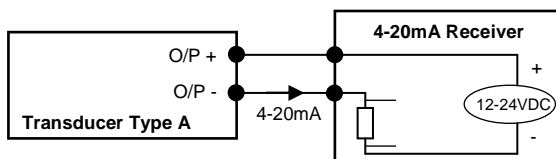


The **Micha** 4-20mA Transducer Module is designed to be connected to the Expansion Port of both MSR<sub>x</sub> and CPC<sub>x</sub> products. It can provide a 4-20mA output representing various system parameters which are user-selectable on the host controller. The 4-20mA output control is optically isolated from the input and can be easily configured to suit the end requirement - e.g. Battery Volts on a 24V system can be set so that 4-20mA represents 20-30V. The units are housed in a Din Rail Module (DRM) and are available in two types.

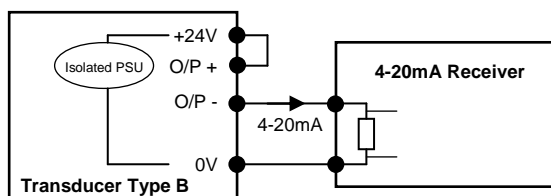
**Part No: 101 588 DRM 4-20mA Transducer Type A**

Type A requires an external power source



**Part No: 101 597 DRM 4-20mA Transducer Type B**

Type B includes an isolated 24V supply which can be configured to source current as shown, with an external connection made between +24V and O/P+.

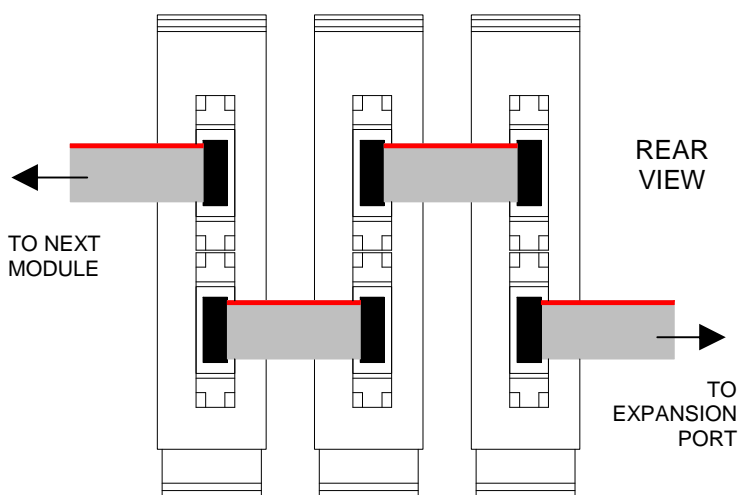


**Fitting and Connection of Modules**

The modules clip onto standard 35mm symmetrical and 32mm asymmetrical din-rail. Each unit is supplied with 10-way IDC ribbon cable assemblies for connection to the controller Expansion Port and to an adjacent Din-rail unit.

Before fitting to the Din-rail, the module address should be set using the rotary switch on the side of the module. No two modules may have the same address.

**Note:** all ribbon-cable connections should be made before the controller is powered up. Cables can be plugged into either upper or lower connectors.





**Setup and Calibration**

Navigate to the 'Set Exp Module - 4-20mA Module' screen on the main controller setup menu and carry out the following procedure:

Display	Screen	Description
4-20mA Mod 1: Output: <b>Not Used</b>	1	The modules are automatically offered for setup in numerical order. Starting with 'Mod 1', press <b>Select</b> , then <b>Up/Down</b> to change the output type (e.g. BV), then <b>Select</b> to set. Press <b>Down</b> to go to the next screen. (See below for list of available outputs.)
4-20mA Mod 1: BV 4mA => <b>0.0V</b>	2	<i>Note: The top line now shows the selected output parameter.</i> Press <b>Select</b> then <b>Up/Down</b> to change the value represented by 4mA, then <b>Select</b> to set. Press <b>Down</b> to go to the next screen.
4-20mA Mod 1: BV 20mA => <b>30.0V</b>	3	Press <b>Select</b> then <b>Up/Down</b> to change the value represented by 20mA, then <b>Select</b> to set. Press <b>Down</b> to go to the next screen.
4-20mA Mod 2: Output: <b>Not Used</b>	4	The next available module number is now offered. <i>Note: It is not possible to skip module numbers - Module 2 must be setup before Module 3, etc.</i>

**Notes:**

1] As Battery Current can be both +ve (charging) and -ve (discharging), the output can be set to represent either scale. For example: -50A to +250A = 4-20mA or +250A to -50A = 4-20mA.

2] The Power LED will only start flashing when that specific module has been setup using the above routine. The Output LED is powered as part of the minimum 4mA and is lit only when current flows through the output.

**Outputs available from the MSRx and CPCx Controllers:**

MSRx Code:	MSRx Description	CPCx Code:	CPCx Description
BV	Battery Voltage	OV	Output Voltage
BI	Battery Current	OI	Output Current
AI	Array Current	HC	Half-Cell Voltage
LI	Load Current	IV	Input Voltage

**Using multiple 4-20mA modules:**

It is essential that the Module Address selection switch on the side of each module being used is set to the corresponding Module Number on the selection screen. Multiple 4-20mA Modules may be connected to the Expansion Port, but do not have to be physically connected in numerical order.

**Note:** The module address applies only to modules of this type. For example, it is permissible to have a 4-20mA Module at Address 1 and an Auxiliary Relay Module at Address 1.

**Calibration**

The 4-20mA Module can be re-calibrated by carrying out the following procedure:

Navigate to the 4mA Setting Screen (Screen 2 above). In this mode, the module will output a constant 4mA. Adjust the **ZERO** potentiometer on the top face to set 4mA at the receiver.

Navigate to the 20mA Setting Screen (Screen 3 above). In this mode, the module will output a constant 20mA. Adjust the **SPAN** potentiometer on the top face to set 20mA at the receiver.

Specifications:	Type A	Type B
Input/Output Insulation at 500V:	>10 <sup>9</sup> Ω	>10 <sup>9</sup> Ω
Initial Accuracy:	1%	1%
Resolution:	1%	1%
Minimum burden at 12V:	≤ 200Ω	≤ 200Ω
Minimum burden at 24V:	≤ 820Ω	≤ 820Ω
Update Interval:	1 second	1 second
Power Consumption:	150mW	0.5-1.0W

**Note:** A **maximum** of 1W may be drawn from the controller expansion port. Where the total consumption of all modules exceeds this value, an auxiliary power module **must** be used.