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JM IBOT
GSM_GPS Version
Industry 4.0 ready

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Operating Manual Index:

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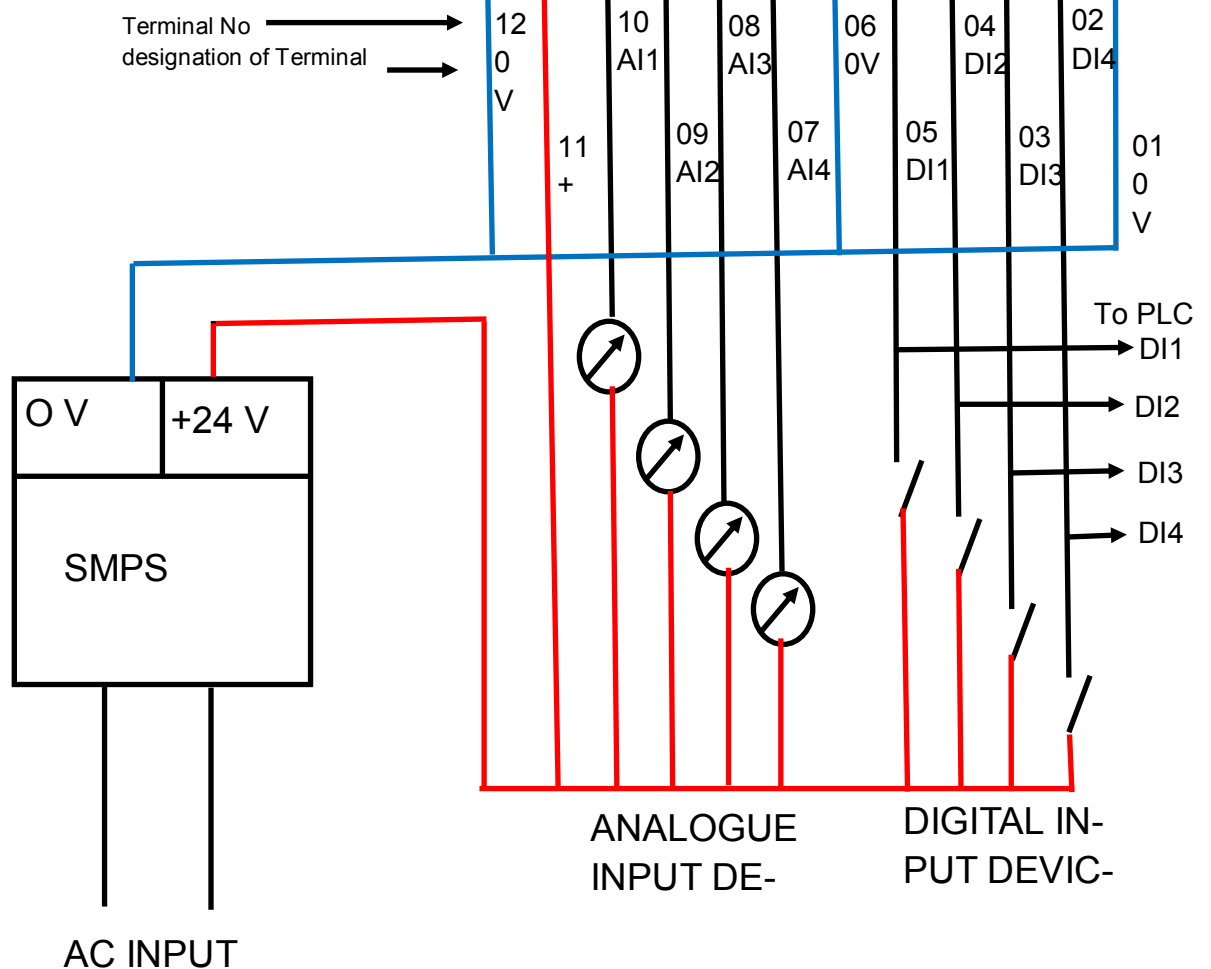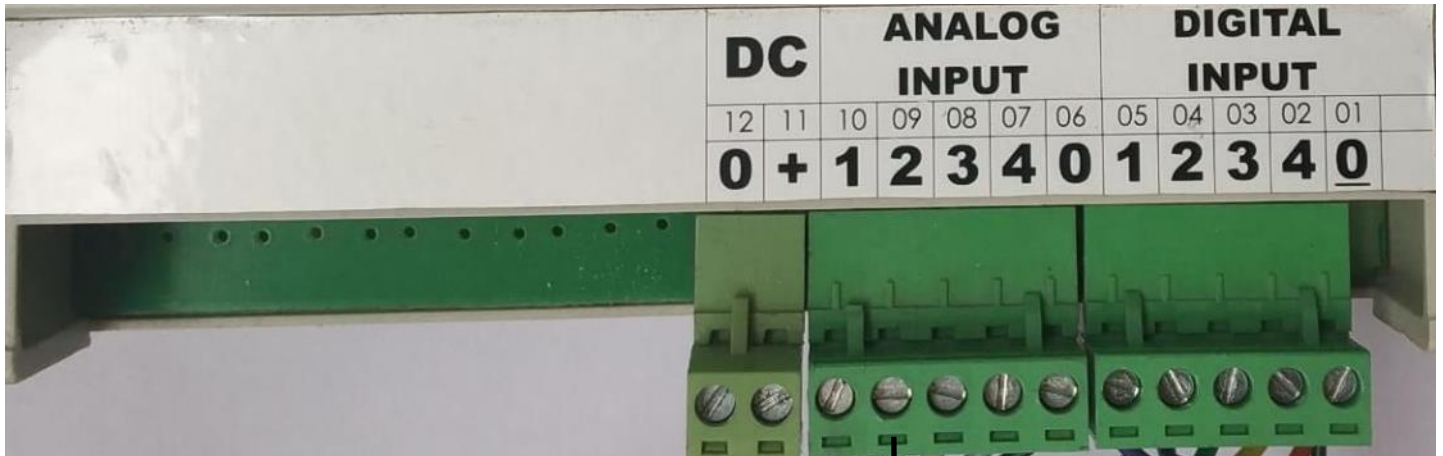**Technical Specifications / Features :**

1. Supply voltage to the monitor 20 to 30 VDC; 2 Amp

2. Ambient temperature 50 Degrees C maximum.

3. IP protection rating IP20.

4. Digital inputs 4 DI (24 VDC, PNP, 0 VDC common with power supply). Device supply voltage for external devices to be given externally if the device works only on 24 VDC. For devices working on 20 to 30 VDC power supply can be given from JMIBOT00002 itself (max quiescent current of all devices together must not exceed 0.5 Amp in this case)

5. Analogue inputs 4 AI (4-20mA, 0 VDC common with power supply);
   Additional feature : Built in device temperature sensor.

6. Relay outputs 4 RO (1 NO + 1 NC; load current 2 Amp Max at 230 VAC)

7. GSM (2G/3G) based SIM card with voice, sms as well as data enabled connection.

8. The "current status" of digital and analogue inputs can be "taught to" the system as "healthy status".

9. Any deviation in digital inputs DI And Deviation of +/- X % of the analogue inputs AI will trigger an "LOG / SMS / Voice Call" as per setting of the JMIBOT GSM Device. (Please refer separate manual for JM_App)

10. LOG Event will be communicated to maximum 3 "programmable cell phone numbers" through:
    - Voice call (the system will "read aloud" the value of that input which has caused the particular "Error")
    - SMS with listing of all input, relay output and mains status,
    - logging of these input as well as output status on the cloud (jmibot.com; after the registration)

11. The system can also be programmed to send the status of inputs and outputs at a regular "Time Intervals".
    This time interval can be set by the system administrator (**First** of the 3 cell numbers programed in the system).
    This can be set for sending:
    - SMS at programmed time intervals
    - logging of the status of inputs and outputs on the cloud at programmed time interval

12. The relays in the system can be triggered ON or OFF by ONLY the 1 cell phone number (Admin) remotely through DTMF tone dialling.

13. This Device is also equipped with GPS Location logging feature. The location logging feature works ONLY for logging LOCATION ON CLOUD "jmibot.com". For details, please refer JM_App manual.

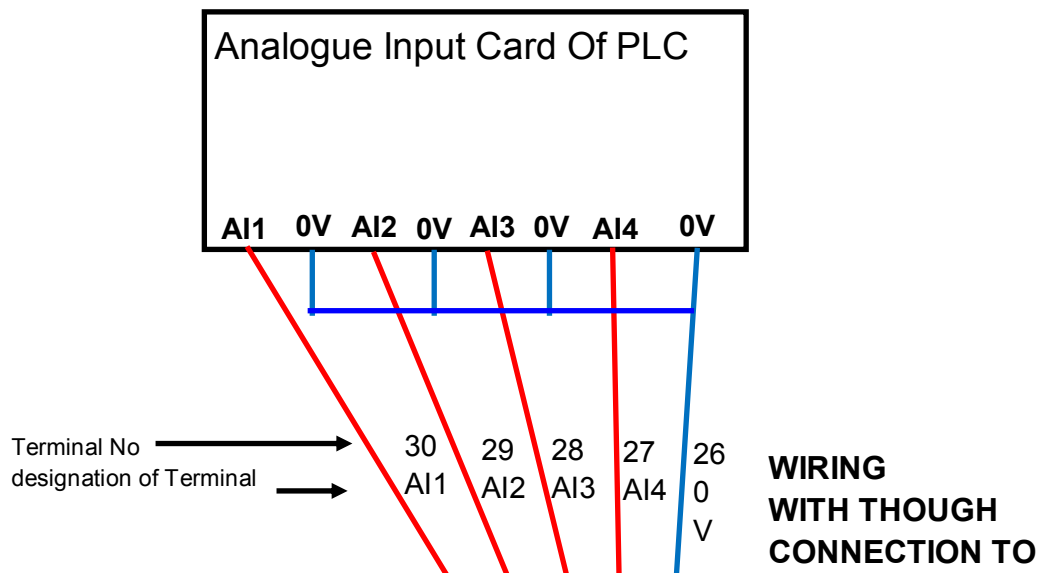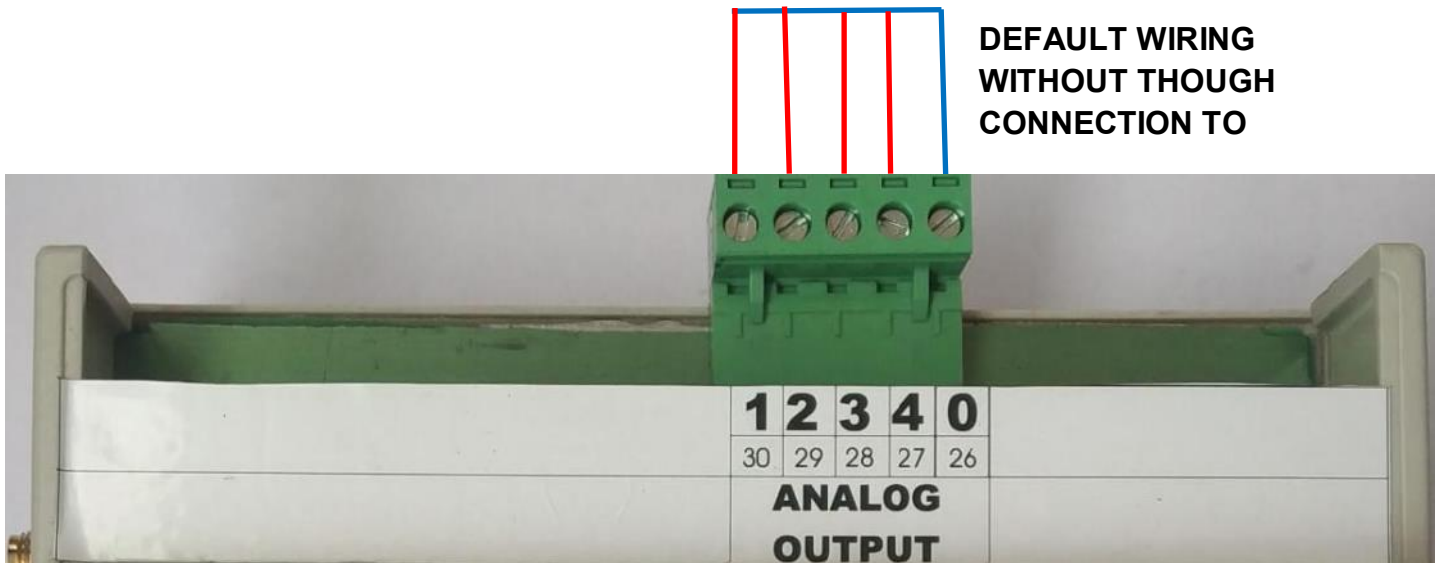**Setup procedure and connecting the user devices**

1. Connect the power supply adapter output wires to JMIBOT0002 pin connection no POWER SUPPLY (+)(0) as shown in the diagram.

2. Connect the potential free / relay output connection of the user device to be monitored (eg. incubator / security connection etc) to the pin no (+) and pin no (1) of the JMIBOT0002 as shown in the diagram

3. If you wish to connect more than 2 user devices to be monitored by JMIBOT0002, please use pin (+) of JMIBOT0002 as common connection for all the user devices (maximum 4 digital inputs (pins DI1,DI2,DI3,DI4)and max 4 analogue inputs 4-20mA (Pin AI1,AI2,AI3,AI4). Use pins noted "Relay1", "Relay2", "Relay3", "Relay4" for connecting relays, please refer the connection diagram as shown in the diagram.

4. **Wiring Diagram Example:**
   Please refer the next page

JMIBOT DIGITAL AND ANALOGUE INPUT WIRING

DC		ANALOG INPUT					DIGITAL INPUT				
12	11	10	09	08	07	06	05	04	03	02	01
0	+	1	2	3	4	0	1	2	3	4	0

Terminal No

designation of Terminal

12 0 V

11 +

10 AI1

09 AI2

08 AI3

07 AI4

06 0V

05 DI1

04 DI2

03 DI3

02 DI4

01 0 V

O V   +24 V

SMPS

AC INPUT

ANALOGUE INPUT DE-

DIGITAL IN-PUT DEVIC-

To PLC

DI1

DI2

DI3

DI4

DIGITAL INPUT DEVICES can be connected to JMIBOT DIs as well as PLC DI s in Parallel provided the DI devices have sufficient Output Current Rating to cater to BOTH

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JMIBOT ANALOGUE OUTPUT WIRING
For THROUGH CONNECTION TO PLC

DEFAULT WIRING WITHOUT THOUGH CONNECTION TO

```
1 2 3 4 0
30 29 28 27 26
ANALOG
OUTPUT
```

Analogue Input Card Of PLC

| AI1 | 0V | AI2 | 0V | AI3 | 0V | AI4 | 0V |

Terminal No → designation of Terminal →

| 30 | 29 | 28 | 27 | 26 |
| AI1 | AI2 | AI3 | AI4 | 0 V |

WIRING WITH THOUGH CONNECTION TO

```
1 2 3 4 0
30 29 28 27 26
ANALOG
OUTPUT
```

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Settings / programming procedure for calling / call back cell numbers

1. Switch OFF the power supply.

2. Connect the power supply adapter output pin to DSM002. Keep the mains power switched OFF.

3. Connect the device / devices to the DSM002 as per the wiring diagram noted earlier

4. Press the small push button on the SIM card holder LIGHTLY and slowly remove the SIM card holder. Place the VALID, ACTIVATED, VOICE, SMS and DATA ENABLED SIM card into the SIM card holder with connections contacts facing DOWNWORDS. Insert the SIM card holder into DSM002. This SIM card must have usable credit balance to make calls as well as to send SMS.

5. Switch ON the power supply switch to DSM002, as well as mains power adapter. The indicator LED on the unit show glow GREEN.

6. Please ensure that the DSM002 is installed where there is GSM cell phone signal is available with enough strength. This can be confirmed by another cell phone working on same cell phone network.

7. Programming of the CALL BACK NUMBERS into DSM002:

TO change/set the AUTHORISED cell numbers from/to which JMIBOT will only receive/ send the information/call/send SMS etc.

To SET / TEACH THE JMIBOT 3 "AUTHORISED" CELL PHONE NUMBERS:

Press and keep pressed the **push button "set"** on the JMIBOT and send the following SMS to the cell no of the simcard installed in the JMIBOT as bellow. Keep pressed UNTIL the SMS is received by the JMIBOT and **LED "System busy" STARTS BLINKING**.

NXA+919876543210**S**+919876543210**C**+919876543210**#**
First 2 characters are "NX",
3rd character is selection of character for mode of communicating to FIRST cell no
(**A**=CALL + SMS or **S**=SMS only or **C**=CALL only).
from 4th character up to 16th character is FIRST cell no starting with +91 (India country code) and followed by 10 characters of cell no.

17th character is again selection of character for mode of communicating to SECOND cell no
(**A**=CALL + SMS or **S**=SMS only or **C**=CALL only)
from 18th character up to 30th character is SECOND cell no starting with +91 (India country code) and followed by 10 characters of cell no.

Operating features

1. JMIBOT WILL MAKE A VOICE CALLs (to all the authorized call numbers) when:

The **mode of communication character** for that cell no is either **A** or **C**
and
Any change in digital input status happens
OR
Any analogue input value varies + or X%. (setting done through JM_App)

2. Once the user receives this call, the JMIBOT will wait for further commands from the receiver as follows:.
The receiver (authorized cell no) can carry out following commands:
After pressing any digit key, the user will get voice feed back of the number key pressed.

Press "6" once TO LISTEN STATUS of digital as well as analogue input values. The user will get a voice feed-back as "six" with this command.
Press "7" seven to get the SMS feedback of the current values. The user will get a voice feedback as "seven" with this command.
Press "11" to switch ON Relay1. The user will get a voice feedback as "Relay one ON" with this command.
Press "10" to switch OFF Relay1.The user will get a voice feedback as "Relay one OFF" with this command.
Press "21" o switch ON Relay2.The user will get a voice feedback as "Relay two ON" with this command.
Press "20" to switch OFF Relay2. The user will get a voice feedback as "Relay two OFF" with this command.
Press "31" to switch ON Relay3.The user will get a voice feedback as "Relay three ON" with this command.
Press "30" to switch OFF Relay3. The user will get a voice feedback as "Relay three OFF" with this command.
Press "41" to switch ON Relay4.The user will get a voice feedback as "Relay four ON" with this command.
Press "40" to switch OFF Relay4. The user will get a voice feedback as "Relay four OFF" with this command.
Press "80" to switch off all relays.
Press "5" to teach the revised healthy status of all inputs as connected at that instance. The user will get a voice feedback as "Five" with this command.
If one of the commands is not acknowledged by voice feedback (due to line disturbances etc), please repeat the command TILL you get the Voice Feed Back.

3. FORMAT OF THE SMS :
If the **mode of communication character** for that cell no is either **A** or **S**, the user will **also get SMS** of the **values of digital and analogue inputs**, along with the **status of built in Relay1, Relay2, Relay3, Relay4 and Mains ON / OFF**.
The SMS will be sent as per : **Time schedule** set in JM_App OR **Event happened** OR **Command request** by the user (as per sr. No. 2 of operating feature - command "press 7")
Format of the SMS received from the JMIBOT is as follows:

T ("T" denotes time based SMS/ "E" denotes event based SMS)
DI1=0 (denotes digital input no 1 as LOW)
DI2=1 (denotes digital input no 2 as HIGH)
DI3=1 (denotes digital input no 3 as HIGH)
DI4=0 (denotes digital input no 4 as LOW)
AI0=027 (denotes the connected temperature sensor to JMIBOT reading as 27 Deg C)
AI1=052 (denotes analogue input no 1 as 052 %)
AI2=082 (denotes analogue input no 2 as 082 %)
AI3=066 (denotes analogue input no 3 as 066 %)
AI4=098 (denotes analogue input no 4 as 098 %)
R1=1 (denotes status of built in relay1 as ON)
R2=0 (denotes status of built in relay2 as OFF)
R3=1 (denotes status of built in relay1 as ON)
R4=1 (denotes status of built in relay1 as ON)
Mains ON ("Mains ON" denotes power on; "Mains OFF" denotes power Off and unit is running on battery)

A separate SMS **"Battery Low System Shutting Down"** will be sent when battery gets drained

Settings / programming procedure

Please Refer JM_App_Manual_GSM

ERROR CODES:

1:   Network LED OFF And System error LED Blinks with Frequency 1 Hz :

This indicates that the GSM network for sim card inserted in Jmlbot device is not present or SIM card is not present.
(Please check:
- the presence of SIM card
- if the SIM card inserted Properly in the device slot
- the network strength for same service provider at the location.

2:   Network LED blinking And System error LED Blinks with Frequency 1 Hz:

This indicates that there is insufficient balance (or sending SMS on the particular SIM card inserted in the JMIBOT and the feature / setting for sending SMS is ENABLED through JM_App
OR
This indicates that there is insufficient balance Data Logging on cloud on the particular SIM card inserted in the JMIBOT and the feature / setting for logging the data on cloud is ENABLED through JM_App

(Please check balance for particular sim card inserted in JMIBOT).

Please Note:
If there is NO / insufficient Account Balance for Voice Calling form the SIM Card, and there is account Balance ONLY for sending SMS, The JMIOBT DOSE NOT indicate any Error in case of Voice Calling enabled for the JMIBOT_GMS Device.

In this case, Voice Call will not be initiated by the JMIBOT device (in spite of that being enabled through JM_App), and Only SMS will be sent.

LED Indications / Feedback codes

Power ON

Network LED:
LED OFF no GSM network
LED Blinking with 1 Hz weak GSM network
LED Blinking with 2 to 4 Hz moderate GSM network strength
LED Blinking with 5 Hz strong GSM network

System Busy LED:
GLOWING when the system is calling or sending SMS / data to cloud

Digital input 1/2/3/4 LEDs

GLOWING if the respective input is HIGH

Digital input error 1/2/3/4 LEDs

GLOWING as complement of respective Digital Input

Analogue input 1/2/3/4 LEDs
LED OFF No Analogue Input present (OR AI current less than 3.7 mA)
LED Blinking with 1 Hz (AI current between 1 to 20% = 3.8mA to 7.2mA)
LED Blinking with 2 Hz (AI current between 21 to 40% = 7.3mA to 10.4mA
LED Blinking with 3 Hz (AI current between 41 to 60% = 10.5mA to 13.8mA

LED Blinking with 4 Hz (AI current between 61 to 80% = 13.9mA to 17.6mA

LED Blinking with 5 Hz (AI current between 81 to 100% = 17.6mA to 20mA

Relay 1/2/3/4
GLOWING if respective relay is energized

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Interface to the cloud / data logging on the internet:

The JMIBOT is having built in feature to log all the data / status of inputs as well as relay outputs on the cloud through the website **www.jmibot.com**

Detailed process is as follows:

1. Registration of the JMIBOT on the website:

    For registration you need the IMIE no of the JMIBOT which you get along with the unit.

2. After registration with J Mechatronic office, and paying the requisite fees, you can access the data on the cloud from any Android Cell phone device with access to internet and JM_App installed on it.

3. **The DEVICE CODE acts as the PASSWORD for the JMIBOT device data to access the data on the cloud and MUST BE HANDELED CONFEDENTIALLY**.

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For any further support, please contact:

J mechatronic
E-12, Kesar Kasturi, Nagala Park,
Kolhapur-416003, Maharashtra, Republic of India

info@jmechatronic.com

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