

MC11

Intrinsic Safe CH4 Sensor



Contents

| | |
|-------------------------------------|----------|
| 1. Introduction | 3 |
| 2. Warranty | 3 |
| 3. Safety information | 3 |
| 4. Connections | 4 |
| 5. Face Plate | 5 |
| 6. Operation | 5 |
| 7. Communication | 6 |
| 8. Electrical specifications | 6 |
| 9. Terms and conditions | 8 |

1. Introduction

About this manual

This manual was prepared to aid in the Installation and commissioning of the MC11 configured as a CH4 Sensor.

2. Warranty

The MC11 carries a one year limited warranty on all parts and labour.
(Full warranty details available on request)

3. Safety information

Dangerous voltages can occur on the connectors, even if the auxiliary voltage has been disconnected.

Only a certified electrician is allowed to carry out the electrical installation.
Breaking the seal on device will result in loss of warranty.
Electrical safety regulations must always be followed.

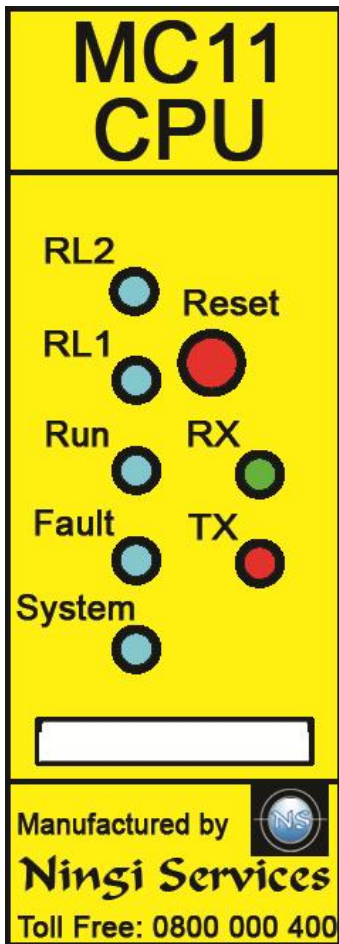
4. Connections

1. Minimum Connections required are

- 0V
- 9-48V DC – supply
- Relay C1, NO1 Or C2, No2

| | | | | | | | |
|------------|------------|-----------|---------------------|---------|---|--------------------------|--|
| SP | E | 0V | 9-48 VDC | 9-48VDC | - | Supply Voltage 9-48VDC | |
| | | | | 0V | - | Supply Voltage 0V | |
| | | | | E | - | Earth (Optional) | |
| | | | | SP | - | Not connected | |
| | | | | | | | |
| A | B | A1 | A2 | A | - | RS485 A | |
| | | | | B | - | RS485 B | |
| | | | | A1 | - | Not used | |
| | | | | A2 | - | Not Used | |
| | | | | | | | |
| C2 | NO2 | C1 | NO1 | NO1 | - | Relay 1 Normally Open | |
| | | | | C1 | - | Relay 1 Common | |
| | | | | NO2 | - | Relay 2 Normally Open | |
| | | | | C2 | - | Relay 2 Common | |
| | | | | | | | |
| IP1 | IP2 | SP | 0V | IP1 | - | Not Used | |
| | | | | IP2 | - | Not Used | |
| | | | | SP | - | Not Used | |
| | | | | 0V | - | Additional 0V connection | |

5. Face Plate



- RL2 - Indicating Relay 2 Switched status
- RL1 - Indicating Relay 1 Switched status
- Run - System active flashing LED
- Fault - System Fault
- System- System healthy flashing LED
- RX - RS485 data Receive
- TX - RS485 data Transmit
- Reset - Not Used

6. Operation

Both Relays will de-energize if the CH4 level exceeds 1.4%. The relays are energized when no CH4 is present (Fail to safe)

7. Communication

The following registers are read only from the unit at address 10

Register locations

| Register | Association | Value type | Value range |
|----------|----------------|--------------------|---------------------|
| 30000 | Com Counter | Incremental | 0 – 255 |
| 30002 | CH4 Actual | Actual value (x10) | 0 – 50 (50=5.0%) |
| | | | |
| 40000 | Serial No High | High halfword | 0 – 65535 |
| 40001 | Serial No Low | Low halfword | 0 – 65535 |
| 40013 | Address | Specific | 1 – 247(Default 10) |
| | | | |

8. Electrical specifications

| | Min | Typical | Max | Unit |
|--|-----|---------|-----|------|
| Control voltage | 9 | 12 | 48 | VDC |
| Power consumption | | 0.8 | 1.5 | W |
| Communication channel RS485 (MODBUS RTU) | | 9600 | | Bps |
| Relay contacts AC Voltage | | | 250 | VAC |
| Relay contacts DC Voltage | | | 30 | VDC |
| Relay contacts Current Rating | | | 6 | A |

9. Approvals and Markings

**MC11
CH4**

Modular Sensor
MASC M/11-388X



CC 2008/202081/23
MASC M/09-053X


WARNING:
Static hazard:
Wipe only with
damp cloth

Manufactured by 
Ning Services
Toll Free: 0800 000 400

MC11 CH4

Manufacturer: Ningi Services
Type: Modular Sensor (CH4)
Ex Rating: Ex ia I (-20°C to +55°C)
I.A. Number: MASC M/11-388X

Safety Parameters:



Input: (SM4)
U_i = 15V

RS485:
U_i = 5.88V U_o = U_o of RS485 = 5.88V
I_i = 1A I_o = 618.95mA
P_o = 0.91W
C_i = 138.48uF C_o = 861.52uF
L_i = 0mH L_o = 2.74mH

Relay:
Contact (I.S. only)
5A rms or 250V rms or 100VA

Toll Free 0800 000 400
Manufacturer www.tech4000.com

CONDITIONS OF SAFE USE:

- The unit must be fitted inside a flameproof enclosure or an enclosure of at least IP54.
- The relays may not switch more than the nominal value of 5A rms or 250 V rms or 100 VA.
- The relay may only switch I.S. circuits.

10. Terms and conditions

Product Agreement

PTYTRADE377 (PTY) LTD reserves the right to make changes without further notice to any products herein.

The use of the MC11 indicates your understanding and acceptance of the following terms and conditions. This agreement shall supersede any verbal or prior verbal or written, statement or agreement to the contrary. If you do not understand or accept these terms, or your local regulations prohibit "after sale" product agreements or limited disclaimers, you must cease and desist using this product immediately.

This product is © Copyright 1998-2005 by PTYTRADE377 (PTY) LTD, all rights reserved. International copyright laws, international treaties and all other applicable national or international laws protect this product. This product and documentation may not, in whole or in part, be copied, translated, or reduced to any electronic medium or machine readable form, without prior consent in writing, from PTYTRADE377 (PTY) LTD and according to all applicable laws.

The sole owners of this product are PTYTRADE377 (PTY) LTD and NINGI SERVICES

LIABILITY DISCLAIMER

PTYTRADE377 (PTY) LTD makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does PTYTRADE377 (PTY) LTD assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in the data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typical" must be validated for each customer application by customer's technical experts. PTYTRADE377 (PTY) LTD does not convey any license under its patent rights nor the rights of others. PTYTRADE377 (PTY) LTD products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the PTYTRADE377 (PTY) LTD product could create a situation where personal injury or death may occur. Should the customer use PTYTRADE377 (PTY) LTD products for any such unintended or unauthorized application, the customer shall indemnify and hold PTYTRADE377 (PTY) LTD and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that PTYTRADE377 (PTY) LTD was negligent regarding the design or manufacture of the part. MC11 is a registered trademark of PTYTRADE377 (PTY) LTD. PTYTRADE377 (PTY) LTD does not assume liability for the use of this product beyond the original purchase price of the product.

RESTRICTIONS

You may not use, copy or modify any documentation as expressly defined in this agreement. You may not attempt to unlock or bypass any authentication algorithm utilized by the product. You may not remove or modify any copyright notice or the method by which it may be invoked.

OTHER RIGHTS AND RESTRICTIONS

All other rights and restrictions not specifically granted in this agreement are reserved by PTYTRADE377 (PTY) LTD.