



**DATA SHEET**  
**RTFE-D15A**  
**ANALOG FRONT END FOR RHOTHOR SMART DEFLECTORS™**

---

**NEWSON NV**

## Table of Contents

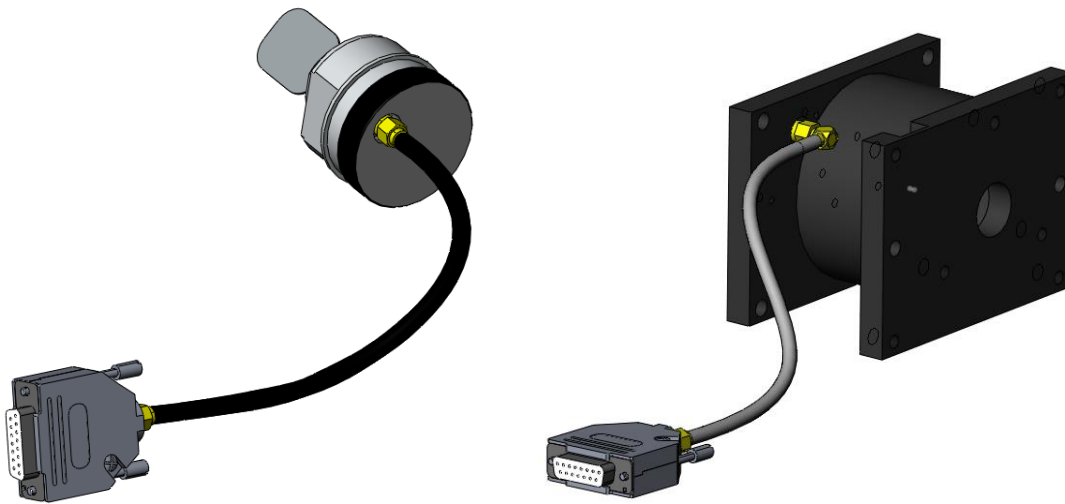
<b>1</b>	<b>FEATURES .....</b>	<b>3</b>
<b>2</b>	<b>TYPICAL APPLICATION CONNECTIONS.....</b>	<b>3</b>
<b>3</b>	<b>PIN ASSIGNMENT (15 PIN SUB-D SOCKET) .....</b>	<b>3</b>
<b>4</b>	<b>SPECIFICATION .....</b>	<b>4</b>
4.1	ANALOG INPUT .....	4
4.2	TRACKING STATUS BITS .....	4
4.3	TYPICAL CONNECTIONS .....	5
4.4	POWER UP SEQUENCE.....	5
<b>5</b>	<b>DIMENSIONS.....</b>	<b>5</b>

## 1 FEATURES

- Analog voltage input for controlling the set point (-5V/+5V)
- Voltage range input can be extended using external resistors.
- Up to 2A deflector current
- Deflector's tracking status outputs
- SMA output Coax connector for easy connection to smart deflector
- Sub-D 15 pin female connector to coax SMA adapter



## 2 TYPICAL APPLICATION CONNECTIONS



## 3 PIN ASSIGNMENT (15 PIN SUB-D SOCKET)

Pin No.	Name	Description
1	IN-	Negative set point input
5	TRACK_OVERLOAD	Digital output status line
9	IN+	Positive set point input
13	TRACK_OK	Digital output status line
7	DC0V	Power supply input 0V
15	DC+12V	Power supply input 12V
2,3,4,6,8,10,11,12,14	NC	Reserved, DO NOT CONNECT!

## 4 SPECIFICATION

Description	Name	Min	Type	Max	Units
Power supply	DC+12V	9	12	13	V
Adapter current	I <sub>DC+12V</sub>		0.02		A
Adapter load	I <sub>Ld</sub>			2	A (1)
Adapter delay	t <sub>d</sub>		128		µsec
Differential set point input range	IN <sub>+</sub> - IN <sub>-</sub>	-5		5	V (2,3)
Common mode set point input range	(IN <sub>+</sub> + IN <sub>-</sub> )/2	-2.5		2.5	V
Input impedance	Z <sub>in</sub>		15		kΩ
Digital output status high (source 10 mA)	V <sub>OH</sub>	4		5.5V	V
Digital output status low (sink 10 mA)	V <sub>OL</sub>	0		1	V
Tightening torque SMA connection			1.0		Nm

- (1) Load depends on connected deflector type and movements.
- (2) Range can be extended using external resistors.
- (3) Inputs above maximal rating can damage the device.

### 4.1 ANALOG INPUT

The analog input of RTFE-D15A adapter supports both single ended and differential operation. In both modes the voltage ranges can be doubled by using 2 external 15KOhm resistors

In *single ended operation*, the negative input "IN-" is connected to ground. The analog signal is applied to positive input "IN+" and has a range from -5 to +5 volt. The direction of the deflector can be changed by swapping the analog inputs. In this case the IN+ must be connected to ground and a single ended signal applied to input IN-.

In *differential mode* both inputs are connected to analog signals.

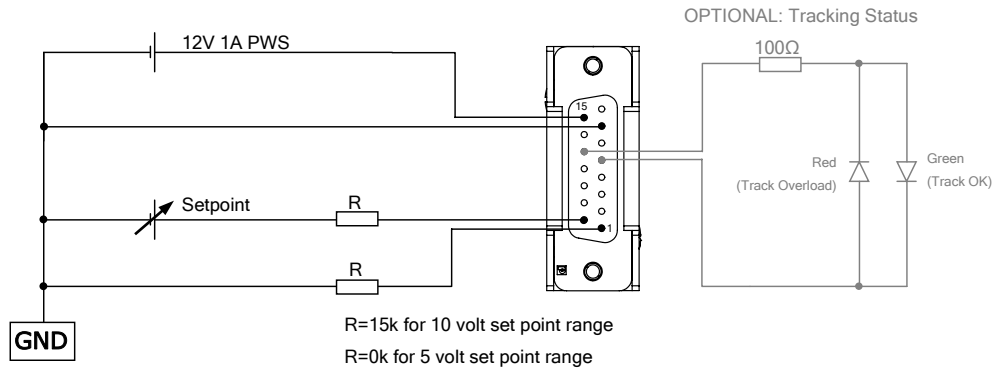
One signal ranges from 0 to 5 volt while the other ranges from 5 to 0 volt. The common voltage must be kept below 2.5 volt. The direction of the deflector can be changed by swapping the analog inputs.

### 4.2 TRACKING STATUS BITS

The outputs TRACK\_OVERLOAD and TRACK\_OK can be used to verify deflector tracking status. Current through the deflector highly depends on the applied set point variations. When the analog signals have high frequency components the current will rise. The deflector supervises power consumption and uses error bits to indicate over steering (Ref A3G\_RTA). The output TRACK\_OVERLOAD equals the value of deflector's status bit (ERR\_OVLD). The output TRACK\_OK is a logical function of status bits ERR\_OVLD and ERR\_TRACK (TRACK\_OK = !ERR\_OVLD && !ERR\_TRACK). When the deflector is tracking and has no overload this output is set high. When the deflector is overloading, the value is set low. A serial circuit comprising a 2 pin dual color LED (red/green) and a 100 ohm resistor can be connected between TRACK\_OK and TRACK\_OVERLOAD status bits. When polarized accordingly, green light signals that the deflector runs without overload. Red light signals overload. When the deflector stops tracking both status bits are set low and the led goes out.

### 4.3 TYPICAL CONNECTIONS

The connected deflector is powered over the device by the 12 V power supply connection. The same power supply is used to power the electronics inside the SUB-D shell. The return (0V) of the 12 V power supply should be connected with the reference of the control card that generates the analog voltage. This connection will minimize common mode noise and guarantees that common mode range on the input is met.



### 4.4 POWER UP SEQUENCE

There is no power up sequence restriction. When connected as above, the 12 V power supply can be switched on or off at all times. The electronics inside the module is powered by the same power supply as the connected deflector and executes a proper power up sequence. After power up, the status output bits on the 15 pin connector become activated. When those pins are connected to the control card, its inputs should be 5V tolerant. Even when the control card isn't powered yet!

## 5 DIMENSIONS

