

# DE-4000 SCRIPTING REFERENCE MANUAL

Form:DE-4000 SCRIPTING REFERENCE MANUAL:06-26

# ALTRONIC





# Table of Contents

DE4000 Lua Script API ..... 1



## DE4000 Lua Script API

---

`create_param("index",default,"category","description")`

- creates a user configurable parameter
- parameter is stored as `index`,
- default value (if not changed by user) is `default`
- parameters will be grouped on the Global/Params page by category
- description is text to describe the parameter to the user

### Example:

```
create_param("NumEngCyl",8,"Engine Params","Num. of Engine Cylinders")
```

---

`get_channel_val(terminal,channel)`

- returns current value of analog input channel on terminal module `terminal`
- return value type is numeric

### Example:

```
local sp = get_channel_val(1,5)
```

reads value of Suction Pressure from Terminal Module #1 , Input #5

---

`get_gbl("index",default)`

- returns global config setting stored under `index` or returns `default` if not defined

**note:** `get_gbl` is used to retrieve global CONFIGURATION settings that are typically set when the system is configured and do not change as the system is running. If you want to set and retrieve global STATUS variables use the `get_sGbl()` and `set_sGbl()` functions >If you want to create and read virtual channels use the `set_sVirt()` and `get_sVirt()` functions.

### Example:

```
local nt = get_gbl("NumTerm",1)
```

gets the number of terminal boards installed in the system

---

**get\_param("index")**

- return either the default value or the user configured value of the parameter index

**Example:**

```
get_param("NumEngCyl")
```

>gets the configured parameter for number of engine cylinders

---

**get\_rpm(channel)**

- reads the RPM input channel in units of revolutions per minute

**note:** valid channel numbers are 1 - 10(2 channels per board, up to 5 terminal boards)

Each Terminal Module has 2 RPM inputs (RPM1 and RPM2)

- Terminal Module **#1** RPM channels are **1,2**
- Terminal Module **#2** RPM channels are **3,4**
- Terminal Module **#3** RPM channels are **5,6**
- Terminal Module **#4** RPM channels are **7,8**
- Terminal Module **#5** RPM channels are **9,10**

**Example:**

```
local engineRPM = get_rpm(1)
local turboRPM = get_rpm(6)
```

Read RPM1 channel from terminal module #1 and read RPM2 channel from Terminal module #3

---

**get\_sGbl("index", default)**

- If index is defined in the global status table then it returns the value associated with index
- If index is not defined and optional default is provided then returns default

>**note:** It is recommended to always provide a default value when using this function

**Example:**

```
local cp = get_sGbl("calculatedPressure",0)
```

get the previously stored value "calculatedPressure", Returns 0 if not found.

---

**get\_state()**

- returns the current engine state(possible values currently 0 - 10)

**Example:**

```
local engineState = get_state()
if engineState > 7 then
    set_timer("WarmupTimer",1000)
end
```

---

**get\_sVirt("index")**

- returns the value of virtual channel index or returns default if the virtual channel does not exist.

**Example:**

```
local tl = get_sGbl("timeLimit")
local et = get_sVirt("ElapsedTime",0)
if et > tl then
    set_sGbl("timeExceeded",true)
else
    set_sGbl("timeExceeded",false)
end
```

>Gets the value of virtual channel ElapsedTime and set value of status global "timeExceeded" if ElapsedTime is greater than status global "timeLimit"

---

**get\_time()**

- returns the UNIX "epoch" time (Defined as the number of seconds elapsed since Jan 1, 1970)

**Example:**

```
local startTime = get_sGbl("startTime",0)
if startTime == 0 then
    local currentTime = get_time()
    startTime = currentTime
    set_sGbl("startTime",currentTime)
end
local et = get_time() - startTime
set_sVirt("ElapsedTime",et)
```

>Stores current time if first time through, otherwise calculate elapsed time

**get\_timer("index")**

- returns 1 or 2 values
- First return value(Boolean) is **true** if timer is active(counting down) or **false** if timer is expired or has not been set yet
- Second return value is the number of seconds remaining or **-1** if timer is not active or has not been set yet

**Example:**

```
if not get_timer("myTimer") then
  set_sGbl("timedOut",true)
else
  set_sGbl("timedOut",false)
end
```

if timer is expired, then set global status "timedOut" to **true**

```
local active,remaining = get_timer("myTimer")
if not active then
  set_sVirt("timeRemaining","Expired")
else
  set_sVirt("timeRemaining",remaining)
end
```

**getStateLabel(state)**

- return the label for the engine state corresponding to the parameter state

**Example:**

```
local stateLabel = getStateLabel(get_state())
local active, remaining = get_timer("myTimer")
if remaining > 0 then
  stateLabel == StateLabel.." " ..remaining
end
set_sVirt("Countdown",stateLabel)
```

**set\_sGbl("index",value)**

- store value in the global status table under index
- value can be a number or string but if storing a boolean use the **tostring()** function

**Example:**

```

local mpe = false
local sp = get_channel_val(1,5)
if sp > 15 then
    mpe = true
end
set_sGbl("minPressureExceeded",tostring(mpe))

```

store boolean value **minPressureExceeded**

### set\_sVirt("index",value)

- sets a virtual status channel with channel name index

**Note:** Once you create a virtual channel, you can add that channel to the dashboard using the channel name index

### Example:

```

local sp = get_channel_val(1,5) --suction pressure
local dp = get_channel_val(1,6) --discharge pressure
local diffPress = dp - sp
set_sVirt("SuctDischDiff",diffPress)

```

calculate the differential between suction and discharge pressure and assign to virtual channel

### set\_timer("index",secs)

- activate timer index and set countdown time to secs

### Example:

```

set_timer("myTimer",300)

```

create timer myTimer and start countdown time to 300 seconds

From:  
<https://www.staging.altronic.a2hosted.com/> - **wiki STAGING !!!!!**

Permanent link:  
<https://www.staging.altronic.a2hosted.com/doku.php?id=documents:de4000:de4000script&rev=1642108314>

Last update: **2022/01/28 16:17**

