TECH NOTE #010:: catman Script – sending CAN (FD) messages

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Abstract
The Tech Note describes how to send CAN signals with catman AP via the embedded script functionality.

Intro
CAN communication is a common standard in industry. QuantumX allows to send all incoming analog data to CAN bus in an easy way by just mapping inputs to outputs. But in some use cases it is interesting sending online calculated signals or alarms via CAN to another device.

The Script functionality of catman allows to send CAN signals.

Example
In the following example the lifting level of a harbor crane is measured by analog sensors. catman is doing all online calculation and knows the limits of the overall test.

catman script shall send out a CAN message in the following cases:
1. The crane has not reached its stop condition (lifting mechanism needs to be active)
2. The crane has reached stop or top level condition

Approach 1: Using catman EasyScript

Two code examples show how CAN signals can be sent from catman AP.

1. Define variables
2. Measurement lifting level before measurement
3. Measure and check if final condition is reached
4. Lift or stop decision
5. Send relevant CAN message

Stop lifting: send CAN message to ECU
The script example is divided into subroutines, so that the individual subs can be executed in CatmanAP at certain execution times.

1. Define variables

```vbnet
Dim Counter As Integer 'Counter Loop 1
Dim Counter2 As Integer 'Counter Loop 2
Dim h As Double 'Lifting_level at measurement start
Dim a As Double 'Current Lifting_level
Dim b As Long 'Statusbit measurement channel
Dim m(7) As Byte 'CAN-Telegram Array
```

```vbnet
Sub Main
    h = 0
    m(0) = 255 'setpoint lifting function m(1) = 0 m(2) = 0 m(3) = 0
    m(4) = 16 'Direction lifting function “Lifting”
    m(5) = 0
    m(6) = 0
    m(7) = 0
    EA_Panel.SetValue(1, "TEXT_4", "n/a")
End Sub
```

2. Measurement lifting level before measurement

```vbnet
Sub Measure_Lifting_level_before_measurement_start
    EA_IO.Measure("Lifting_level", h, b)
    EA_Panel.SetValue(1, "TEXT_4", h)
End Sub
```

3. Measurement of lifting level and calculation of difference and setting of counter

```vbnet
Sub Lifting_level_measure
    EA_DAQ.CurrentReading("Lifting_level", a, DAQ_MAX) 'Messe Lifting_level
    Counter = a - h 'Delta Lifting_level
    EA_Panel.SetValue(1, "TEXT_1", Counter)
    Counter > 100 Then
        Stopp_Command
    End Sub
```

```vbnet
Sub Lifting_Command
    EA_IO.SendCANMessage (1, 0, 642, 8, m, 1) 'Sende Lifting-Command
    EA_Panel.SetValue(1, "TEXT_1", Counter)
End Sub
```

```vbnet
Sub Stopp_Command
    m(0) = 0
    m(4) = 0 'Sollwert und Richtung Hubfunktion 0
    Do
        EA_IO.SendCANMessage (1, 0, 642, 8, m, 1) 'Sende Stopp-Command
        Counter2 = Counter2 + 1
        Loop Until Counter2 = 100 'Für 100 Telegramme
    MsgBox "Stopp-Command 100 mal gesendet!"
    EA.Terminate(TERMINATE_SCRIPT)
End Sub
```
Script function to send CAN messages in catman

Check that the subroutines are executed at the right time of the measurement. Use the “Auto execution”:

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