Configuration Dialog Box (D2000/Communication with I/O Devices/Communication Stations)

Communication station - a configuration dialogue box

The editing of all objects in the process D2000 CNF is being performed in the configuration dialogue box, a specific part of which is common for all editable objects and another part depends on the type of edited object.

The configuration dialogue box of communication stations consists of several parts (tabs), which contain similar parameters. Other tabs depend on the category of particular communication stations.

General properties
Groups
Parameters
Time parameters
Address
Protocol parameters

General properties

Description

A text string describing the communication station. Maximum: 128 characters.
A Dictionary can be used (to open it, press **CTRL+L**).

Value type

Selection of an object value type. For communication station it is **St-Station**.

Parameters

Communication protocol

The communication protocol specifies the type of station communication protocol. The set of protocols is continuously being extended by the new ones. The documentation of individual protocols can be found here. The list of available protocols depends on the category of the line, which is the parent of the station.

Line mode

The selection of one of four modes of the communication line. For lines of Serial, "Serial Line Redundant", "Serial System&Line Redundant" and "Moxa IP Serial Library" categories, it is possible to define several sets (up to 4) of communication parameters. The value of the **Line mode** parameter determines, which of the sets will be used for communication with this station.

Enable simulation

If the communication station is in the simulation mode the values of all I/O Tags related to the given station are simulated. The simulation of real (Ai, Ao) and integer (Ci, Co) values is performed by means of values lying on the sinusoid within the range of 0...100. In the case of binary values (Di, Do), TRUE /FALSE values are alternated randomly.

Invalidate I/O tags when the station is off

If the parameter is checked, the values of I/O tags, the parent of which is the station, will be **Invalid** when the station is off (the state StOFF). Otherwise, the values of I/O tags are the last values before switching off the station.

Communication control

The communication may be controlled in several ways. Check the **Manual** option to enable the controlling the station via the dialogue box in process D2000 HI. The disabled communication option allows enabling (disabling) the communication in Manual mode. The **Control object** option enables to select the object that controls the communication if the station is in the automatic mode. The control object must be of Boolean type.

Control object value	Station behaviour
TRUE	Delay of requests for communication. The requests for output are postponed.
FALSE	Normal communication without any limits.

OnError behaviour

A behaviour of station after an error is determined by the **Time filter** and **Delay after error** spin buttons (set in milliseconds). If the station does not communicate, it will pass from the NORMAL state to COMM_ERR (soft error). If the communication is not restored even after expiration of time corresponding to the value of **Time filter** option, the station is passed to HARD_ERR (hard error). The **Delay after error** parameter determines how long after passing to HARD_ERR there will be no communication with the station.

Protocol parameter

The parameters, dependent on the protocol, determine its behaviour during communication with this station. The parameters should be entered into the input field in the form:

`PRM1``=value;`**`PRM2`**`=value` etc.

`PRM1, PRM2` - names of parameters

Gradually, we are moving to a new - clearer and more convenient - form of entering communication parameters of the station. If it is not possible to enter data in this field (it is not allowed), see the tab Protocol parameters.

More information about protocol parameters...

Time parameters

Polling parameters

The communication process obtains new values by periodic polling of stations.

- **Period** [Hours:Minutes:Seconds] - definition of the period which determines the acquisition of new values of station's I/O Tags. The period exactly determines the time of sending the request. The period is defined by Hours:Minutes:Seconds and Offset in seconds. For example the period 0:1:0 with the offset 5 seconds will cause the polling in every fifth second of each minute.
- **Delay** [Hours:Minutes:Seconds] - after executing a request, the time of the next request is calculated by adding the **Delay** parameter to the current time.

The settings of Delay 0:0:0 is forbidden for any other priority than the lower one (0), because there is a possibility that other stations never can use the communication.

Synchronization period

Some communication protocols allow setting the real-time into a device. To enable the real-time setting, check the **Enable** option and enter the period in the form of Hours:Minutes:Seconds, which determines the time of the next station synchronization (it works similarly to **Delay** parameter for polling). If the communication protocol does not support the time synchronization of the station, the request is ignored.

Polling priority

A priority is assigned to each station. It solves the potential conflicts of the access to communication medium (line) - **Polling priority** option. For the station, it is possible to define one of the five priority levels:

- 0 - minimum priority
- 1
- 2
- 3
- 4 - maximum priority

Use computer time

When using the protocols that support sending the values with the timestamps, the timestamps are to be replaced by the current time of the D2000 system (time of the computer with the running process D2000 KOM).
Note: if the start parameter /F is not set to 0 (and therefore watchdog messages are sent between D2000 Server and D2000 KOM processes), the time of D2000 Server process is transmitted within periodic watchdog messages. The D2000 KOM process then calculates the difference between the local time and the D2000 Server time and corrects the local timestamps by this difference. That is, it effectively uses the D2000 Server time (and so do other D2000 processes). But it also means that if the time jumps on the computer where D2000 KOM is running (e.g. due to time synchronization), this fact will be detected D2000 KOM only after receiving the next watchdog message. Therefore, it is recommended to correct the computer time not in one step, but by gradual approximation (i.e. using NTP clients that support such synchronization, e.g. Windows Time Synchronizer).

Use monotonic UTC time +

The parameter is implemented only for some of the communication protocols that support timestamps:

- *Paufex DIRAS*, *Paufex DIRAS-B*, LoRaWAN, M-Bus Rev. 4.8, MODBUS Client, Telegyr 809 Server, DLMS/COSEM

- the protocols of the *IEC104* (IEC 870-5-104, IEC 870-5-104 Server, IEC 870-5-104 Sinaut) and *IEC101* classes (IEC 870-5-101 unbalanced primary, IEC 870-5-101 unbalanced secondary)
- IEC 61850, IEC 60870-6 ICCP/TASE.2

If the checkbox is checked, then:

- When sending the values with the timestamps, the timestamps do not contain the local time but UTC time with an offset defined by hours (the spin button placed right from the checkbox).
- When receiving the value with the timestamp, there is an assumption, that the time is UTC time with an offset defined by hours. So, at first, the hours are subtracted from the UTC time and then the time is converted to the local time.

Ignore values older than ...

This parameter activates the filter that checks the timestamp of I/O tags' new values on this station. The new value is ignored if the timestamp is older by a defined number of days and hours than the current real-time of communication station. The log about this is saved into the application directory, subdirectory **TRACE**, file *DISCARDED_VALUES_SELF_KOM.log* (for SELF.KOM) or *DISCARDED_VALUES_*name*_KOM.log* (for *name*.KOM).

Ignore values newer than ...

This parameter activates the filter that checks the timestamp of I/O tags new values on this station. The new value is ignored if the timestamp is newer by a defined number of days and hours (i.e. it is in the future) than the current time of communication station. The log about this is saved into the application directory, subdirectory **TRACE**, file *DISCARDED_VALUES_SELF_KOM.log* (for SELF.KOM) or *DISCARDED_VALUES_*name*_KOM.log* (for *name*.KOM).

Address

Address

The settings of communication station address. The form of station address depends on the type of the used protocol. More information about the communication protocols can be found in the detailed description of protocols.

Protocol parameters

The tab contains the full list of communication parameters. They influence and set the behaviour of communication for the given station (except for the station address, see Address).

The tab is visible only if the communication protocol contains some parameters.

The list contains the following information:

- Parameter name
- Value
- Technical units and permitted range
- Default value

The editing is allowed only in column *Value.* It enables to set the requested value of the parameter. The changed values (they are different from the default value) are highlighted by red colour. Click on the "Def" button if you want to return the values of one or more selected parameters to the defaults. The "Def" button is placed below the list of protocol parameters together with the info button.

More information on parameters of asynchronous communication protocols is here and information on parameters of the communication line is here. They influence the behaviour of communication on all stations of the given line.

Related pages:

Communication stations
Values of communication stations