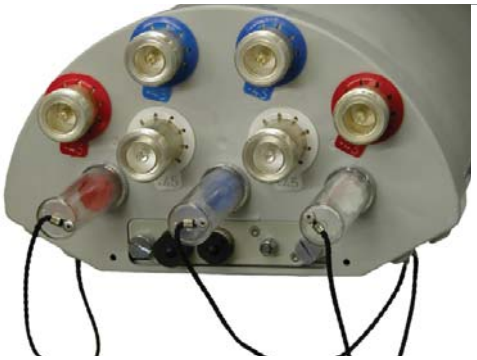
MDCU Module

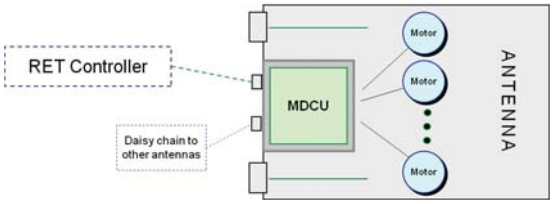
RET Actuator | Multi-Device Control Unit for Single Band or Multi-Band Antennas

- Plug-in module for the remote control of the electrical downtilt of antennas with internal tilt motors
- New version (hardware V4), replacement for MDCU-x0001, MDCU-x0002 and MDCU-x0003 (x = A or G)
- Able to be set to different protocols: AISG 1.1 or 3GPP/AISG 2.0 or Ericsson proprietary protocol
- Does not protrude from the bottom of the antenna
- Easy to install thanks to the captive screws

Description

The MDCU (Multiple Device Control Unit) is the electronic module that allows the remote control of the electrical downtilt (RET) in Amphenol antennas with factory embedded motors. For a multiband antenna, whatever the number of the independent variable tilt controls (usually one per band), only one MDCU module is installed. It behaves as if separate RET control units were fitted for each band of the antenna and daisy-chained together.





The MDCU is fully inserted inside the bottom of the antenna and leaves more room for spacing between co-axial connectors. For all Amphenol internal RET systems, when an MDCU module is installed in an antenna, all the tilt indicators remain visible and manual change of the tilt is still possible (manual override, the controller will read the new tilt setting).

The module has one male AISG connector, which is the control access, and one female AISG connector to allow the link of a seperate RET antenna in daisy-chain.

Technical Data

Input Control Port	Male AISG 8-pin connectors (type IEC60130-9) for control data and power supply of the unit
Daisy Chain Port	Female AISG 8-pin connector (type IEC60130-9). All the 8 pins are wired to the corresponding pins of the input control port.
Power Supply	+12V (pin 1) or +24V (pin 6) DC. If both voltages are supplied, the unit is powered by the 24V line. Compatible with 10V...30V on pin 6 and on pin 1.
Power Consumption	Stand-by: 0.5 W; During tilt change: 4 W typical / 10 W max.
Data Lines / Data Rate	RS485 / 9.6 kbps for AISG, 115 kbps for Ericsson protocol
Control Protocol	HDLC (level 2) and commands/responses (level 7) as per AISG 1.1 or 3GPP/AISG 2.0 or Ericsson protocol (depending on the part number of the device). Software upgrade by the download functionality is implemented in AISG protocols.
Tilt Change Duration	Typically less than 15 seconds (may depend on antenna type and outdoor temperature)
Precision	± 0.5°
Tilt Change Capability	50,000 minimum

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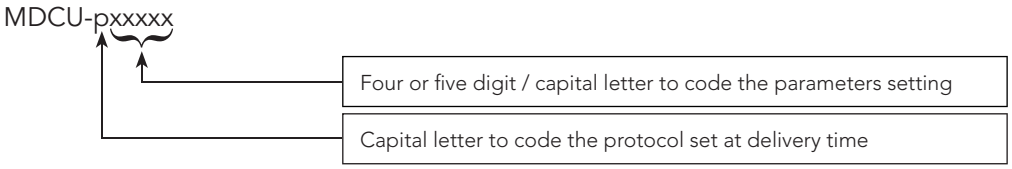
Technical Data	
Dimensions (approximate)	Depth: 75 mm (3.0 in) Width: 80 mm (3.1 in) Height: 18 mm (0.7 in)
Weight (approximate)	280 g (0.6 lbs)
Temperature Range	-40°C to +60°C (-40°F to +140°F) operating with tilt change (motor operation), no icing -40°C to +70°C (-40°F to +158°F) operating stand-by (no motor actuation) or storage
IP Rating	The unit is a plug-in module that is installed inside the antenna. There is no specific IP rating that applies to it.
Installation	The unit is fitted inside the antenna and secured with captive screws. Before inserting the unit inside the antenna, there is no need or prior positioning of either the unit or the antenna tilt mechanism to a dedicated position. A spare or retrofit unit will need to be loaded with configuration data.

Part Numbering

An MDCU can be factory set to any protocol and can be factory set to drive any combination of the motors found in the antenna.
The MDCU part number is built as follows:



Coding of the protocol:
This letter codes the protocol to which the unit is set at the time of shipment:

G	3GPP / AISG 2.0 protocol (with RETs responding as 3GPP single antenna devices)
A	AISG 1.1 protocol
E	Ericsson proprietary protocol

Note: The 3GPP / AISG 2.0 protocol with RET units responding as a 3GPP *multi-antenna* device is not yet implemented.

Coding of the parameters setting:
These characters will be 4 digits, sometimes followed by a capital letter as a fifth character. There is no specific coding way and a new combination is allocated when needed. The table below shows some typical codings already allocated.

Allocated MDCU part numbers:
MDCU part numbers already allocated at the time of this datasheet are the following:

MDCU-G0000 MDCU-A0000	Standard unit. Basic part number that is referred to in the antenna data sheet
MDCU-G0101 MDCU-E0101	MDCU restricted to control motor #01 (example: it is the "Blue" RET on our dual band and triple band antennas)
MDCU-G0102 MDCU-E0102	MDCU restricted to control motor #00 (example: it is the "Red" RET on our dual band and triple band antennas)
MDCU-G0103 MDCU-E0103	MDCU restricted to control motor #12 (example: it is the "White" RET on our triple band antennas)

Additional coding values will be defined when necessary. Please contact us for uncovered needs.

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"RET-Ready" Antennas

Thanks to the small size and its installation inside the antenna, Amphenol can deliver antennas with the MDCU already installed and pre-commissioned to fit all antenna parameters. Every RET device is factory configured and calibrated, and informative data like antenna model number and serial number is factory loaded.

The antenna is ready to be used upon delivery to a site. There is no need for further installation of the RET devices nor for programming the configuration or for running a calibration process.

This is what we refer to as "**RET-Ready**" **Antennas**.

In addition, each RET ID (Serial Number) will use the first (most left) character to indicate the colour of the corresponding frequency band of the antenna. This helps greatly during site commissioning by the ease it provides to distinguish between the RET devices shown by the AISG controller in the device list.

Note: When delivered as spare or retrofit units, an MDCU will have a letter Z instead of the colour coding letter as the first (most left) character of its RET ID (Serial Number). Such spare or retrofit units will also not be configured to any antenna unless the purchase order specifically asks for it. It will need the usual upload of a configuration file before the first operation.

Please keep in mind that with the Ericsson protocol it is not possible to send a configuration file to the RET unit; the MDCU has to be factory set to an antenna type before delivery.

"RET-Ready" Antenna Part Numbers

We have specific part numbers for antennas delivered with the MDCU already installed. Please contact us for more information.