DuoLink IO

Remote. Reliable. Connected

Instruction Manual



CONTACLIP

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1 Description

1.1 Summary

The DuoLink IO is a compact remote control and messaging system. All IOs are monitored and controlled by SMS and data communication through the GSM network.

The module can be configured with desktop software. Each IO can be modified by user-defined parameter names and messages. A selected group of users can be chosen from the phonebook to control the module, or only receive messages.

On each defined input status change the module sends a pre- or user-defined message to the selected group of users.
The outputs can be set when a selected user sends a pre- or user-defined message to the module.

The module sends a periodical message on user defined times. On power loss the module holds enough power to send SMS messages to a selected group of users. It also sends messages when coming back from a power reset.

1.2 Module types

The DuoLink IO consists of the modules as described below.

- DUOLINK IO
- DUOLINK IO IP
- DUOLINK IO GPS
- DUOLINK IO IP|GPS

1.3  Safety instructions

- This device is NOT suitable for monitoring sensible or time critical processes. Power interruption or GSM network failures do not guarantee flawless monitoring.
- Keep ESD precautions in mind when opening the module.
- This module requires a GSM data connection. For information about costs ask your GSM service provider.

2 Software

Download the latest GSM-PRO2 interface software at:
https://conta-clip.com/en/contact-service/download-center

2.1 System requirements

The following requirements are needed to run and use the software properly:

- Windows 11
- USB port
- Internet connection

2.2 Software installation

As the program needs to install hardware drivers make sure you have administrator rights.

Unzip the downloaded file before installing. Install the program as administrator (right mouse click and select run as administrator).

Run the DuoLink_IO_setup.exe to install the application. The setup wizard will guide you through the rest of the setup process.
After starting the DuoLink IO user interface set the language by: Settings (Gearbox Icon) -> Language. The chosen language is saved and recalled at start up.

3 Module

NOTE: Keep ESD precautions in mind when opening the module.

3.1 Place the SIM card

NOTE: Place or replace the SIM card only with the power supply turned off.

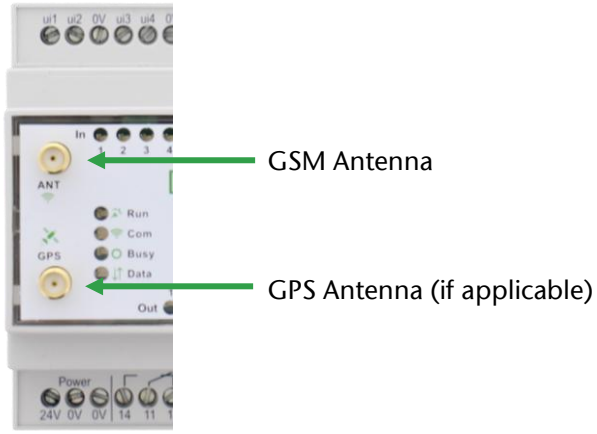
Place a Nano SIM card into the SIM card holder to access the GSM network:



When a wrong PIN number is given 3 times the SIM card is locked and requests the PUK code. The diagnostics shows this in the error message. Access the ‘advanced settings’ by clicking the ‘gearbox’ icon. Insert the correct PUK and PIN code and click ‘insert PUK code’.

3.2 Antenna's

Connect the GSM antenna on the upper sma connector on the module. If applicable connect the GPS antenna to the lower sma connector



3.3 Connect to power

Connect the 24V and 0V to the power supply. Power supply can be in the range between 10 and 30VDC



3.4 Connect to PC

Connect a USB cable to the USB-C socket on the module, and the other end to a USB port on a PC.

NOTE: Make sure to install the interface software and drivers before connecting the module to a PC.



3.5 LED description

3.5.1 Module status indication

After connecting the power it takes about 10 seconds before the first Led activates.

The Led 'Run' indicates module activity:

- Flash = starting-up (takes about 20 seconds)
- ON = ready for use
- OFF = no power

The Led 'Com' indicates network activity:

- green ON = connected to GSM network
- green Flash = roaming GSM network
- green OFF = not connected to GSM network
- green / red = connected to GSM network but time not set
- red ON = error (see chapter 4.3)

The Led 'Busy' indicates module activity:

- ON = module currently busy (blinks every 10 seconds)

The Led 'Data' indicates module activity:

- green ON = connected to GSM-data network
- orange ON = not connected to GSM-data network
- red ON = Mobile Data disabled

4 Configuration

4.1 Connect to the module

For configuration purposes, connect the module to a USB port on a PC using a USB-C cable. Wait for the module to start up, then launch the DuoLink IO setup software.

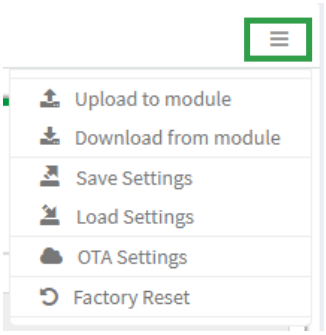
When launched, the DuoLink IO setup software automatically scans all available COM ports for a connected module.

If the module is detected, the *Module Type* field in the upper-left corner of the software window will display the module type.

Note: An external power supply must be connected to the module during testing.

4.2 Configuration

Press the 'menu' button to edit the module:



4.2.1 Upload to the module

Upload current configuration software settings to the module.

NOTE: uploading settings to the module overwrites all settings within the module. Therefore it is highly recommended to download the settings from the module first, before uploading any new changes.

4.2.2 Download from module

Download all settings from the module into the interface.

4.2.3 Import / Export settings

Export the settings to preserve them for later usage after closing the user interface. To export all settings click the 'menu' button and 'export settings'. Windows prompts 'save as'. Save the file with a given name on a preferred destination to the PC.

To import the settings click the 'menu' button and 'import settings'. Windows prompts to point the location of an exported *.dcf file.

4.2.4 OTA configuration (OTA settings)

The configuration with the user interface can be performed remotely. SMS: *rotac* to start this procedure. When the command is received the module uploads the current configuration to the Conta-Clip server and answers: 'module IMEI nr: <IMEI nr> <module name> configuration file uploaded.'

Fill the unique module International Mobile Equipment Identity (IMEI) into the user interface and press 'download configuration'. The user interface will be automatically updated with the settings of the (remote) module.

After making the required changes to the configuration, press 'upload configuration' to upload the new configuration onto the Conta-Clip server. Configuration files are kept on the server for 5 days.

SMS: *cotac* to inform the module that the new configuration is online. It will download the configuration and resets, this will take a few minutes. Finally the module answers: '<module name> configuration file updated'.

The configuration file can also be requested by sending: *dcf* directly followed by a valid email address (e.g. *dcf*name@conta-clip.de). When ready, the module answers with a confirmation message and the configuration file is received by the email address. Download and import the file into the interface.

NOTE: OTA functionality only works when mobile data is enabled and APN settings are entered (see chapter 5.2 and 5.5).

4.2.5 Reset module to default (Factory reset)

Restore all settings in the module back to factory default.

4.3 Diagnostics

After connecting to the module the diagnostics information is filled (grey area on the left side). This shows:

- Module name
- Registered GSM network or connection errors
- Signal strength and RAT (Radio Access Technology)
- Module firmware version
- IMEI number
- Error messages:
    - SIM PIN code required
    - SIM PUK code required
    - No SIM card
    - No user selected
    - No network registration
- Overview of connected extension modules

To request the diagnostics by SMS send: *status*.

The error message is a 9-digit code. Please find the explanation per code below:
Position
1 : 0= ok, 1= PIN required, 2= PUK required, 3= no SIM card
2 : 0= ok, 1= date time not set
3 : 0= ok, 1= no main user selected
4 : 0= ok
5 : 0= ok, 1= roaming while not allowed, 2= not registered, 3= registration denied
6 : 0= ok
7 : 0= ok
8 : 0= ok
9 : 0= ok

NOTE: This information is a snapshot of the diagnostics and not displayed real-time. Refresh the diagnostics tab by clicking the '*module info*' text.

4.3.1 Signal quality

The signal quality information is defined by the Dutch Telecom Agency according to GSM network regulations. The full list is shown in the appendix.

To request the signal strength and quality send an SMS: *csq*.

4.4 Contacts

The interface software has a contacts list to store all your contacts for further usage. All actions in the contacts list will auto save on completion.

4.4.1 Add/delete contacts

To add a contact to the contacts click on the add button and fill in the name and phone number or email address.

To delete a contact click the ‘delete’ button behind the contact.

4.4.2 Import / Export contacts

The contacts can be exported for usage on another PC that has the interface software installed. To export the contacts click the ‘contacts menu’ button and ‘export contacts’. Windows prompts ‘save as’. Save the file with a given name on a preferred destination to the PC.

To import the contacts click the ‘contacts’ button and ‘import contacts’. Windows prompts to point the location of an exported *.cpf file.

5 Settings

5.1 Main settings

The main functions of the module are configured in the 'settings' tab:

- Module name*
- Module Location (GPS Coordinates, right click in Google Maps to Copy)
- UTC Timezone
- Module Phone Number
- SIM pin number, this is the pin number to access the SIM card
- Admin user*. The admin user has full access to the module and receives no general messages

* = Mandatory

5.2 Mobile Data

Mark this checkbox if a data connection is required.

NOTE: Activating mobile internet can cause unexpected costs. Contact your provider for an appropriate subscription or prepaid card.

If the internet connection is required but not allowed after configuration send an SMS: *APN,<APN name>,<APN username>,<APN password>*
The module establishes an internet connection upon next restart. The module can now be upgraded or configured over the air.
If the internet connection has to maintain after restart, this can be configured remotely.

5.3 Roaming

If roaming is disabled the module blocks SMS and data connections when registered to a foreign GSM network.
NOTE: contact your GSM service provider for roaming rates to avoid unexpected high costs.

5.4 Conta-Supervision

Mark this checkbox and fill the token so it can be read and controlled by an browser dashboard, Apple iOS or Android App.

Go to the following URL to register and receive a token:
https://www.conta-supervision.com/en/registration/

NOTE: App functionality only works when mobile data is enabled, and APN settings are entered.

5.5 APN settings

To register to a GPRS connection, enter the APN (Access Point Name) settings of your GSM service provider. If these settings are unknown to you, request them at your provider.

5.6 SMTP

Enter the SMTP (Simple Mail Transfer Protocol) settings for outgoing email. The SMTP is used to send email via outgoing mail server.

Contact your Internet Service Provider or Webhost for further information about your SMTP settings.

Default subject of an e-mail is “e-mail from” followed by the module name. This can be changed with the option Email Subject.

NOTE: Some free mail providers like Gmail or Outlook require 2 way authentication and they do not accept unknown m2m devices to access their SMTP server.

6 General messages

Functions are activated when writing text in the white boxes

6.1 Periodical message

The module can send a periodical message on a user defined time:

- Daily, set the time
- Weekly, set the day and time
- Monthly, set the day of the month and time
- Add the IO status to the message (with this option the hours counter values are included)
- Mail Event log
- Mail AI log

Note: In order to use the mail AI or Event log option an email address needs to be selected under recipients

6.2 Power cycle message

The module can send a message on every module start up, so the users are aware of a power recovery.

6.3 Power down message

On power loss the module holds enough capacity to send SMS messages to the first 5 selected GSM users.
The module detects a power down when the power < 8V and returns when the power >10V.

NOTE: The module tries to send the message to all defined Recipients in the 'General Message' tab with the guarantee of the first 5 selected users.

6.4 GSM connection loss message

The module sends a message when the GSM connection recovers after the GSM connection was lost..

This function can also be enabled by sending sms : *dlmon*
This function can also be disabled by sending sms: dlmoff

6.5 Recipients

The active users are those who receive the auto messages.

6.6 Additional messages

The following automatic generated messages are send to the users in the general messages tab:

- Extension stopped responding
- Extension not responding on startup
- Wrong extension configured

7 Log

The module can keep log files with a maximum size of 100kB per log file (System, Event, AI). Select an email address in the Log tab to auto send a full log. After the log file was send per email the log file will be erased and the module will continue logging.

Each log can be viewed and erased while connected to the PC by clicking the button or remote by sending a command.

7.1 System log

When connected, view this log by clicking 'download event log'. View remote by sending: *syslog* directly followed by a valid email address (e.g. *syslog*name@conta-clip.de). When ready, the module answers with a confirmation message and the event log is received at the email address.

When connected erase the event log by clicking 'erase event log'. Erase remote by sending: *sysclr*. The module answers with a confirmation message.

Select an email address in the Log tab to auto send a full log.

The event log can also be added to the periodical message as an e-mail

7.2 AI log

Choose the interval for the AI log:

- 10 min (5 days)
- 15 min (7.5 days)
- 20 min (10 days)
- 30 min (15 days)
- 45 min (22.5 days)
- 60 min (30 days)

The log duration in days is based on logging 1 AI.

When connected, view this log by clicking 'download AI log'. View remote by sending: *ailog* directly followed by a valid email address (e.g. *ailog*name@conta-clip.de). When ready the module answers with a confirmation message and the AI log is received by the email address.

When connected, erase the event log by clicking 'erase AI log'. Erase remote by sending: *aiclr* . The module answers with a confirmation message

Select an email address in the Log tab (under the general messages tab) to auto send a full log.

The AI log can also be added to the periodical message as an e-mail.

8 Software updates

8.1 Update

The module can perform firmware updates remote (OTA) or when connected by USB to a PC.
Over The Air (OTA) covers remote actions where the data is transmitted over mobile data.

8.1.1 Manual firmware updates

Download the latest firmware at: https://conta-clip.com/en/contact-service/download-center

Access the 'advanced settings' by clicking the 'gearbox' icon.

After downloading, unzip the complete folder to a location on your PC. Click the firmware update button and the software prompts to the location of the firmware. Locate the unzipped folder and select the duolinkio<nr>.fwp file.

The firmware update takes about 5 minutes. After the update the module restarts itself.

NOTE: do NOT disconnect the module or turn off the power supply during this operation.

8.1.2 OTA firmware update

To remotely update the firmware SMS: *fotap*. The module downloads the online firmware, installs it and restarts. When a firmware update is succeeded the module sends a confirmation to the sender.

To check the modules current firmware version send: *fwv*. The module answers <module name> firmware version: <version number>.

9 I/O configuration and messaging

The module responds to read and write commands. Commands are preceded by an 'r' for read and 'w' for write actions.
All SMS commands are NOT case sensitive.

9.1 Digital Output

9.1.1 Configuration

The following items can be configured with the software:

- Name
- After setting the digital output the module sends a confirmation message according to the configured rise or fall message. This message is sent only to the sender of the message.
- Send only the user defined text, this sends only the text defined in the message box, no module name, IO name and timestamp.
- Define your own instructions to control the output.
- Link DO to UI
- Activate when GSM connection lost, deactivate when GSM connection returns.
- Preserve or deactivate the status on restart or power cycle.
- Operating hours counter (see chapter 9.8)
- Number ID
- Users

9.1.2 Select users

The users have access to the associated digital output.
NOTE: Selected DO users do not have any rights to send other commands to the module other than addressed to the defined output. Admin users can always activate an output even when not selected.

9.1.3 Messaging

It is possible to send self-made instructions or use the pre-defined instructions for the output. With these instructions the output can be activated, deactivated and activated for a given period of time (one-shot).

9.1.3.1 Number ID

The number ID for setting the digital output can be disabled.

9.1.3.2 User defined instructions

Use a self-made instruction to control the output. E.g. you may want to use the instruction *pump on* to activate the output, and *pump off* to deactivate.

9.1.3.3 Change the digital output status

To set a digital output (DO) send the following default message: *wdonx*, where x is the state.
E.g. when you send *wdo11,* DO1 is set to 1.

If set, the module sends a confirmation message: 'status DO1=x'. If the output state is already in the state, the text: 'status not changed' is added to the answer.

To set all Digital outputs send the default message: wmdoxxxx

9.1.4 Using the one-shot function

The digital outputs can be set for a given time from 5 sec to 10 hours. When this command is received, the DO sets to 1 and after the number of seconds the DO falls back to 0. The one shot function is called by selecting the DO followed by a 't' for time and the time in seconds. E.g. when you send *wdo1t10* the DO is set for 10 seconds.
Confirmation message on rising and falling flank can be selected by checking the boxes.

NOTE: see user defined functions to define own instructions.

9.1.5 Link DO to UI

The first DO can be linked to the first UI, the second DO to the second UI and so on. When a status change on a DI1 is detected the DO will adopt this status.
The status of the DO can always be overruled by an SMS message setting the output(see above). If the output has already the same state as the linked input the output will not change.

When the UI is set to analog the DO status is 0 when the AI status is normal. The DO status is set to 1 when the AI status is either low or high.

9.1.6 Activate when GSM connection is lost

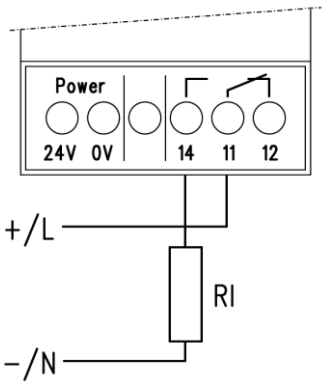
Select to activate an output when the GSM connection is lost. The output deactivates as soon as the GSM connection is re-established.

9.1.7 Preserve status on startup

Choose if the status of the output is preserved on restart or power cycle. If deselected the output will be deactivated.

9.1.8 Wiring example

In the following example the DO is connected as normally open.



9.2 Universal Inputs

The universal inputs can individual be configured as:

- Analog input AI (0..10V or 0..20mA)
- Digital input DI (default)

The selected button represents the chosen function and is set after uploading.

9.2.1 Select recipients

The recipients receive the messages of the selected UI.
NOTE: Selected UI users do not have any rights to send commands to the module.

9.2.2 Confirmation sequence

When the confirmation is enabled, the module sends the message to the selected users one by one with an adjustable interval delay.
E.g. the sequence starts, the first phone number is addressed. When the delay time has expired, the next phone number in the list is addressed, and so on until the last phone number in the list is addressed.
This can be repeated for selected number of times before the module stops the sequence.

The user who receives the message is able to stop the confirmation sequence by sending a chosen text (can be left blank) to the module before the delay has expired. The module answers:
'Confirmation ended <timestamp>'

NOTE: When a new status is reached on the UI, a new sequence is started and the old sequence is stopped automatically.
When there are one or more email addresses in the user list, the email is sent only once to all email addresses at the beginning of the sequence.

9.3 Analog inputs

Each analog input (AI) represents a scaled value from 0 to 100% (10V or 20mA). Within this scale threshold values can be monitored.

9.3.1 Configuration

Configure the following items:

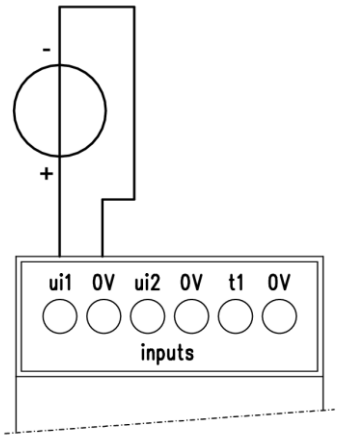
- Name
- Input type: voltage or current
- The unit for the input feedback. E.g. litres (Ltr) or kilograms (kg).
- Log this AI at a pre-set interval, see for interval settings.
- The min. value represents the scaled value for 0V
- The max. value represents the scaled value for 10V or 20mA
- Lower limit threshold
- Upper limit threshold
- Minimal change (hysteresis)
- Message delay
- Send only the user defined text, this sends only the text defined in the message box, no module name, IO name and timestamp.
- The Analog Inputs can generate messages including value and unit when:
    - The upper limit + hysteresis is reached
    - The lower limit – hysteresis is reached
    - The status recovers between the upper and lower limit +/- hysteresis
- Recipients
- Confirmation sequence

NOTE: The min./max. and threshold/hysteresis values are limited to 5 digits with a maximum of 2 decimals.

A delay in seconds can be set which a changed AI has to exceed before it is accepted, during the delay the UI led blinks. If the status of the delay is changed back again to the previous state before the delay is expired the change is discarded. Clear the delay to disable detection delay.

9.3.2 Wiring example

In the following example Ai1 is connected to an analog source.



9.4 Digital Inputs

The Digital Inputs can generate messages when:

- A rising flank is detected: the status changes from 0 to 1
- A falling flank is detected: the status changes from 1 to 0

9.4.1 Configuration

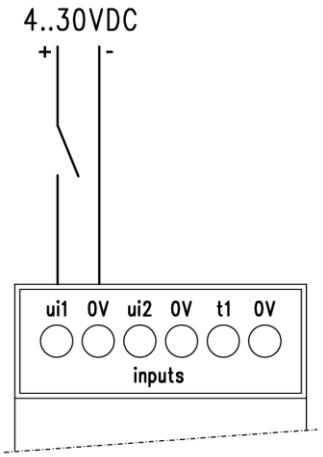
Configure the following items:

- Name
- Rising / Falling flank message
- Send only the user defined text, this sends only the text defined in the message box, no module name, IO name and timestamp.
- Rising / Falling flank message delay: the changed status must be held for the given time before being accepted
- Operating hours counter (see chapter 9.8)
- Recipients
- Confirmation sequence

A delay in seconds can be set which a changed DI has to exceed before it is accepted, during the delay the UI led blinks. If the status of the delay is changed back again to the previous state before the delay is expired the change is discarded. Clear the delay to disable detection delay.

9.4.2 Wiring example

In the following example DI1 is connected to be pulled-up with +V.



9.5 Read all IO statuses

To retrieve the status of all IOs send: *rall*. The module answers: With the module name and the status of all IO's and extensions.

To send the full IO status to an email address send: *rall<email>*.

9.6 Link multiple modules

It's possible to link multiple modules by SMS. By selecting the 'send only user defined text' in the IO configuration it's possible to send the pre-defined messages to other modules.

For example: digital input 2 sends WDO11 on a rising flank to a second unit. This unit receives the message, set's the digital output. On the falling flank the first unit sends WDO10 to deactivate the digital output on the second unit.
It is also possible to send an SMS to itself and activate digital outputs on reaction to digital inputs.

NOTE: The digital outputs cannot parse any messages. They only respond to their sender.

9.7 IO operating hours counter

The IO operating hours counter sums the total time the IO is in HI state. The counter can be turned on/off per individual digital in- and output. An offset value in hours can be set per in- and output.

The counted value can be added to the periodical message by checking the box "Add IO status", .
The counted value will be added automatically to the "RALL" message.

Counters are limited to 200.000 hours.

NOTE: make sure to keep all IO's in LO state when configuring the counters due to faults in starting time.

9.7.1 Digital output counter

To retrieve the counter value of an individual digital output, send: *timedo1*, where n is the number of the requested digital output.

To retrieve the counter value of all digital outputs send: *timedo0.*

To reset the counter value of an individual digital output, send: *clrtimedon*, where n is the number of the requested digital output. To reset all counter values of the digital outputs, send: *clrtimedo0*

9.7.2 Digital input counter

To retrieve the counter value of an individual digital input, send: *timedin*, where n is the number of the requested digital input.

To retrieve the counter value of all digital inputs send: *timedi0.*

To reset the counter value of an individual digital input, send: *clrtimedin*, where n is the number of the requested digital input. To reset all counter values of the digital inputs, send: *clrtimedi0*

10 Extensions

The number of IO on the module can be extended with external modules. These are connected with a bus driven interface by simple pushing the modules into another with the connector on the left side of the module.



10.1 Configuration

10.1.1 Hardware

To adjust the bus address on each extension lift the lid with a small flat screwdriver and turn the rotary switch into the wanted position: address 00 to 99. Set the address before connecting power to the unit. A new or changed address is only recognized by the system while starting up.



NOTE: Each extension has to be configured with a unique address.

10.1.2 Software

Configure the extension(s) for the module by clicking IO->Extensions. Click the ‘Add’ button to add a module. Fill the bus address as adjusted on the extension and choose the type of module. Click ‘Add’ and the module appears in the list. Repeat this step for the number of extensions connected to the module.

Each added module can be configured with a module name and up to 10 users who have access to the module in case of outputs, or receive messages in case of inputs.

NOTE: Failure on Extensions are sent to the selected admin users in the general message tab.

10.2 DuoLink IO-4DO

The 4DO has 4 CO outputs. The following items can be configured with the software for each output:

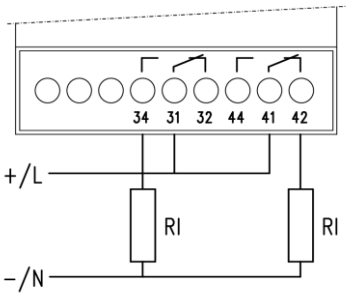
- Extension name
- Output name: default set as DO1 to DO4
- Confirmation message for falling and rising flank.
- User defined instructions to change the status on or off or activate a one-shot.
- Users

To change the output status by a default message SMS: *WDOnxEa* where n is the output number, x the status and a the bus address.

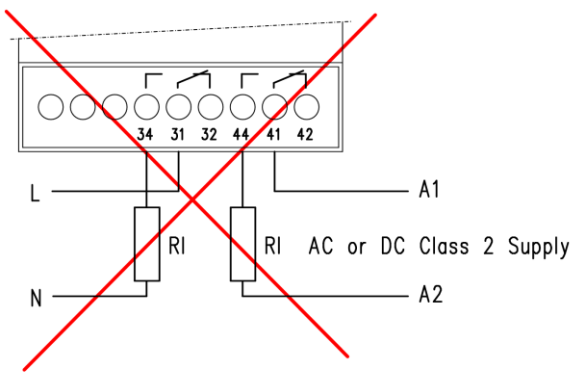
To activate a one-shot by a default message SMS: *WDOnTxxxxEa* where n is the output number, xxxx the time in seconds and a the bus address.

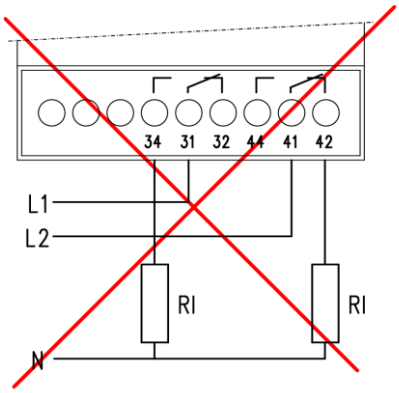
NOTE: you can set multiple outputs with one SMS when they have the same user defined ON or OFF instruction.

In the following example Do1 is connected as normally open and Do4 is connected as normally closed.



Connect only to a single polarity supply! The following examples are not allowed:





10.3 DuoLink IO-10DI

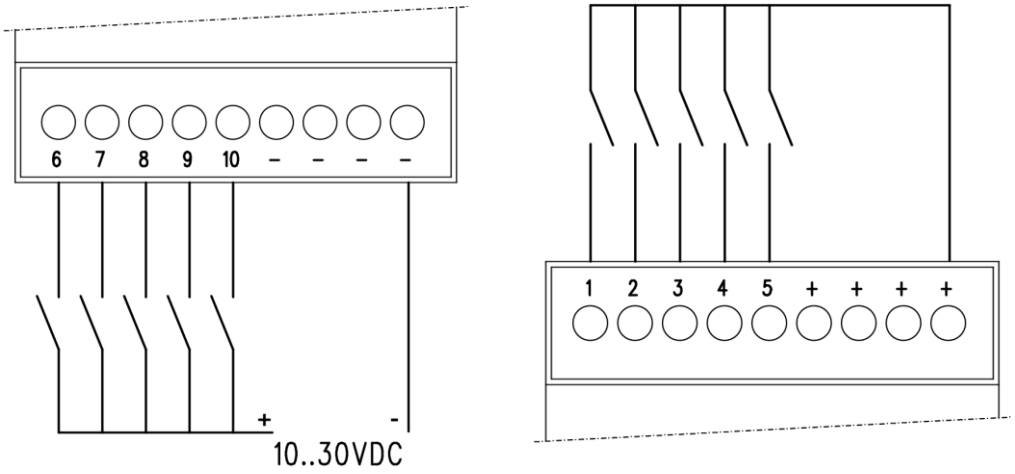
The 10DI has 10 digital inputs. The following items can be configured for each input:

- Extension name
- Input name; default set as DI1 to DI10.
- Rising / Falling flank message
- Send only the user defined text, this sends only the text defined in the message box, no module name, IO name and timestamp.

- Rising / Falling flank message delay: the changed status must be held for the given time before being accepted
- Recipients

A delay in seconds can be set which a changed DI has to exceed before it is accepted. If the status of the delay is changed back again to the previous state before the delay is expired the change is discarded. Clear the delay to disable detection delay.

In the following examples all Di's are connected to be pulled-up:



10.4 DuoLink IO-8AI

The 8AI has 8 analog inputs. Each analog input (AI) represents a scaled value from 0 to 100% (10V, 20mA, NTC, PT1000, NI1000). Within this scale threshold values can be monitored.

10.4.1 Configuration

Configure the following items:

- Extension name
- Input name; default set as AI1 to AI8.
- Input type: voltage, current or temperature
- The unit for the input feedback. E.g. litres (Ltr) or kilograms (kg).
- Offset: Calibrate the input value, e.g. temperature measurement with longer cables
- Log this AI at a pre-set interval, see for interval settings the AI tab on the main unit.
- The min. value represents the scaled value for 0V
- The max. value represents the scaled value for 10V or 20mA
- Lower limit threshold
- Upper limit threshold
- Minimal change (hysteresis)
- Send only the user defined text, this sends only the text defined in the message box, no module name, IO name and timestamp.
- The Analog Inputs can generate messages including value and unit when:
  - The upper limit + hysteresis is reached
  - The lower limit – hysteresis is reached
  - The status recovers between the upper and lower limit +/- hysteresis
- Message delay
- Recipients

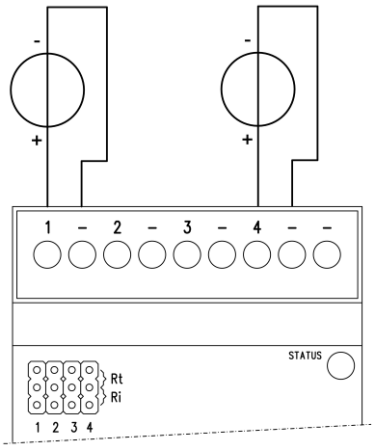
NOTE: The min./max. and threshold/hysteresis values are limited to 5 digits with a maximum of 2 decimals.

A delay in seconds can be set which a changed AI has to exceed before it is accepted. If the status of the delay is changed back again to the previous state before the delay is expired the change is discarded. Clear the delay to disable detection delay.

NOTE: Due to time consuming tasks the delay on extensions has an inaccuracy of up to 5 seconds.

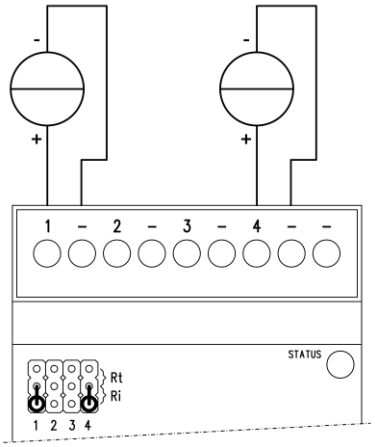
10.4.2 Wiring example

In the following example Ai1 and AI4 are connected to an analog source.



10.4.3 Current input

When using the GSM-PRO-8AI as 0..20mA current input a 250Ω resistor has to be placed on the header marked with Ri on the number corresponding to the input.



10.5 DuoLink IO-4AO

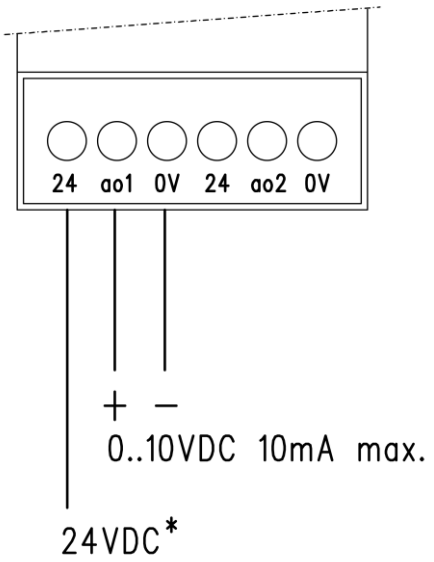
The 4AO has 4 0..10V outputs. The following items can be configured with the software for each output:

- Extension name
- Output name.
- User defined instructions to change the value of the output.
- Users

To change the output status by a default message SMS: *WAOnx.xEa* where n is the output number, x the value in Volts and a the bus address.

For example WAO15.5E3: output 1 of extension on address 3 is set to 5.5V

In the following example Ao1 is connected as output.



NOTE: The 24VDC is connected to the modbus power and therefor the maximum output current depends on the number of the number of extensions being powered.

11 Other messages

11.1 Module reset

Reset with the following command: *wreset*. This performs a full module reset. However, the set configuration is retained. The module answers with the power cycle message if set.

11.2 Stop messaging

The command: *mesoff* will stop the module from sending any more messages.
The module answers: 'messaging turned off'.

To turn back on the messaging send: *meson*.
The module answers: 'messaging turned on'.

11.3 Show all SMS commands

Send *help* to receive a list with all commands. See chapter 15 for an overview.

SMS Commando’s DuoLink IO

- Wdo (write digital output)
- Wmdo (write multiple digital output)
- Wreset (reset module)
- Imei (imei opvragen)
- Cdc (check data connection)
- Rall (read all IOs)
- Syslog (system log opvragen)
- Sysclr (system log verwijderen)
- Ailog (AI log opvragen)
- Aiclr (AI log verwijderen)
- Fotap (firmware over the air)
- Rotac (module upload config)
- Cotac (module download config)
- Fwv (firmware versie)
- Csq (check signal quality)
- Status (diagnostics opvragen)
- Allowdata (mobile data aanzetten)
- Clrtimedo (operating hours DO verwijderen)
- Clrtimedi (operating hours DI verwijderen)
- Timedo (operating hours DO opvragen)
- Timedi (operating hours DI opvragen)
- Time (time sync uitvoeren)
- Help (opvragen van commando)
- Meson (messaging aanzetten)
- Mesoff (messaging uitzetten)
- Mpw (module password opvragen)
- Location (module GPS locatie opvragen)
- Dcf (module configuratie opsturen)
- Mbr (modbus read)
- Mbw (modbus write)
- Dlmon (data loss message aanzetten)
- Dlmoff (data loss message uitzetten)
- Apn (eenmalig opzetten van mobile data verbinding)