



# **SANDEN**

Delivering Excellence



## **Quick Reference Guide**

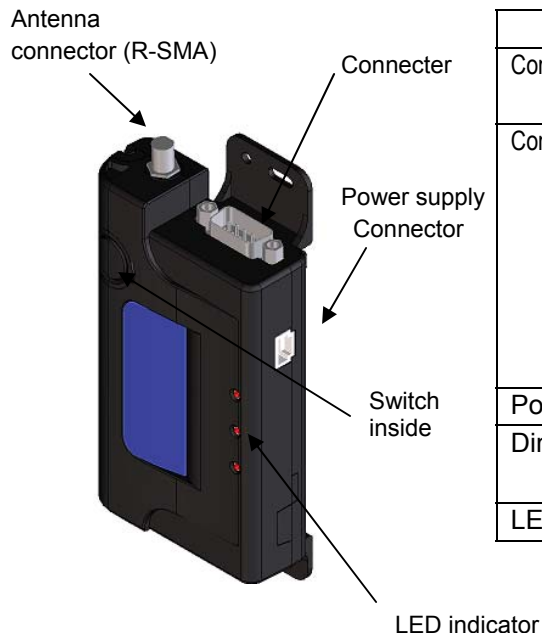
For

## **moderno.S**

# Quick Reference Guide

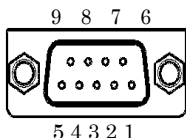
## For Modular demodulator **MDM-GCA1B1**

## **TECHNICAL DATA**



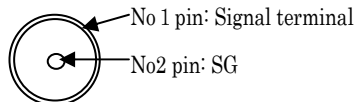
Model name.		moderno.S
Communication	Supported Mode	GSM, GPRS
	Supported Band	850/900/1800/1900
Connection interface	Port	RS-232C
	Connector	D-SUB9 (#4-40)、male
	Data length	7/8bit
	Stop bit	1bit
	Communication speed	1,200bps~460.8kbps
	Communication protocol	PPP, TCP/IP
	Control command	AT command
Power supply		DC5V±5%
Dimensions (mm)		100(W)×63(D)×25.6(H) (except stick out part・attachment lug)
LED Indicator		DATA、LINK、PWR/RSSI

## 1.Connector(RS-232C,D-SUB 9pin: male plug)



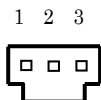
Pin no.	Signal Line	I/O	Signal Name	Function
1	CD	I	Reception carrier search	When telecommunication line becomes connection, it is ON.
2	RxD	I	Received Data	Data from this device
3	TxD	O	Transmitted Data	-
4	DTR	O	Data Terminal Ready	-
5	GND			-
6	DSR	I	Data Set Ready	ON : During operation of this device OFF: Telecommunication line is disconnected.
7	RTS	O	Request To Send	-
8	CTS	I	Clear To Send	ON: When device is ready to receive data.
9	RI	I	Ring Indicator	RING. Signal of message arrival searched

## 2.Antenna Connector (R-SMA)



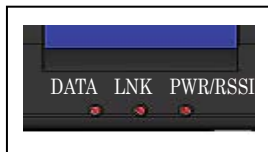
Pin no.	Terminal name	Contents
1	TRX	Transmission and Reception Signal
2	SG	Signal Ground

## 3. Power supply Connector



Pin no.	Terminal name	Direction of a signal	Explanation
1	VCC	Reception signal	DC5.0 ± 0.25V
2	PWR	Reception signal	SG: Power OFF(3 seconds more), OPEN: Power ON
3	SG	-	Signal Ground

## 4. LED indicator

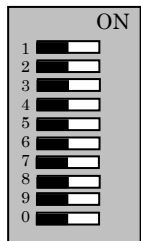
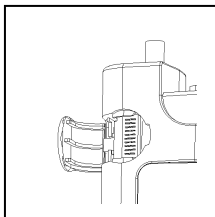


DATA	Data in transmission / reception
LINK	During communication
PWR/RSSI	Power on/ Received Signal Strength Indication, Received Signal Strength Indicator

## 5. Dip Switch Setting

- Dip switch changes a movement mode of this device and sets transmission rate.
- Be sure to shut off power supply before setting Dip switch.
- Default :It is setting in factory shipment basically (all OFF).

Display: power/in communication / transmission in LED.



Function	Setting	Dip Switch NO.									
		1	2	3	4	5	6	7	8	9	0
Transmission rate setting	9,600bps	OFF	OFF	-	-	-	-	-	-	-	-
	19,200bps	ON	OFF	-	-	-	-	-	-	-	-
	15.2Kbps	OFF	ON	-	-	-	-	-	-	-	-
	User setting	ON	ON	-	-	-	-	-	-	-	-
Date bit select	8bit	-	-	OFF	-	-	-	-	-	-	-
	7bit	-	-	ON	-	-	-	-	-	-	-
Stop bit select	1bit	-	-	-	OFF	-	-	-	-	-	-
	2bit	-	-	-	ON	-	-	-	-	-	-
Parity select	Non parity	-	-	-	-	OFF	OFF	-	-	-	-
	O parity	-	-	-	-	ON	OFF	-	-	-	-
	odd number	-	-	-	-	OFF	ON	-	-	-	-
	even number	-	-	-	-	ON	ON	-	-	-	-
Communication mode	Normal	-	-	-	-	-	-	OFF	OFF	-	-
	Through	-	-	-	-	-	-	ON	OFF	-	-
	Protocol conversion	-	-	-	-	-	-	OFF	ON	-	-
	Protocol conversion AT command	-	-	-	-	-	-	ON	ON	-	-
Electric wave reception level	Enable(ON)	-	-	-	-	-	-	-	-	ON	-

## 6. The antenna

“Only the listed antenna here should be connected and operated together with the modem.”

- Company : Smarteq Wireless AB
- Model : 1140.26RPSMA(m)

## 7. Minimum distance required (more than 30cm)

"The antenna of this equipment must be installed and operated with a minimum distance more than 30cm from testing person's body"

# **FUNCTION**

## **Communication mode**

- 1) Through mode: User connects directly the device with a communication module without protocol conversion.
- 2) Protocol conversion mode  
Even if the device is without AT command, without TCP/IP function, network communication is enabled just to connect to “moderno”.
- 3) Protocol conversion AT command mode  
Even if the device is with AT command, without TCP/IP function, network communication is enabled just to connect to “moderno”.

## **Electric wave reception level**

Electric wave reception level is displayed by LED Bar indicator.

Level	LED(Red)		
	DATA	LINK	PWR/RSSI
0(out of Area)	OFF	OFF	OFF
1	OFF	OFF	ON
2	OFF	ON	ON
3	ON	ON	ON
4	ON	ON	ON

# FUNCTION

## LED indication contents

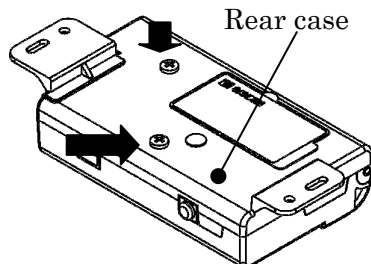
Operation status of this device can be monitored by LED.

Operation Status	LED			Remarks on LED
	DATA	LINK	PWR/RSSI	
Power on	ON	ON	ON	All Led: On
In updating of system setting	ON	Blink	ON	
In module search	-	-	ON	Shift lighting from right to left, and versa vice
	-	ON	-	
	ON	-	-	
Communication failure with a module	Blink	Blink	Blink	All Led Blinks
Module activation			ON	Shift lighting from right to left
		ON		
	ON			
Failure of module activation	ON	-	ON	Shit lighting from Top to bottom, versa vice
	-	ON		
Stand by normal (Electric wave reception level 1-4)	-	-	ON	PWR/RSSI Led: ON
Out of the communication zone (Electric wave reception level 0)	-	-	Blink	PWR/RSSI Led :Blink
Phone number is unidentified. (Electric wave reception level 1-4)	-	Blink	ON	LINK Led: Blink PWR/RSSI:ON
Phone number is unidentified. (Electric wave reception level 0)		Blink	BLINK	LINK Led: Blink PWR/RSSI:Blink

# FUNCTION

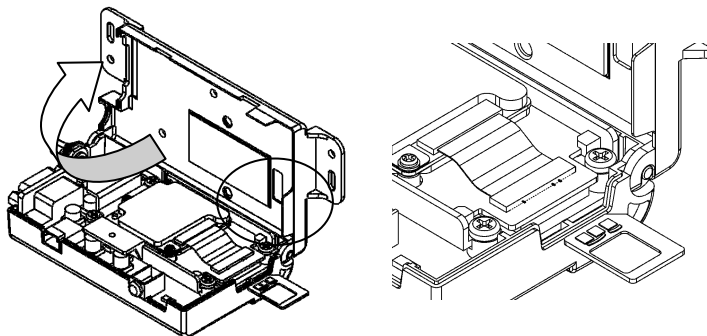
## Insertion guide of SIM (summing impact modulator card)

1) Take out two screws of the rear case.



2) Open the rear case, and insert SIM card.

Confirm that SIM card is appropriately inserted at the designated position.



3) Set the rear case at appropriate position, and close it tightly with two screws.

# FUNCTION

## Installation guide

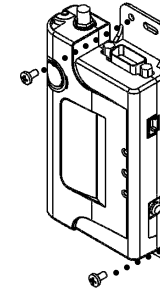
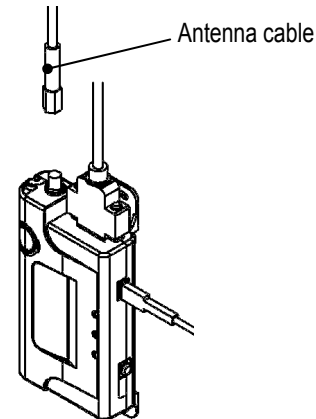
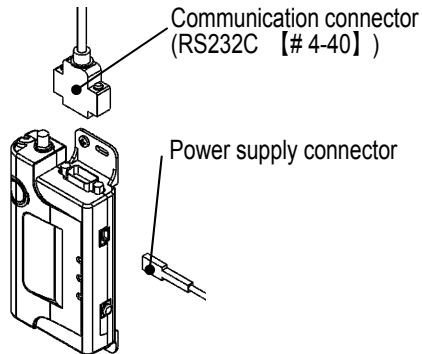
### 1) Installation guide of the unit.

Before installation, be sure to switch off the power of the device to be installed.

- a) Screw up the unit to the appropriate install position of the device.
- b) Install the unit to the device at least with 2 screws at diagonal positions  
(Recommendation is 4 points)

### 2) Associate power supply connector and communication connector to the device to be installed

### 3) Installation of antenna. Please install an antenna justly.



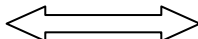


# FUNCTION

## Activation guide

1. Power supply ON
2. Check the LED display whether "DATA, LINK, PWR/RSSI" indicates as following chart.  
(Refer to the section "trouble diagnosis" except the below indicated cases)
3. Only "PWR/RSS" LED becomes "ON" when the unit becomes activated normally
4. The unit status becomes able for communication. (It could take a couple of ten seconds to reach this status)

### Explanation of LED indicators at the activation

No	LED			LED state guide	Indication guide
	DATA	LINK	PWR/RSSI		
1	ON	ON	ON	All LED: On	Power supply ON state. *This status could continue for a couple of ten seconds.
2	ON	ON	Blink	DATA LED: ON , LINK LED: ON PWR/RSSI LED: Blink	Initialization of setting is completed. (it starts in all the DIP switches ON)
3	ON	Blink	ON	LINK LED: Blink	In updating system setting and construction
4	-	-	ON	Shift lighting from left to right and versa vice 	In search for communication module.
	-	ON	-		
	ON	-	-		
5	-	Blink	Blink	LINK LED: Blink, PWR/RSSI LED: Blink	Acquiring status of the phone number
6	-	-	Blink	PWR/RSSI LED: Blink	Out of electric wave range / area
7	-	-	ON	PWR/RSSI LED: ON	Activated normally. (Electric wave reception level 1-4)

## Shut down guide

- 1) Check if "LINK" of LED display does not turn on.
- 2) Please drop the power supply.

\*Data could be destroyed or lost when power supply is dropped during the LED status shows "LINK" to the network.

# FUNCTION


## Trouble diagnosis








The "modern.S" is very accurate instrument.








When you doubt no-go situation, execute again OFF / ON operation of the power switch of the "modern.S".







If it does not return to normal actuation even after such OFF/ON trial, check and confirm according to the following list.

### Trouble diagnosis by LED indication

State	LED				Trouble cause	Repair guide
	DATA	LINK	PWR/RSSI			
Cannot communicate at power supply ON.	Blink	Blink	Blink		Abnormality of communication module	There is a possibility of defect of the communication module.
	ON		ON		Failure in activation of communication module.	It could be a case that initialization mobile network is not actuated. Please confirm its contract status. If actuated, there could be a defect of communication module.
		ON				
	Repeatedly lighting from top to bottom, versa vice					
	-	-	Blink		Phone number is unidentified. (Electric wave reception level 0)	Reception sensitivity of an antenna is the bad situation. Please confirm the situation of an antenna and the cable connecting situation.
	PWR/RSSI LED: Blink					
	-	-	ON		Abnormality in communication due to device connection	It could be communication abnormality with a connection device. Confirm setting of transmission rate (a baud rate) and the connecting situation of wiring.
	PWR/RSSI LED: ON					

 Český [Czech]	Sanden Corporation tímto prohlašuje, že tento <i>MDM-GCA1B1</i> je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
 Dansk [Danish]	Undertegnede <i>Sanden Corporation</i> erklærer herved, at følgende udstyr <i>MDM-GCA1B1</i> overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
 Deutsch [German]	Hiermit erklärt Sanden Corporatoion, dass sich das Gerät <i>MDM-GCA1B1</i> in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
 Eesti [Estonian]	Käesolevaga kinnitab Sanden Corporation seadme <i>MDM-GCA1B1</i> vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
 English	Hereby, Sanden Corporation, declares that this <i>MDM-GCA1B1</i> is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
 Español [Spanish]	Por medio de la presente Sanden Corporation declara que el <i>MDM-GCA1B1</i> cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
 Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ <i>Sanden Corporation</i> ΔΗΛΩΝΕΙ ΟΤΙ <i>MDM-GCA1B1</i> ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/EK.

 Français [French]	Par la présente <i>Sanden Corporation</i> déclare que l'appareil <i>MDM-GCA1B1</i> est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
 Italiano [Italian]	Con la presente <i>Sanden Corporation</i> dichiara che questo <i>MDM-GCA1B1</i> è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
 Latviski [Latvian]	Ar šo <i>Sanden Corporation</i> <i>izgatavotāja nosaukums</i> ] deklarē, ka <i>MDM-GCA1B1</i> atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
 Lietuvių [Lithuanian]	Šiuo <i>Sanden Corporation</i> deklaruoja, kad šis <i>MDM-GCA1B1</i> atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
 Nederlands [Dutch]	Hierbij verklaart <i>Sanden Corporation</i> dat het toestel <i>MDM-GCA1B1</i> in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
 Malti [Maltese]	Hawnhekk, <i>Sanden Corporation</i> , jiddikjara li dan <i>MDM-GCA1B1</i> jikkonforma mal-htigijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Direttiva 1999/5/EC.
 Magyar [Hungarian]	Alulírott, <i>Sanden Corporation</i> nyilatkozom, hogy a <i>MDM-GCA1B1</i> megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.

 Polski [Polish]	Niniejszym Sanden Corporation oświadcza, że <i>MDM-GCA1B1</i> jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
 Português [Portuguese]	Sanden Corporation declara que este <i>MDM-GCA1B1</i> está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
 Slovensko [Slovenian]	Sanden Corporation izjavlja, da je ta <i>MDM-GCA1B1</i> v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
 Slovensky [Slovak]	<i>Sanden Corporation</i> týmto vyhlasuje, že <i>MDM-GCA1B1</i> spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
 Suomi [Finnish]	Sanden Corporation vakuuttaa täten että <i>MDM-GCA1B1</i> tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
 Svenska [Swedish]	Härmed intygar Sanden Corporation att denna <i>MDM-GCA1B1</i> står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

**C €0560**

FCC ID: FCC ID: XV7MDM-GCA1-100

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Note: This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter. End user cannot modify this transmitter device. Any unauthorized modification made on the device could avoid the user's authority to operate this device.

CAUTION: This device complies with FCC RF exposure requirement. A separation distance of at least 30 cm must be maintained between the antenna of this device and all persons.

