Socket : 8 Insertion Loss : Less than 15.0dB
FM Receiver	Frequency Range : 88~108MHz( Tuned Frequency 14ch ) I/O Impedance : 50Ω Unbalanced Practical Speed : Less than 10μV ( S/N=30dB ) SINAD : 50dB or higher (input : 60dBu ) Distortion Rate : Less than 1% ( 60dBu 1KHz, 75% MOD Input 50 Ω Load )
FM Output Combiner	Frequency Range : 88MHz~108MHz I/O Impedance : 50Ω Input Socket : 8 Output Socket : 1
FM Transmitter	Frequency Range : 88~108MHz I/O Impedance : 50 Ω Unbalanced Transmission Power : Max 40W RMS Amplification Gain : Max 60dB Distortion Rate : less than 1% ( 1kHz, 75kHz MOD ) SINAD : 60dB or higher Harmonic Suppression Rate : 60dB or higher
FM Distributor	Frequency Range : 88 ~ 108MHz I/O Impedance : 50 Ω Insertion Loss : less than 0.5dB Distribution Loss : 3dB Isolation : 20dB or higher

\* The above values of the parameters can vary by development or improvement of the devices.

# Magic Fun System

Model : HM-SMRT-2010

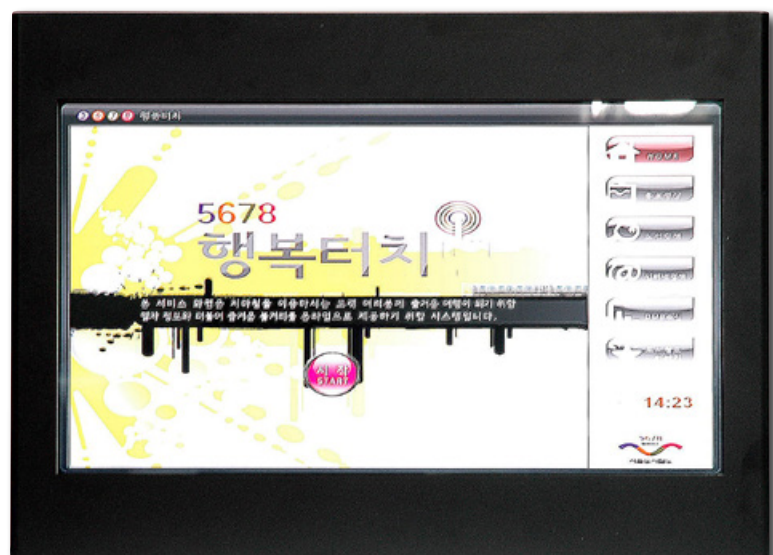
## 1. Summary

HMICT's Magic Fun System provides convenient services such as Route Information, Internet Browsers and Ground-wave DMB, Etc. to the passengers using public transportation: trains, subway, airplanes and so on. Built-in Auto Update Solution allows an administrator to be able to update the media data with one-click.

## 2. Features & Functions

- 23 inch capacitance Touch Screen
- Internet Brower
- Subway Route
- Ground-wave DMB
- Public Relations
- Built-in FM Transmitter

## 3. Appearance



# Magic Fun System

Model : HM-SMRT-2010

## 4. Standard

Parameter	Standard
Processor	Intel Core 2 Duo 2.6GHz or higher
Memory	DDR2 2GB or higher
SSD	64GB or higher
VGA	256MB or higher
LCD Display	23" TFT LCD Panel
ACTIVE AREA	473.76(H) x 296.1(V) mm or higher
Pixel pitch	0.282(H) x 0.282(V) mm or higher
Native resolution	1680 x 1050 or higher (16:10)
Brightness	250cd/m <sup>2</sup> or higher
Response time	5 ms
Viewing angle	vertical : -85° ~ 75° , horizon : -80° ~ 80°
Touch type	Projected Capacitive Touch screen
Touch Size	564(W) x 311.7(H) x 2.5(D)mm
Useful Screen Area	470.8(H) x 294.3(V)
Input Method Touch	Finger/Gloved finger
Activation Force	No minimum touch activation force
Position Accuracy	Typical centroid accuracy 2mm
Resolution	5,696 X 3,584
Response Time	Touch : 12ms, Drawing : 19ms
Glass	Transmission : 92% Up to 100%
Thickness : 5mm with anti-vandal	N type Female Matching 50 Ohm
Optics Number	89(h) X 56(v)
Optics cell pitch	5.35mm
Available Object Sizes For Touch	Touch : Ø6mm, Stylus : Ø7mm
Touch Intensity	Over 60,000,000 single point touch

\* The above values of the parameters can vary by development or improvement of the devices.


**No. 10-1195986**

# TETRA TRS Modem

Model : HMTM-380

## 1. Summary

HMICT's HMTM-380 collects data from sensors by interlocking the sensors & the repeaters in the remote sites in the TETRA environment, or transmits the information from the equipment when it malfunctions to the destination server. Therefore, you can easily monitor the equipment from a remote site even when you are not in the place where there is a wired-network constructed.

## 2. Features & Functions

- Cost reduction by using constructed TRS Network
- Securing Stability & Trust by using constructed TRS Network
- High Compatibility through Serial Communication Module
- Easy installation with light weight & small size

## 3. Appearance



# TETRA TRS Modem

Model : HMTM-380

## 4. Standard

Parameter	Standard	Note
Size (H*W*D)	18*101*66 mm	
Weight	Less than 300g	
Power	13.8V max	
Current	1.8A max	TX Mode
	0.2A max	Idle Mode
Frequency Range	380 ~ 400MHz	
Frequency CH Bandwidth	25KHz	
TX/RX Separation	10MHz	
Wireless Data Service	Short Data (SDS)	
Communication	Serial Communication(232C)	
Baud Rate	38400bps	Serial communication
Antenna Gain	2dBi	
Antenna Direction	Omni	
Antenna Connector	SMA-Male	
Ant. Mechanical Spec.	120*10*5(H*W*T) mm	

\* The above values of the parameters can vary by development or improvement of the devices.

# R2012MC Switch (CWDM)

## 1. Summary

The R2012MC CWDM based 1 core optical ring Switch offers 8 Ethernet 10/100/1000TX ports, and four SFP / mini-GBIC



The R2012MC Switch is a useful product where the network of computers, automation, intelligent traffic systems, semiconductors and heavy plant equipment, ships.  
When the equipment failure does not affect to the next node.

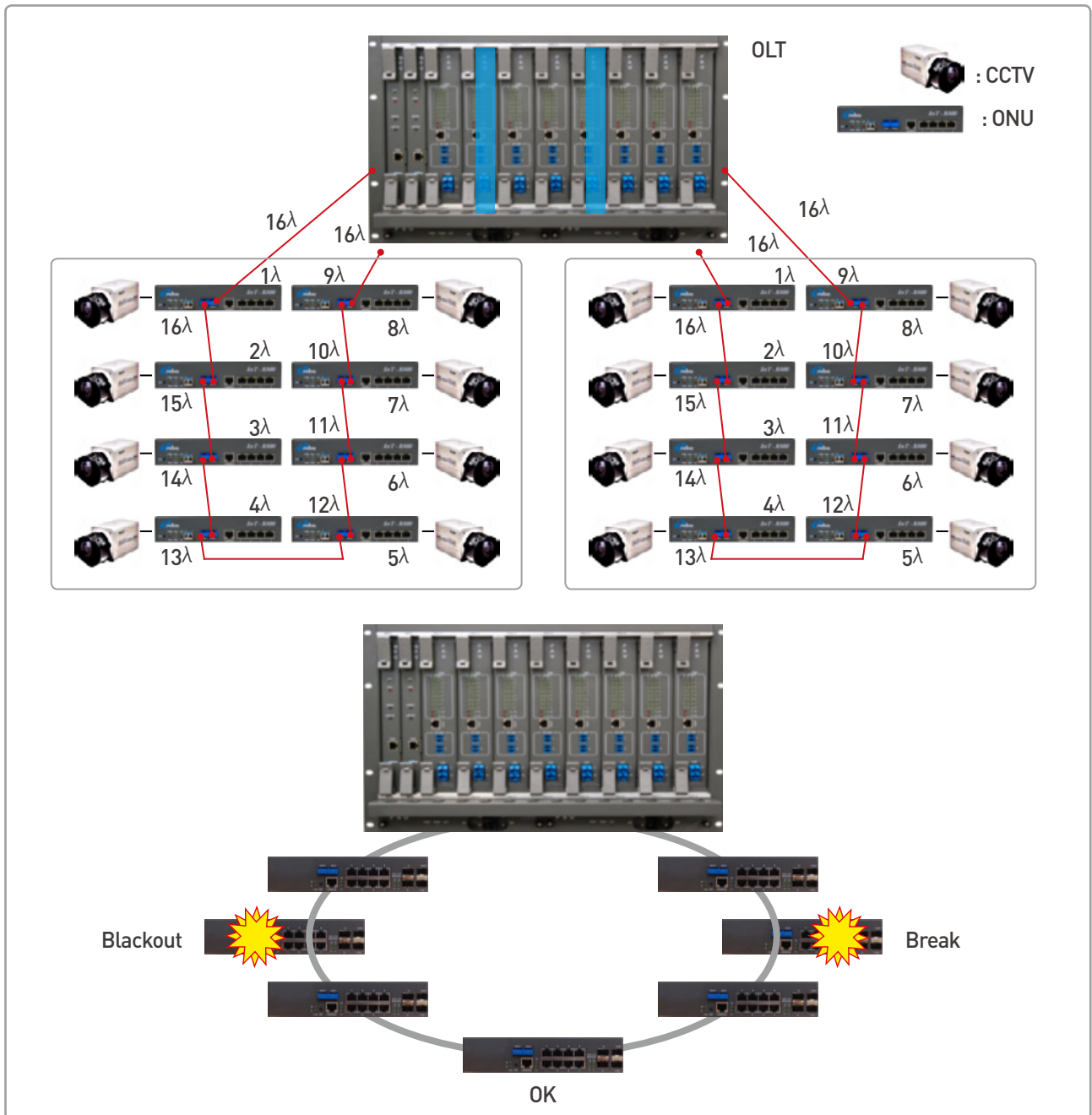
## 2. Specification

Parameter	R2012MC
Standard	IEEE802.3/3u/3ab/3z 10Base-T/100Base-TX/1000Base-T IEEE802.1d/w spanning tree protocol IEEE802.1Q VLAN IEEE802.3ad Link aggregation
Copper Ports	8 10/100/1000Base-T RJ45 Ports
SFP/mini-GBIC ports	4 1000Base-Sx/Lx ( Ext. ) 1 1000Base-Sx/Lx ( Int. )
LED	Power1, Power2, Link/Active per port
Switch Fabric	34Gbps
Address Table	8K entries
Topology	Ring , BUS, ETC
Layer 2	Management interface : RS232 console, Web browser, SNMP v1, v2 VLAN: 4K, IGMP snooping Spanning Tree : IEEE802.1D, IEEE802.1w
Dimension	W*D*H 210*200*52 with Top Heat sink
Power Input Voltage	100-240VAC, 50/60Hz dual Power (Option)
Operating Environment	Temperature : -40-80 Humidity : 5-90%
Storage Environment	Temperature : -45-85°C Humidity : 5-90% (Non-condensing)



# R2012MC Switch (CWDM)

## 3. Topology



# R2012MB Switch

## 1. Summary

The R2012MB 1 core ring optical switch offers 8 Ethernet 10/100/1000TX ports, and four SFP / mini-GBIC



The R2012MB Switch is a useful product where the network of computers, automation, intelligent traffic systems, semiconductors and heavy plant equipment, ships.

When the equipment failure does not affect to the next node.

## 2. Specification

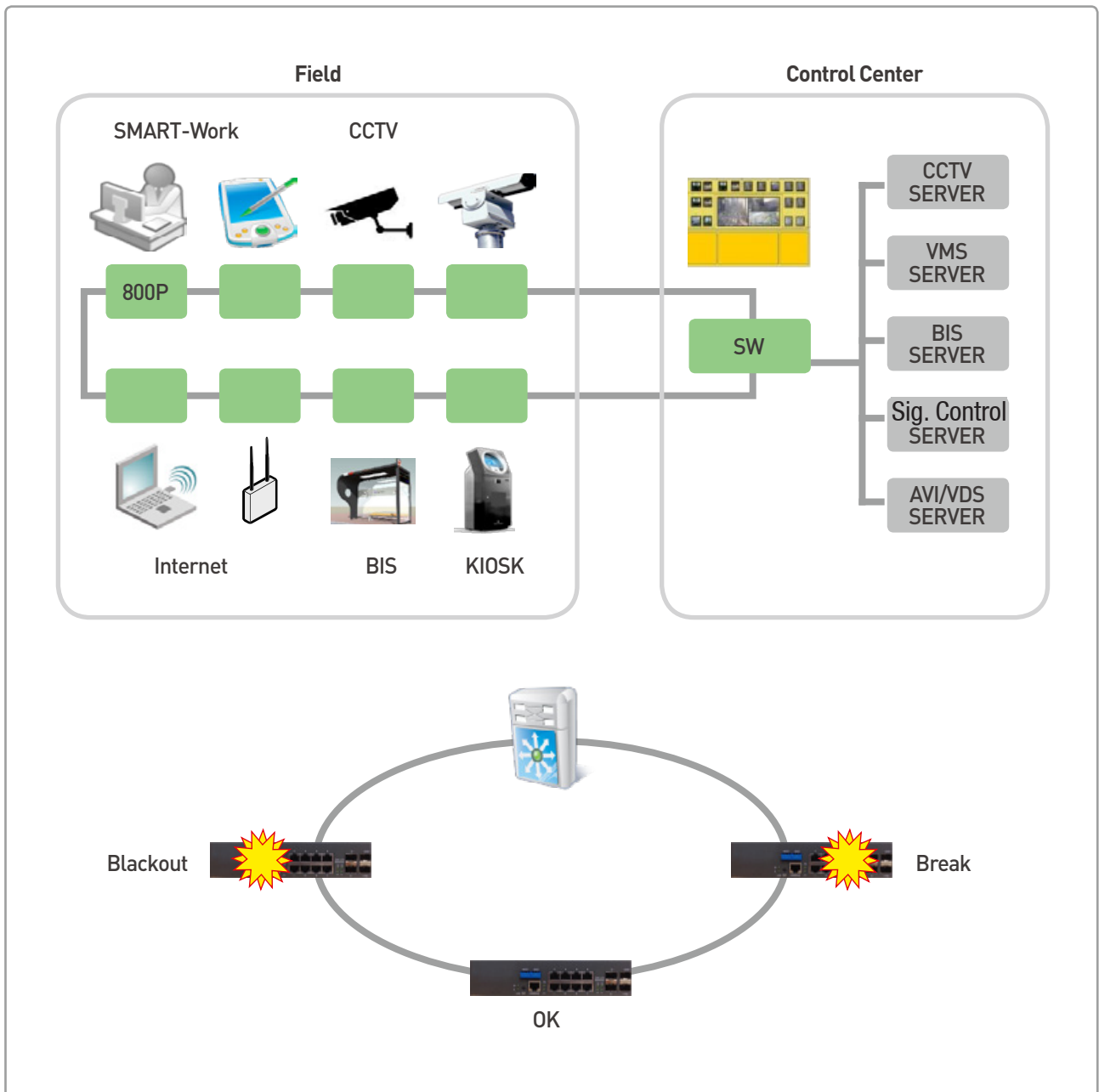
Parameter	R2012MB
Standard	IEEE802.3/3u/3ab/3z 10Base-T/100Base-TX/1000Base-T IEEE802.1d/w spanning tree protocol IEEE802.1Q VLAN IEEE802.3ad Link aggregation
Copper Ports	8 10/100/1000Base-T RJ45 Ports
SFP/mini-GBIC ports	4 1000Base-Sx/Lx ( Ext. ) 2 1000Base-Sx/Lx ( Int. ) 2.5G (Option)
LED	Power1, Power2, Link/Active per port
Switch Fabric	34Gbps
Address Table	8K entries
Topology	Ring , BUS, ETC
Layer 2	Management interface : RS232 console, Web browser, SNMP v1, v2 VLAN: 4K, IGMP snooping Spanning Tree : IEEE802.1D, IEEE802.1w
Dimension	W*D*H 210*200*52 with Top Heat sink
Power Input Voltage	100-240VAC, 50/60Hz dual Power (Option)
Operating Environment	Temperature : -40-80 Humidity : 5-90%
Storage Environment	Temperature : -45-85°C Humidity : 5-90% (Non-condensing)





# R2012MB Switch

## 3. Topology

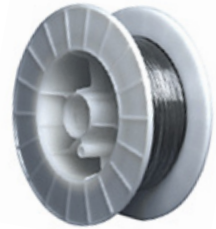


# SE-100 / DE-100 / B-100

## 1. Summary

### Gradient-Index Plastic Optical Simplex Fiber

SE-100 / DE-100 / B-100 is a poly(methyl methacrylate)-based GI-POF for high-speed short-distance data-communication applications. It does not contain any refractive-index modifying dopant, and has excellent mechanical properties and thermal stability.



## 2. Specification

Parameter	Unit	SE-100	DE-100	B-100	Remarks
Fiber Diameter (Core)	mm	1.00(0.9)	1.00(0.9)	1.00(0.9)	-
Variation of Fiber Diameter	%	±5	±5	±5	-
Jacket Diameter	mm	2.2	2.2 / 4.4	-	-
Variation of Jacket Diameter	mm	±5	±5	-	-
Jacket Material		Polyethylene	Polyethylene	-	-
Type of Cable		Simplex	Duplex	-	-
Tensile Strength	N	>140	>70	>70	at break
Bending Radius	mm	25	25	25	-
Operating Temperature	°C	-30~70	-30~70	-30~60	-
Attenuation	dB/km	<200	<200	<200	at 650 nm
Bandwidth	Gbps	>3.0	>1.5	>3.0	at 50m

\* Recommended for short-distance applications less than 50m although longer distance is possible depending on the Tx-Rx used



# POF USB

## 1. Summary

The POF USB is USB2.0 to 100Base-FX POF (Plastic Optical Fiber) converter. The POF USB 2.0 is used to Fast Ethernet network for desktops, notebook PC's, Ultra-Mobile PC's, and any embedded system using a standard USB port. This product is really plug-and-play and requires no additional settings. The POF USB series are fully compatible for IEEE 802.3u Fast Ethernet data communication standard.



## 2. Specification

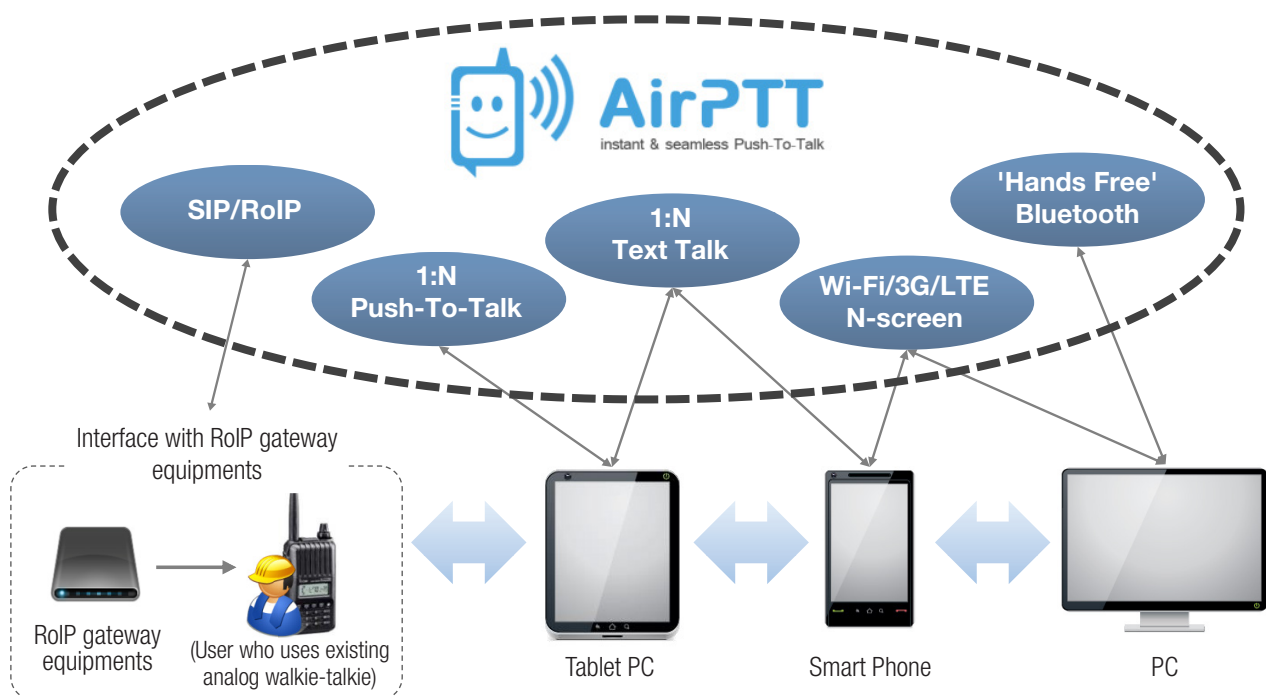
Parameter	POF USB
Standard Compatibility	IEEE 802.3 Fast Ethernet IEEE 802.3 Full Duplex Flow Control
Date Rate	100Mbps
Transmitting Length	50M at POF interface
Interface connector	Optolock POF transceiver
Equipped Cable	POF
LED Indication	Power status , FX link / active status
Operating Environment	Temperature : 0-50°C Humidity : 10-90%
Storage Environment	Temperature : -40-70°C Humidity : 10-90% (Non-condensing)
Dimension (W*D*H)	60*25*19mm
Total Weight	80g

# Air PTT

## Hold and Talk! instant & seamless Soft Push-To-Talk(PTT)

### 1. Introduction

'AirPTT', which is software based PTT(Push-To-Talk), provides voice and text based instant communication(1:N) service based on wireless internet environments such as Wi-Fi, 3G, LTE, etc. and various types of N-Screen terminals including Smartphone, Tablet PC, Desktop PC, etc.. Given that it is possible to interface with RoIP(Radio over IP) gateway equipments through SIP protocol support, AirPTT can provide the PTT service unified with existing analog walkie-talkie (UHF, VHF, TRS).

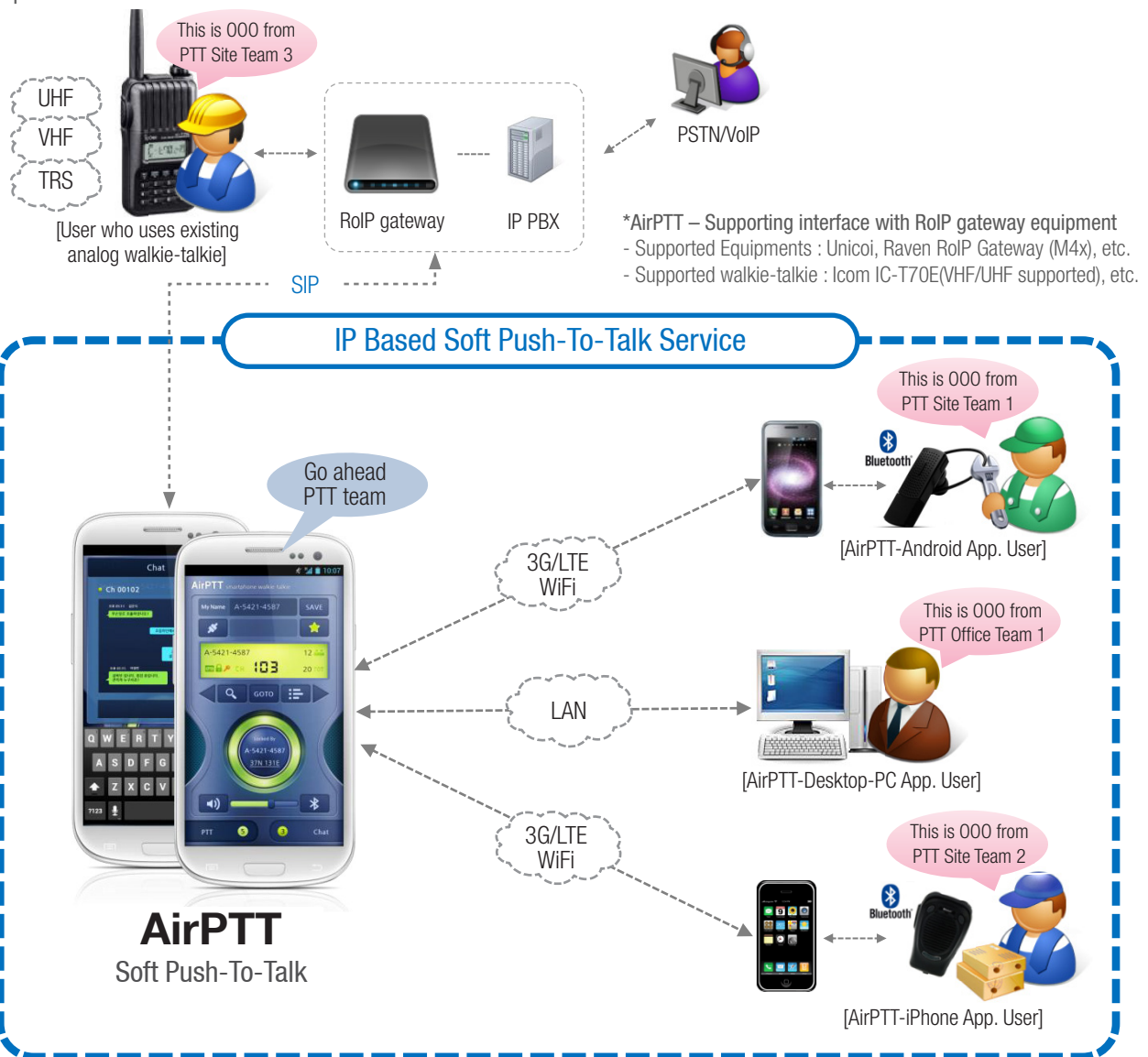


# Air PTT

## Hold and Talk! instant & seamless Soft Push-To-Talk(PTT)

### 2. Key Features and Characteristics

PTT Service Compatible with Existing Analog Walkie-Talkie (Supporting Interface with SIP and RoIP)  
 : AirPTT can provide PTT service environment unified with existing analog walkie-talkie such as UHF, VHF, TRS, etc. given that it can be able to interface with RoIP(Radio over IP) by supporting not only IP, but SIP protocol



# Air PTT

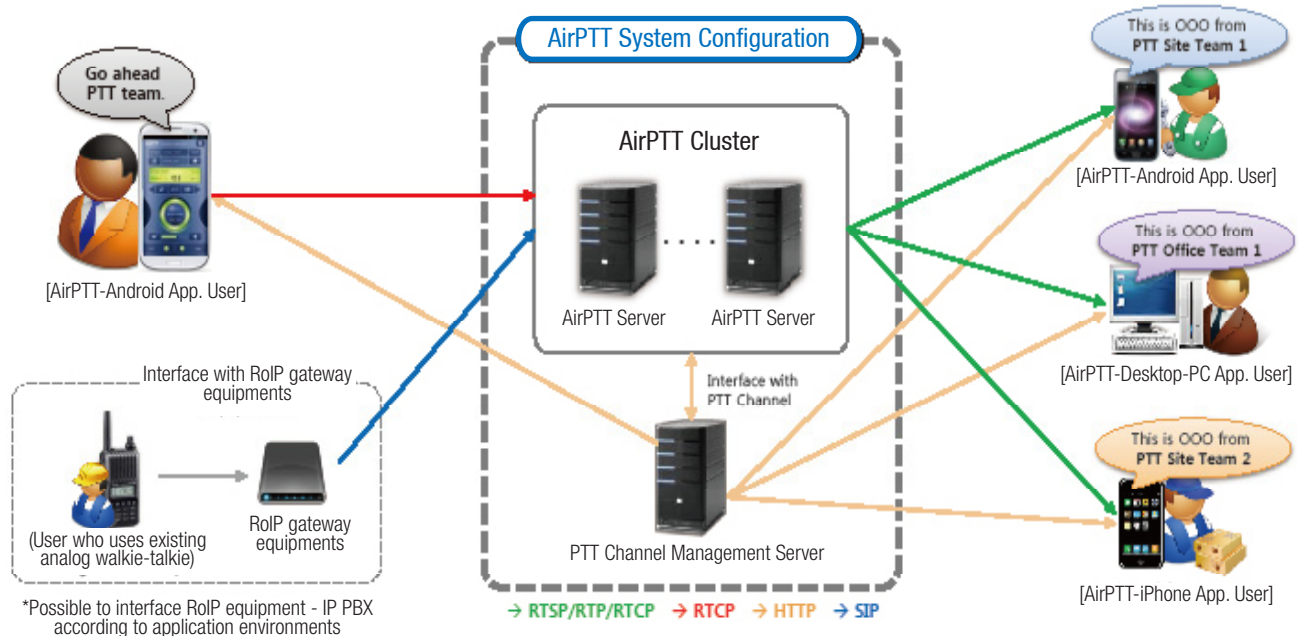
## Hold and Talk! instant & seamless Soft Push-To-Talk(PTT)

### 3. System Configuration (AirPTT Server)

- PTT channel creation and certification/ PTT channel broadcasting
- Supporting up to 3,000 concurrent clients (Per AirPTT server)
- SIP protocol support
- Supporting interface with RoIP(Radio over IP) gateway equipment

### 4. System Configuration (PTT Channel Management Server)

- AirPTT Server Automatic Detection Function  
(Automatically detect AirPTT server by company that a user is belonged to )
- User Verification
- PTT Channel Mgmt. (Ch. name, URL, secrete ch. Mgmt., etc.)

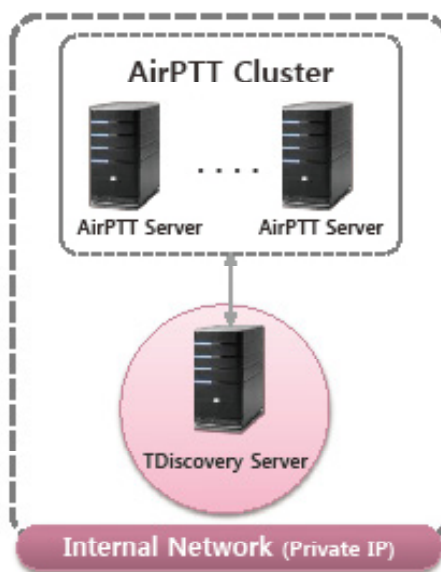


# Air PTT

## Hold and Talk! instant & seamless Soft Push-To-Talk(PTT)

### 5. System Configuration (AirPTT Server Automatic Detection Method)

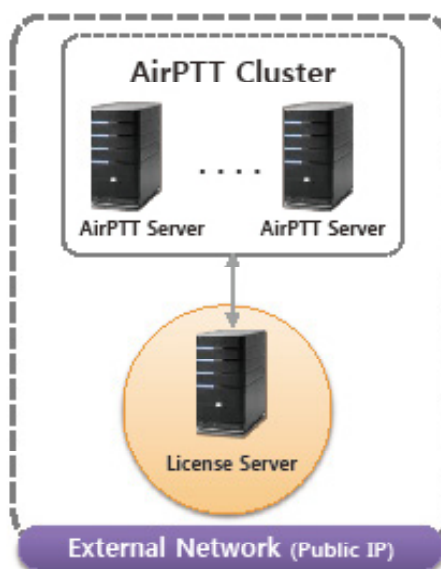
Specific System according to AirPTT Server Detection Method (Possible to construct mixed servers according to service coverage)



#### Interface with TDiscovery Server

- (1) Detect AirPTT server through UDP based multicast, broadcast
- (2) Connect to server through certain IP of TCP based local network
- \* For (1) and (2) case, need to install TDiscovery server in local network
- Possible to search by entering domain or IP

\*In case of using AirPTT in a certain place and area - Applied to internal network used only for work purpose



#### Interface with License Server

- (1) Detect Air PTT server by interfacing with license server
- Once license server verifies IP/Location/ID of user, applicable server IP is provided (HTTP)
- Possible to search by entering server name

\*Internet: In case of using AirPTT via external network that can be connected to Internet  
 - Freight, Transportation  
 - b/w HQ-Agency

# Air PTT

## Hold and Talk! instant & seamless Soft Push-To-Talk(PTT)

### 6. Application Areas

Target Customer		Application Areas
Logistics Freight		<ul style="list-style-type: none"> <li>- Used for arranging 1:N freights and providing communication among drivers through AirPTT</li> <li>- Possible to connect to existing applications and services that includes order /arrangement function</li> </ul>
Transportation (Taxi, Bus, etc.)		<ul style="list-style-type: none"> <li>- Used for arranging 1:N passengers and providing communication among drivers through AirPTT</li> <li>- Solving complaints from customer regarding existing noisy voice call and Saving operating expense of call center</li> <li>- Possible to connect its services to Smartphone applications with existing service (chauffeur service, etc.)</li> </ul>
Service (Construction, Manufacturing, Distribution)		<ul style="list-style-type: none"> <li>- Possible to manage 1:N works and order work related matters through AirPTT</li> <li>- Possible to apply to on-site works such as mid &amp; large scale marts, family restaurants, etc.</li> </ul>
Personnel (Club, etc.)		<ul style="list-style-type: none"> <li>- Used for communication with persons and groups through AirPTT</li> <li>- Used for group conversation in club, leisure social gathering, etc.</li> </ul>



# VMS

## Energy Saving Traffic Message Sign

### 1. VMS Introduction

Hoimyung ICT would like to offer a special variable message sign structure to solve current traffic sign problem through technical know-how.



#### **Ventilation Structure**

- Applied Ventilation LED module
- Reduce Body and frame structure
- Get more visibility

#### **Parallel Module**

- Transit to LED module from DATA
- Analyze failure module
- Minimize error indication when a fault occurred

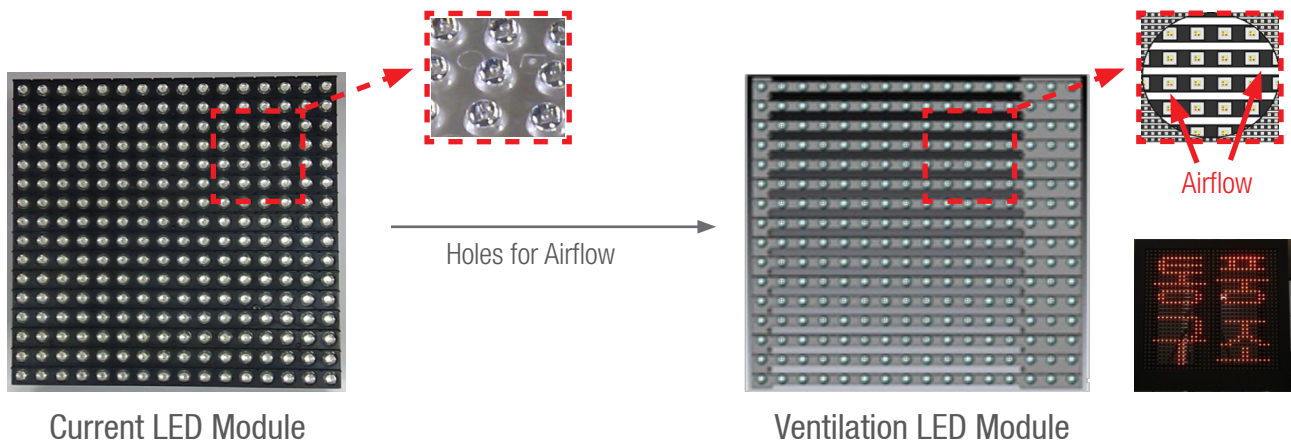
#### **Eco Lenz**

- Applied light source centralization Eco Lenz
- Protect light pollution
- Save energy consumption

# VMS

## Ventilation Structure

### 1. Principle



### Current VMS

- Be not able to access any airflow
- Need large size structure to protect heavy wind load
- Required wider body frame -> increase heavy weight



### Ventilation VMS

- Ventilation structure to access airflow
- Decrease wind load, and reduce module weight
- Slim and light VMS



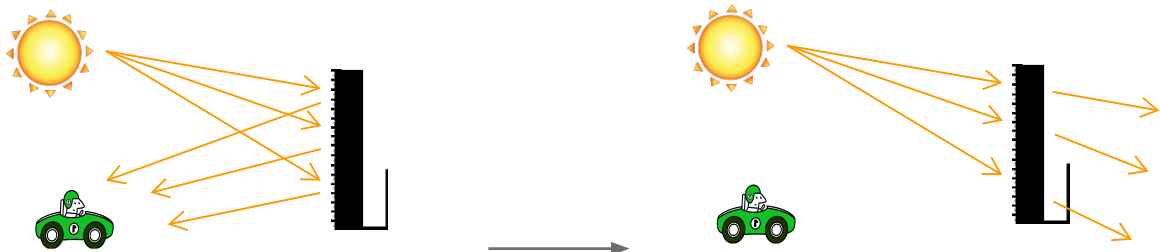
# VMS

## Ventilation Structure

### 2. Specifications Comparison

600mm 2 Lines 10 Rows	Current VMS	Ventilation VMS	Remark
VMS Body Frame(Edge)	150mm	50mm	Decrease 66.7%
VMS Body (Depth)	350mm	143mm	Decrease 59.1%
Trunk Size	Round Pipe 355mm	Square Pipe 200mm	Decrease 59.6%
Structure Weight	1281Kg	470Kg	Decrease 63.3%

### 3. Expectation



#### Current VMS

Solar light reflects on message indication surface  
-> Hard to read a message



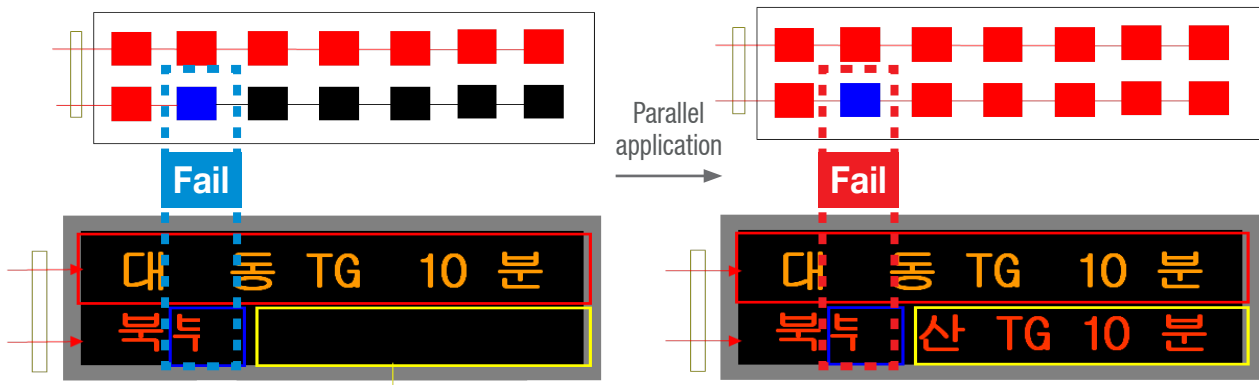
#### Ventilation VMS

Solar light doesn't effect on message indication surface  
-> Easy to read a message

# VMS

## Parallel Module

### 1. Principle



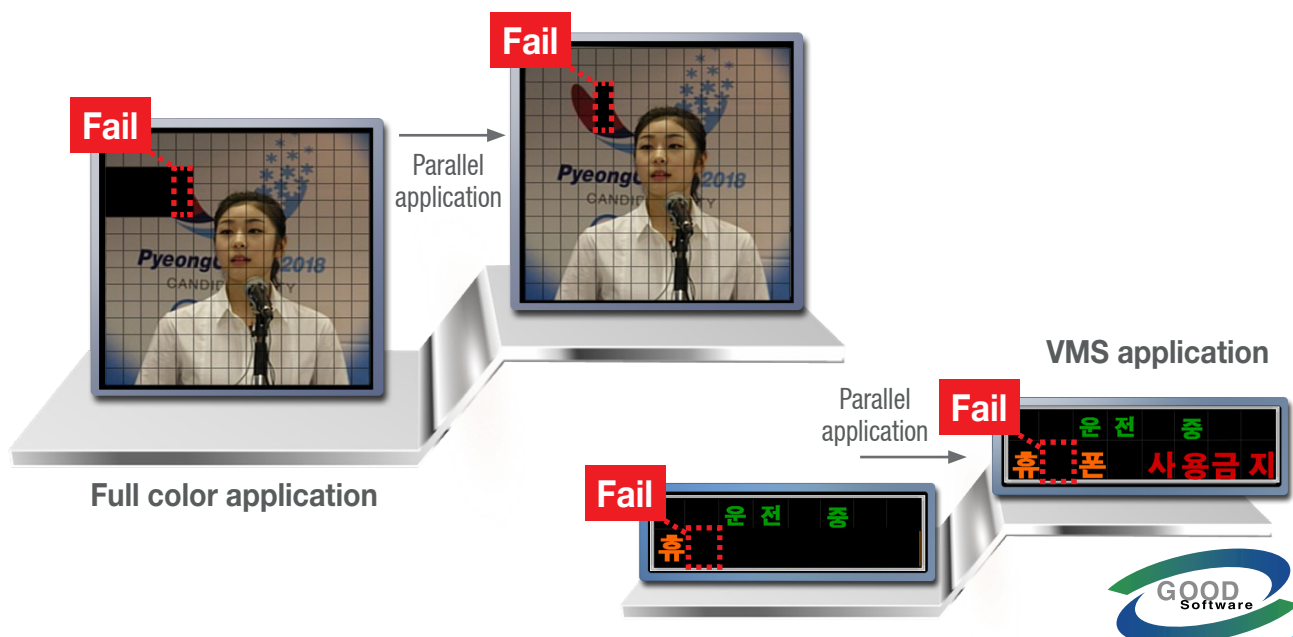
#### Current VMS

Even a module works as well, but indication is not able to express message because of data transaction problem.

#### Ventilation VMS

Even a failure module placed, indication is able to express message because of data transaction works as well.

### 2. Comparison



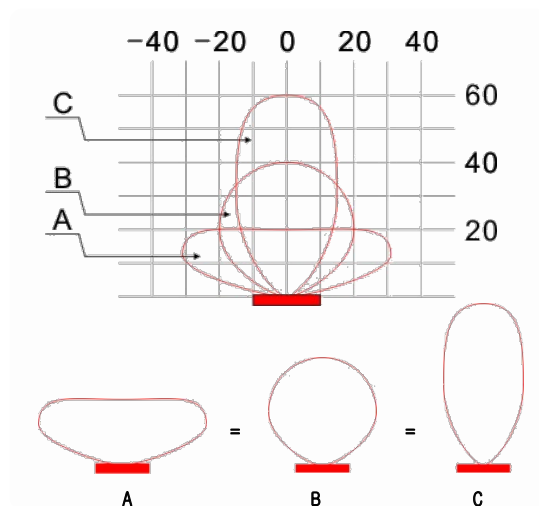
# VMS

## Eco Lenz

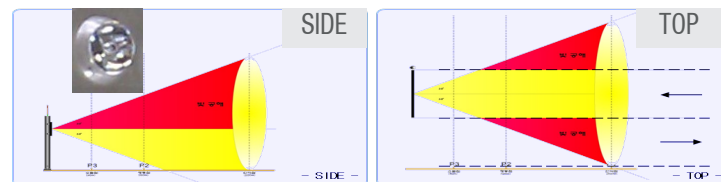
### 1. Principle

#### Square Measure Balancing Theory

Equality of the intensity of light radiation is the same as the light distribution factor, but the different degrees of brightness is caused by light direction angle.

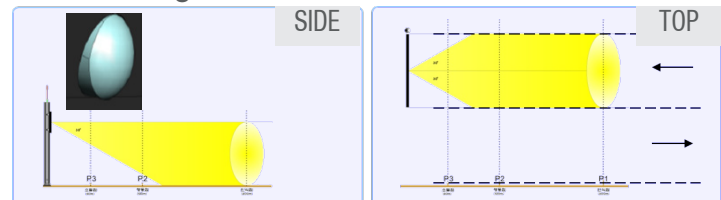


#### Current Radial Form Lenz



25% Energy Saving

#### Centralize light Resource Lenz



### 2. Comparison

Section	Current	Improve
Brightness (cd/m <sup>2</sup> )	12986	18118
Electric Current (A)	28.5	21.2

\*Electric Current 25% Energy Saving

# Hoimyung ICT Products

Energy Efficient Appliances

# ESS Business Activity

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## 1. New & Renewable Energy Solution

- Fuel cell PCS & DC/DC Converter
- PV-PCS & Converter
- PCS for Wind turbine
- High DC/DC Converter
- Fuel cell Monitoring System
- Grid Connected PCS
- Stand alone PCS
- Fuel cell Battery Hybrid Converter
- LiB Charger
- Bi-directional Power Converter

## 2. Power Quality Solution

- Active Power Filter
- Power Factor Converter
- Dynamic Voltage Restorer
- Static VAR Compensator
- Distribution for Smart Grid
- Voltage Sag Compensator
- Uninterruptable Power System

## 3. Power Control & Monitoring

- Electric Vehicle Driver
- High Magnet Power Supply
- Monitoring for Smart Grid
- Battery & Fuel Cell Monitoring



# HiGenC, HiGenV Series

## Grid-Connect / Stand alone inverter for Fuel cell

### 1. Introduction

Inverter (HiGenV, HiGenC Series) is electric power converter for fuel cell system applications for residential and commercial area. It is applied the latest semi-conductors and control technology to accomplish highefficiency and structural design of third dimension for compact and light to install easily.

Performance of this inverter system works efficiently more than 92.5% and controls power automatically to display maximum of generating power from fuel cell.

It supports steady operation in 220V/60Hz, single phase power.

Also, the system gives variable operation to handle parameters through RS232, RS485/422, and CAN2.0 interface

### 2. Features

- 220Vac, single phase or 380Vac, three-phase grid Connected inverter
- Optimized algorithm for Fuel cell Stack
- Ideal for medium and small scale fuel cell systems under 10kW
- Wide input voltage range
- The highest levels of efficiency in the world (92.5%)
- A PC-Based graphical user interface and control through RS232, RS-485/422, CAN2.0
- Product certificate (KOGAS)





# HiGenC, HiGenV Series

## Grid-Connect / Stand alone inverter for Fuel cell

### 3. Specifications

Models Items		GHPCS-1570	GHPCS-2545 GHPCS-3235	GHPCS-5270	GHPCS-6288 GHPCS-62108	GHPCS-67165 GHPCS-87151	GHPCS-130180	SHPCS-3446
Rated capacity [kW]		1	1	3	5 / 6	10 / 12	20	1.4
Input	Rated Power Input [W]	1100	1150 / 1145	3300	5450 / 6696	11000 / 13200	23000	1555
	Rated Voltage [Vdc]	15.7	25 / 32	48	62	67 / 87	130	34
	Input Voltage [Vdc]	12~26	20~36 28~50	45~70	55~99 50~100	58~99 75~125	105~200	26~50
	Rated Current [A]	70	45 / 35	68	88 / 108	164 / 151	180	45.8
	Maximum Current [A]	75	50 / 37	75	100 / 130	180 / 160	210	48
	Ripple Current [%]	≤3.0	≤5.0	≤5.0	≤5.0	≤5.0	≤5.0	≤5.0
Output	Rated Power Output [VA]	1017	1010 / 1000	3000	5014 / 6006	10010 / 12012	21000	1400
	Rated Voltage [Vac]	220±10%	220±12%	220±10%	220±10%	3Ø380±10%	3Ø380±10%	220
	Rated Current [A]	4.6	4.6 / 4.55	13.6	22.8 / 27.3	15.2 / 18.2	31.8	6.36
	Frequency [Hz]	60±0.2	60±0.2	60±0.2	60±0.2	60±0.2	60±0.2	50±0.2
	Power Factor	≥0.98						
	THD [%]	≤5(total), ≤3(each)						
Efficiency [%]		≥92.5	≥91.5/≥92.5	≥92.5	≥92.0	≥91.0	≥92.0	≥90.0
Dimensions[mm]		327x270x122	375x274x120	558x418x220		645x700x310	750x650x1269	200x350x150
Remarks		Grid Connection						Stand-Alone

# DC/DC Converter for Fuel cell Back-up

## 1. Features

- Current control and voltage control by DSP
- Standard control interface through CAN bus or analog and digital signals available upon request
- Rugged aluminum construction
- Waterproof construction
- Air-cooled and liquid-cooled versions available



## 2. Applications

- Fuel cell Electric Vehicles(FCEVs): allows fuel cell and battery/Ultra-capacitor to operate at different voltages
- Ultra-capacitor load leveling system: allows ultra-capacitors to provide power bursts for vehicle acceleration and absorb power burst from regenerative braking
- Ultra-capacitor solid-state pulse power system: provides high power bursts of energy without any moving parts or batteries maintenance
- DC motor controller: provides torque from DC motor in response to accelerator pedal commands (Modification of device shown)

## 3. Specifications

Items		Model	GF-FDC045048-019	GF-FDC200300-500
Rated power output			1900W	50 kW
Input	Rated voltage		DC 45.5V	DC 200V
	Rated Current		DC 46.5A	DC 250A
	Allowable voltage		DC 38V ~ DC 70V	DC 180V ~ DC 370V
	Allowable Max. Current		DC 50A	DC 280A
	Operating voltage		DC 39V ~ DC 68V	DC 200V ~ DC 300V
	Operating current		DC 0A ~ DC 47A	DC 0A ~ DC 250A
Output	Rated voltage		DC48V	DC 300V
	Rated Current		DC 39.6A	DC 166A
	Maximum Voltage		DC 55V	DC 330V
	Maximum Current		DC 42A	DC 170A
Dimensions[mm]			350x360x110	520x380x265

# Portable Battery Charger for Li-Battery

## 1. Features

- Large capacity charge (Maximum rating 3.4kW), wide charging range (DC15 ~ DC60V)
- Portable type for easy carry
- PFC for stability of power system
- A Variety of models for each countries (AC 110V, AC 220V, 50Hz/60Hz)
- Optimized control mode (CC/CV/CP Mode) and algorithm for Li-Battery
- Possible to use a different kind of the RMBS(Master BMS)
- Easy operation through touch screen LCD



## 2. Specification

Models		BC-48/15-R-PF		BC2-48-R-PF		BC-48-R-PF
Items						
Rated capacity [kW]		3.4		3.4		3.4
DC Output	Rated Voltage [Vdc]	48	15	48		48
	Rated Current [A]	60	130	50 / 60		50 / 60
	Charge Voltage [Vdc]	59	17	55 / 59		55 / 59
	Voltage Range [Vdc]	40~60	12~20	40 ~ 60		40 ~ 60
	Ripple Voltage [%]	≦ 3.0		≦ 3.0		≦ 3.0
	Ripple Current [%]	≦ 5.0		≦ 5.0		≦ 5.0
	Control System	CV / CC / CP		CV / CC / CP		CV / CC / CP
AC Input	Rated Voltage [Vrms]	220		220	110	220
	Maximum Current [Arms]	25	18	20	37	20
	Current THD [%]	≦5(total) / ≦3(each)				
	Power Factor [%]	≥ 90				
	Operation Range [Vrms]	187 ~ 252		187 ~ 252	95 ~ 130	187 ~ 252
	Frequency [Hz]	60		50 / 60		50 / 60
Dimensions[mm]		500 x 300 x 380		630 x 500 x 302		560 x 455 x 265
Weight[kg]		41		40		35
Options		500W Discharging Unit				
Remarks		Stationary		Portable		Portable

# H-Bank Series (Battery Energy Storage Ststem)

## 1. Features

- Interlock with generating plant of new & renewable energy
- PFC Function makes use of APF(Active Power Filter)
- Find the total of electric charges in real time
- Replacement of a emergency generator and a UPS
- Stability of Grid
- Charge/Discharge Management through HMI S/W
- Provide wide interface for EMS & EMS



## 2. Specifications

for PCS for Battery ESS

Models		GB-PS025	GB-PS050	GB-PS100	GB-PS160
Items					
Nominal Power [kW]		25	50	100	160
Output Power	Max. Power [kW]	28	55	100	165
	Nominal Power [kW]	18~25	33~50	75~100	120~160
Round Efficiency* [%]		91	92	93	93
AC Input	Voltage / Frequency	3Ø, AC 380V, 50Hz / 60Hz			
AC Output	Voltage / Frequency	3Ø, AC 380V, 50Hz / 60Hz			
	Wave Form	True Sine Wave			
	THD [%]	< 5			
Voltage Range for Storage		DC 550V ~ DC 800V			
Continuous Charge Power [kW]		30	55	120	180
Peak Charge Power [kW], @<10s		45	72	150	250
Continuous Discharge Power [kW]		30	55	120	180
Peak Discharge Power [kW], @<10s		33	60	132	200
Grid Function		Back-up, Peak Time Control, Peak Shaving, Selling			
Communications		LAN, RS-232, RS-485/422, CAN			
Operating Temp. / Humidity		0℃ ~ 45℃			
Dimension[mm]		700 x 780 x 1750	1500 x 780 x 1750	2300 x 780 x 1750	

# H-Bank Series (Battery Energy Storage Ststem)

## 3. Specifications

for PCS + Battery integral, residential / small commercial

<div>Models</div>			GB-ES030-033/048/073			GB-ES045-048/073/097			GB-ES060-073/145		GB-ES100-145/218	
Items												
Nominal Power [kW]			3.0			4.5			6.0		10	
Nominal Capacity [kWh]			3.3	4.8	7.3	4.8	7.3	9.7	7.3	14.5	14.5	21.8
Output Power	Max. [kW]		3.3			4.8			6.5		12	
	Nominal [kW]		1.5~3.0			3.0~4.5			4.5~6.0		8~10	
PCS	Round	Efficiency* [%]	87			88			88		90	
	AC Input	Voltage	AC 110V / AC 220V									
		Frequency	50Hz / 60Hz									
	AC Output	Voltage	AC 110V / AC 220V									
		Frequency	50Hz / 60Hz									
		Wave Form	True Sine Wave									
		THD [%]	< 5									
	Grid Function		Back-up, Peak Time Control, Peak Shaving, Selling									
	Communications		LAN, RS-232, RS-485/422, CAN									
Battery System	Maximum Capacity [kWh]		3.8	5.4	7.7	5.4	7.7	10.9	7.7	15.5	15.5	23.2
	Normal Voltage/Range		51.8V (44.8V~58.8V)									
	Charge	Charging Voltage	58.8V									
		Continuous Power	3.0kW			5.0kW			6.0kW		12.0kW	
		Peak Power, @<10s	4.5kW			7.5kW			9.0kW		18.0kW	
	Discharge	Cut-off voltage	44.8V									
		Continuous Power	3.0kW			5.0kW			6.0kW		12.0kW	
		Peak Power, @<10s	4.5kW			7.5kW			9.0kW		18.0kW	
	Cell Type		Li-Battery									
	Cycle Lifecycles		4,000 (DoD 80% @23℃)									
Operating Temperature			0℃ ~ 45℃									
Dimension[mm]			700 x 780 x 1000			700 x 780 x 1750			1500 x 780 x 1750			

\*) Round efficiency : Charge efficiency of rated capacity x Discharge efficiency of rated capacity [%]

# PCS for Photovoltaic

## 1. Introduction

GF-WT005 Power converter for photovoltaic consists of AC-DC, DC-AC power converter, reactor and protection panel. AC/DC conversion module provides the maximum power of generator with variable speed range through torque control and PWM technology. The DC/AC conversion module provides the high quality power to grid due to its permanent power factor monitoring and soft grid connection. Dynamic braking module protects rotor from over-speed with abnormal condition.



## 2. Specifications

Items		Models	GF-WT005
Rated Power Output			3kW
Input	Rated Voltage		DC 380V
	Rated Current		DC 7.9A
	Allowable Voltage Range		DC 0V ~ DC 400V
	Allowable Max. Current		DC 10A
	Operating Voltage		DC 200V ~ DC 400V
	Operating Current		DC 0A ~ DC 10A
Output	Rated Voltage		DC 380V
	Rated Current		DC 7.9A
	Overload Capacity		110% / 30sec
	Output Control		CV (Constant Voltage)
Dimensions[mm]			420 x 300 x 230

# PCS for Wind Turbine

## 1. Introduction

GF-WT005 and GF-WT010 Power converter for wind turbine consists of AC-DC, DC-AC power converter, reactor and protection panel. AC/DC conversion module provides the maximum power of generator with variable speed range through torque control and PWM technology. The DC/AC conversion module provides the high quality power to grid due to its permanent power factor monitoring and soft grid connection. Dynamic braking module protects rotor from over-speed with abnormal condition.



## 2. Specifications

Items \ Models		GF-WT005	GF-WT010
Input from Generator	Input Power	5 kW	11 kW
	Input Voltage	600 Vrms	330 Vrms
	Rated RPM	160 RPM	200 RPM
	Input Current	15 Arms	22 Arms
Output to Grid	Rated Grid Power	5 kW	10 kW
	Rated Grid Voltage	220 Vrms	3Ø, 380 Vrms
	Rated Frequency	60 Hz	60 Hz
	Max. Output Current	23 Arms	23 Arms
Dimensions[mm]		350 x 300 x 200	400 x 270 x 700

# Inverter for Motor Control of EV

## 1. Features

- Used for high resolution counter for high speed control
- Algorithm of Vector control for driving IPMSM
- Use IGBT(Insulated Gated Bipolar Transistor) for gating
- Use High performance DSP-23bit and ELPD
- RS-232, RS485/422 Communication
- User friendly interface through HMI
- VVVF Operating Mode
- Use high resolution counter for high speed control



## 2. Specifications

Items	Models	IPMSM-060K
Rated Power		85 [KVA]
Rated Input Voltage		DC 650V
Capacity of Motor Drive		60 [KW]
Input Max. Current		DC 110A
Operational Voltage Range		DC 600V ~ DC 650V
Operational Current Range		DC 0A ~ DC 100A
Overload Capacity		120% / 60 sec
Switching Frequency		10kHz
Modulation		Space Vector PWM
CPU		32bit DSP
Response of Current Control		1000 ~ 5000 [rad/sec]
Range of Speed Control		0 ~ 7000 [RPM]
Response of Speed Control		40 ~ 80 [rad/sec]
Dimensions[mm]		350 x 610 x 275



# Hoimyung ICT Products

New Business Model

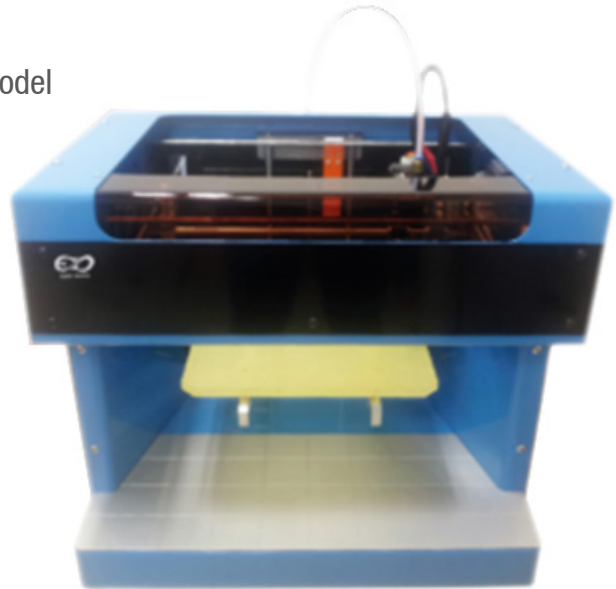
# 3D Printer

## Model: 3D Dream Maker

### 1. Introduction

Variety Purpose Application, Create New Business Model

- Make industrial design and mock up
- Create toys
- Supply educational items
- Find medical appliances



### 2. Advantages

Excellent measurement  
 Great printing quality  
 Higher completion  
 Less failure rate  
 Stable long term performance  
 Mass production capability  
 Substantial structure  
 Strong energy efficiency (53W)  
 Full metal/ aluminum frame  
 Pass long term printing test (6 months)  
 Specialize commercial industry  
 Martin firmware, compatible control board  
 Filament basement: 20pi, 50pi



# 3D Printer

## Model: 3D Dream Maker

### 3. Features

#### General

- Model Name: 3D Dream Maker V3 (EDP-1000)
- Delivery: within 4 weeks
- Compose of: printing material, base tape, adapter, USB cable

#### Printing

- Print Technology: Fused Filament Fabrication
- Build Volume: 210x150x150mm
- Materials: PLA
- Filament Diameter: 1.75mm
- Nozzle Diameter: 0.4mm

#### Software

- Software: Cura(Viewer, Slicing), Printron(Host)
- File Types: .stl, .obj, .Gcode
- Supports O/S: Windows 7

#### Physical Dimensions

- Colors: Blue, Black, White, Red
- Without Spool: 487x364x420
- Weight: 21.2Kg

#### Temperature

- Ambient Operating Temperature: 15°C~32°C
- Storage Temperature: 0°C~32°C

#### Electrical

- AC Input: 100~240V, ~2amps, 50~60Hz
- Power Requirements: DC Adaptor 12V DC@10A
- Connectivity: USB slave cable, LCD card

#### Mechanical

- Chassis & Body: Powder-coated steel, Aluminum
- Build Platform: Acrylic
- Slepper Motors: 1.8° step angle with 1/16 micro-stepping

