

Deprecated!
Please look at the latest ISO11783-10 standard!

DDE Number	DDENAME
160	Section Control State (SCS)

The Section Control State (SCS) is meant to improve the synchronization between Section Control Masters and Clients (e.g. section based implements). Today Section Control Systems utilizing the Task Controller (TC) communication may get out of synch on their operation state, when one or the other side can't perform the automatic section switching. With this they may don't inform the operator about the overall system state what may leads to masters sending commands and displaying section states which the implement perhaps doesn't perform!

The presents of the SCS DDI (Data Dictionary Identifier number 160) inside DDOP (Device Descriptor Object Pool) of the implement indicates to the TC and Section Control Master being part of the TC that the device supports automatic section control. The TC uses this DDI to inform the implement whether he is ready to control the sections or not. The DDI shall support the On Change trigger so that the TC is able to get informed when the value gets changed by the Working Set Master. The TC shall active this trigger when using the DDI.

Two modes are available:

- Auto** means the TC is ready to control the sections;
- Manual** means the TC won't control the sections and the implement is to be manually controlled by the operator

For the implement it's requested to respond to an auto request of the TC immediately. As long as the TC has not requested for 'auto mode' the SCS shall always be in 'manual mode'. The implement shall not switch from 'manual' to 'auto mode' by itself. But implements may automatically change their status from 'auto' to 'manual' when internal settings require doing so.

Note:

The example in figure 1 on page 2 refer to sprayers, but planters, seeders or any other section/row based implement may follow the same object hierarchy and layout.

DDE Supplement / Attachment

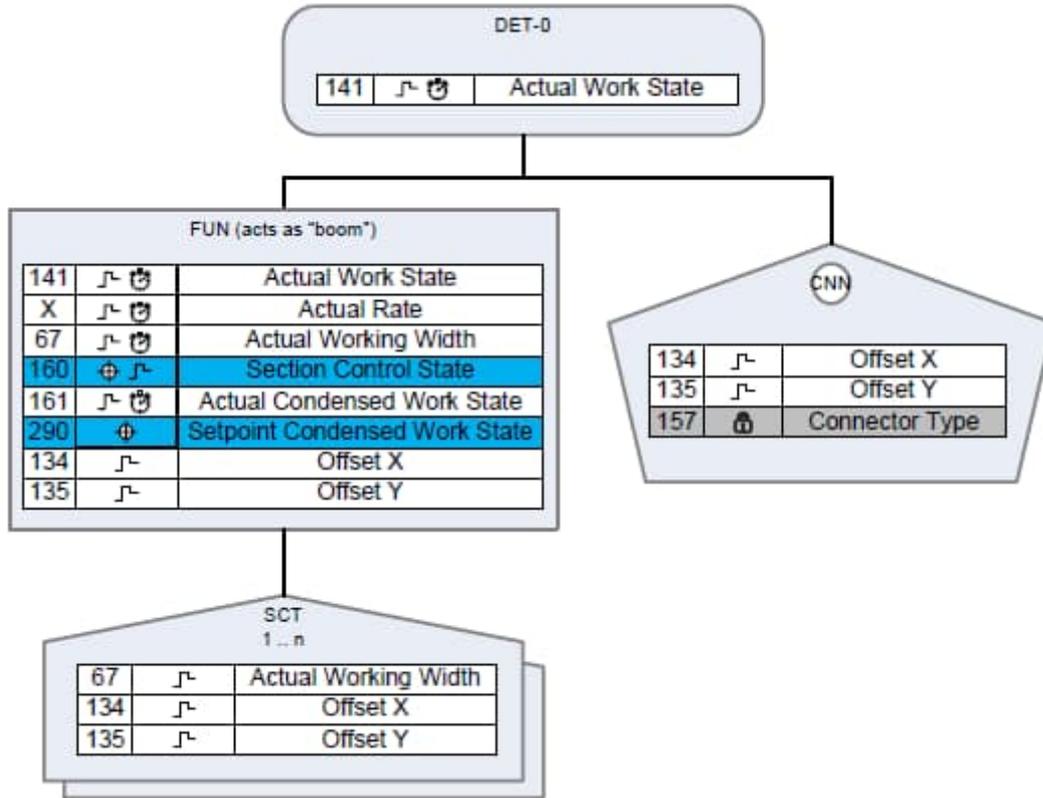


Figure 1: “Simple sprayer structure”

- DET-0 = DET of type “device”
- FUN = DET of type “function”
- CNN = DET of type “connector”
- SCT = DET of type “section”

Section Control State (DDI 160)

In section control systems the master and clients need to be synchronized in terms of their general state or activation by the operator. This DDE allows the clients to announce the support and preset state of section control in their Device Configuration Data. The Section Control Master can send its state as prescription value while it is recommended for the client to respond with its state immediately.

The property flag “setable” and the trigger method “on change” should be set to 1 for this DDI in the Device Configuration Data object pool.

The state ‘manual/off’ (00) means that the implement is in manual state and will ignore all control commands for section control. In ‘auto state’ (01) the client accepts the control commands for section control.

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The Section Control State DDI should be attached to any DeviceElementObject above objects representing sections. The related sections need to have either the Setpoint Work State DDI (289) attached and/or the Setpoint Condensed Section Work State (290-305) is linked to the direct parent of the reflected section objects.

Use Cases

Start up operation

1. During a start up the implement shall set the SCS to 'manual mode'.

Auto request from TC

1. The implement receives an 'auto' request from TC.
2. The implement shall check whether all conditions are fulfilled to allow section control.
3. If this check is ok: The implement may respond with 'auto mode' and set its internal SCS client to 'auto mode'.
4. If this check not ok: The implement shall respond with 'manual mode'. The internal state is still in manual mode. The TC may inform the operator accordingly.

Manual request from TC

1. The implement receives a manual request from TC.
2. If the implement is still in 'auto mode' the implement shall set its internal SCS client to 'manual mode'.

Loss of requirements for auto mode

1. The implement internal conditions don't allow for automatic section control anymore.
2. The implement shall set the internal SCS client to 'manual mode'.
3. The implement shall send the SCS to inform the TC accordingly. On reception of this 'manual mode' the TC/Section Control Master may inform the operator accordingly.
4. The TC "totals active" bit within the TC status message changed from 1 to 0.