Universal Digital Module Amplifier for DIN Mounting Rail (Top-Hat Rail)

DMA-22-01/02

Version for Open Loop Applications

- Amplifier module for 1 or 2 proportional valves without feedback
- Both output stages individually controllable by means of two independent analogue inputs (version dependent)
- Optional with bus interface (PROFIBUS, PROFINET, ETHERNET/IP, CANopen) multi module configurations available
- Adaptation possible to all kinds of proportional valves from all manufacturers
- Full digital PI current controller for both output stages
- Universal usage for hydraulic, pneumatic and other applications
- Analogue inputs with high resolution and accuracy
- Extreme short cycle time for best dynamic behaviour (best in class)
- Easy usage and operation by means of WINDOWS program HCSTool
  **NEW:** Now including oscilloscope function!
- **NEW:** Low cost version available (DMA-SXXLT)
- **NEW:** Version for On/Off valves available (DMA-SOnOff)
1 Applications and usage

The amplifier modules DMA-2 are used for:

- Control of proportional valves of all kinds (only without feedback): proportional directional (direct and pilot operated), flow control, pressure limiting and pressure reduction valves, cartridge and servo valves (with torque motor on request)

2 Features

- Fully digitized amplifier module
- All adjustments and parameter settings possible by means of PC. No on board potentiometers on the module (user friendly adjustment)
- Flexible and reliable system, use of a modern 16 bit CPU with high power reserve
- Optional available with several bus interfaces
- Flexibility due to possible software and hardware extensions and options for customer specific requirements
- Flash-EPROM technology for easy software update or modifications from PC via RS232 interface
- Variable settings for all kinds of solenoid systems
- Change of selected parameters “on-the-fly” without interference of function; monitoring of display values and 4-channel oscilloscope with HCSTool via PC
- High resolution and accuracy for analogue set point signal due to a 12-Bit A/D-converter
- Two output stages can be used either for one proportional valve with two solenoids or for two valves with one solenoid each due to two independent analogue inputs
- All kinds of customer specific adaptations of hardware and software for specific applications possible. Just ask us and we provide the right solution
- Fast and easy mounting, installation and exchange due to top-hat rail (DIN mounting rail) in accordance with EN50022 and connectors with screw terminals or optional cage clamp technology system COMBICON
- Version for servo valves with torque-motors available

New versions available:

- Low cost version without digital inputs as driver amplifier e.g. for multi-module bus versions or where only limited input functionality is requested.

other then that full functionality from DMA still available with command input voltage or current selectable

--> Version DMA-22-01-x-SXXLT

- Version for applications with On/Off valves

Controlling on/off valves with the full performance and monitoring features of a fully digital amplifier unit.

--> Version DMA-22-01-x-SOn/Off

Key advantages:

- Full digital control of output currents with safety monitoring (short & open circuit detection, over current protection)
- Max. current adjustable between 0.8 A and 3.5 A
- Peak and constant current can be defined independantly
- Transition between peak and constant current adjustable
- Pre-energization adjustable
- Universal usable for 1 valve with two coils or two valves with one coil each

- Can be combined with all HCS Bus interfaces

--> PROFIBUS, PROFINET, ETHERNET/IP, CANopen for full control and monitoring possibilities.

On/Off valves go IoT!
### Technical data (deviations depending on versions possible)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Range, characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>Unom = 24 V (12 ... 33V) DC, residual ripple &lt; 10 % (max. 50 VA power draw). The modul can also be used on supply voltage of Unominel = 12 V (&gt; 9,5 V)</td>
</tr>
<tr>
<td>Solenoid system selection</td>
<td>0,8 A; 1,1 A; 1,3 A; 1,6 A; 2,4 A; 2,7 A and 3,5 A (intermediate values adjustable)</td>
</tr>
<tr>
<td>Control voltage for digital inputs</td>
<td>(12) 24 V +/- 10 %, residual ripple &lt; 10 %, current draw per input &lt; 20 mA</td>
</tr>
<tr>
<td>Temperature ranges</td>
<td>Ambient: 0° C ... 50° C (other on request) storage: -20° C ... 60° C</td>
</tr>
<tr>
<td>Connection</td>
<td>16 pole (4 x 4); screw terminals for 0.2 - 2.5 mm² (AWG 24 -12) or cage clamps; for detailed technical data refer to Phoenix Contact Combicon Product Catalog</td>
</tr>
<tr>
<td>Type of connector</td>
<td>Phoenix Combicon connector with screw terminals, type: MSTBT 2,5/ 4-ST</td>
</tr>
<tr>
<td>Analogue set value (input)</td>
<td>DMA-22-01: 1 differential input, 12 bit resolution, 0 ... +/- 10 V / 0 ... 20 mA / 4 ... 20 mA. DMA-22-02: 2 differential inputs, 12 bit resolution, 0 ... +/- 10 V / 0 ... 20 mA / 4 ... 20 mA</td>
</tr>
<tr>
<td>Digital inputs (version dependant)</td>
<td>Version DMA-22-01: 5 inputs, opto-coupled (S1.01, S1.02, S1.03, S1.04, ENABLE)</td>
</tr>
<tr>
<td>Solenoid current (output)</td>
<td>2 output stages, each for up to max. 3.5 A (with over-energ. and quick de-energization); max. combined current = 4,5 A</td>
</tr>
<tr>
<td>Digital outputs</td>
<td>1 output opto-coupled, voltage level 0 V / 24 V, 10 mA (ERROR)</td>
</tr>
<tr>
<td>Reference output (optional)</td>
<td>1 Reference output 10 V (max. 20 mA), short circuit protected; e.g. supply for joystick</td>
</tr>
<tr>
<td>Interface 1</td>
<td>RS232, 6-pole female RJ45/6 connector</td>
</tr>
</tbody>
</table>
| Interface 2 *1 (only one available per module) | PROFIBUS-DP: RS485, Sub-D 9-pole female  
PROFINET (in/out): 2 x RJ45 (integrated switch)  
ETHERNET/IP: RJ45  
CANopen: Sub-D 9-pole male |
| Status signals               | 3 status LED's at front (Run/OK; Enable, Error)                                                                                                           |
| PWM frequency, cycle times   | Approx. 22 kHz PWM frequency, cycle time max. 0,17 msec                                                                                                    |
| Mounting/housing             | Mounting: top-hat rail (mounting rail) in accord. with EN50022 with integrated PE contact  
Housing configuration: ventilated (IP20)  
Dimensions approx.: (w x h x d) 22,5 x 100 x 114 mm  
Bus single module version: dimensions approx.: (w x h x d) 45 x 100 x 114 mm  
Bus multi version dimensions approx.: (w x h x d) ((n+1)x22,5) x 100 x 114 mm; n = number of slaves (modules) |

*1: For more detailed information regarding DMA with bus-interfaces please refer to the according data sheet!

**DMA-22-01/02**

Data Sheet  
09.02.2018  
Revision: R21
4 Block diagram hardware

Diagram for version: DMA-22-02-xxx-SOnOff; Operation Mode: 01

Diagram for version: DMA-22-01-xxx-SXXLT; Operation Mode: 01

Remark: Numbers in brackets do indicate numbers printed on the connectors
Diagram for version: DMA-22-01-xxx-S0; Operation Mode: 01

Diagram for version: DMA-22-02-xxx-S0; Operation Mode: 02

Remark: Numbers in brackets do indicate numbers printed on the connectors.
Block diagram hardware

Diagram for version: DMA-22-01-xxx-S10VRef; Operation Mode: 01

Diagram for version: DMA-22-01-xxx-SHAWE/SHPR; Operation Mode: 01

Remark: Numbers in brackets do indicate numbers printed on the connectors
5 Block diagram of software functions

Version: DMA-22-01-xxx-SOnOff / Operation Mode: 01 ; 1 On/Off valve with 2 solenoids

Functional diagram:

- Input: SN01 or SN02
- Current: 'I' 'peak' or 'const.'
- Time: 't'
- Digital (coil A): W (+) or W (-)
- Digital (coil B): W (+) or W (-)

Coil A
- S1.01 = Iconst
- S1.02 = Ipeak
- X2/1(5) or X2/2(6)

Coil B
- S2.01 = Iconst
- S2.02 = Ipeak
- X2/3(7) or X2/4(8)

Valve 1
- Enable

Valve 2
- Enable

Diagram shows the flow of control signals and the interaction between the inputs, solenoids, and enable signals for both valves.
5 Block diagram of software functions

Version: DMA-22-01-xxx-SXXLT / Operation Mode: 01; 1 valve (open loop) with 2 solenoids
5  Block diagram of software functions
Version: DMA-22-01-xxx-S0 / Operation Mode: 01; 1 valve (open loop) with 2 solenoids

DMA-22-01/02  Data Sheet  09.02.2018
6  Block diagram of software functions
  Version: DMA-22-02-xxx-S0 / Operation Mode: 02 ; 2 valves (open loop) with 1 solenoid each
7 DMA with Bus Interfaces

a) PROFIBUS. Features:
- Supports PROFIBUS-DP Slave in accordance with IEC 61158
- Supports PROFIBUS DPV1
- Maximum 244 Byte in-/output data
- Supports up to 12 Mbaud (autodetect)
- Electrical isolated and opto-decoupled

b) PROFINET. Features:
- Meets the standard IEC 61158 and IEC 61784
- LAN 10/100Base-T(X)
- 2 x RJ-45 LAN (Daisy Chain)
- Cycling data exchange RT and IRT with Profinet IO-Controller
- Sending and receiving of diagnostic- and process alarms
- I&M0...4-data available
- Supporting of PROFINET Naming (device name) and TCP/IP addressing
- Fast Startup functionality supported
- Shared Device supported
- Media Redundancy Protocol (MRP) supported
- Electrical isolated interface

Approved by PNO!
Certificate no.: Z01871

Approved by PNO!
Certificate no.: Z10981

C) ETHERNET I/P. Features:
- Supports ETHERNET I/P
- Maximum 32 Byte in-/output data
- Supports 10 and 100 MBit/s (autodetect)
- IP address setting by means of parameter
- Electrical isolated interface
- Software update of Ethernet node via DMA serial interface
- Supports assembly instances 100 and 101
- Additional assembly instances 200, 201, 210, 211 to directly communicate with multi fold modules

d) CAN-OPEN. Features:
- Complete CAN-OPEN slave in accordance with standard CIA 301 / V4
- Supports all import Baud rates up to 2 Mbit
- Node number and baud rate by means of vendor specific object
- External bus termination 120 R required
- One receive PDO
- One transmit PDO
- One SDO channel
- Node guarding
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCSTool</td>
<td>Software for parameterization, operation, monitoring, storage and documentation of adjustments. In English, French and German on CD (free download available). Please follow this link in order to download the most recent version of HCSTool: <a href="http://www.h-c-s-gmbh.de/download/">http://www.h-c-s-gmbh.de/download/</a></td>
</tr>
<tr>
<td>DMA-RS232-DS9F-RJ45</td>
<td>Interface cable for communication between PC and DMA-2 for RS232 interface. 1 x Sub-D 9-pole connector female, 1 connector Western-Digital 6-pole, w. 2.5 m cable</td>
</tr>
<tr>
<td>USB-RS232-RJ45</td>
<td>As above but w. USB-adaptor. 1 x connector Western-Digital 6-pole, w. 2.5 or 10 m cable</td>
</tr>
<tr>
<td>EKB-04</td>
<td>EKB-04 Handheld keypad and display unit for parameter setting and copying</td>
</tr>
<tr>
<td>CU/DMA</td>
<td>Commissioning unit for DMA. For adaptation of one DMA. For Commissioning, servicing, testing and trouble shooting etc. at machines, systems, for laboratories and for training</td>
</tr>
<tr>
<td>4MSTBU</td>
<td>Set of 4 connectors for DMA; Phoenix Combicon connectors with screw terminals, type: MSTBT 2,5/4-ST - special HCS version with printed on reference numbers</td>
</tr>
<tr>
<td>4FKCT</td>
<td>Set of 4 connectors for DMA; Phoenix Combicon connectors with cage clamp terminals, type: FKCT 2,5/4-ST</td>
</tr>
<tr>
<td>Coding for connectors (order separately)</td>
<td>Coding section (CR-MSTB), inserted into the recess in the header and keying profile (CP-MSTB), inserted into the slot on the plug (red); packages with 100 pcs each</td>
</tr>
</tbody>
</table>

### Not to scale!

<table>
<thead>
<tr>
<th>Commissioning Unit</th>
<th>Cable for comm. unit</th>
<th>Interface Cable</th>
<th>Interface Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCSTool</td>
<td>EKB-4</td>
<td>Connectors 4MSTBU</td>
<td>Connectors 4FKCT</td>
</tr>
</tbody>
</table>

DMA-22-01/02
Revision: R21
Data Sheet
09.02.2018
### Ordering code, including single module bus versions (not all combinations available!)

<table>
<thead>
<tr>
<th>D M A</th>
<th>2 2</th>
<th>0 1</th>
<th>2 7 0</th>
<th>PBDP</th>
<th>4 M S T B U</th>
<th>S 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Version</td>
<td>22 = DMA-22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Operation Mode / Version
- 01 = 1 valve with 2 solenoids
- 02 = 2 valves with 1 solenoid each

#### Solenoid Systems
- 080 = 800 mA system
- 110 = 1100 mA system
- 130 = 1300 mA system
- 160 = 1600 mA system
- 240 = 2400 mA system
- 270 = 2700 mA system
- 350 = 3500 mA system

#### Bus Interface (for single module versions only!)
- PBDP = PROFIBUS DP; PN = PROFINET
- EIP = ETHERNET/IP; CO = CAN-OPEN

#### Connection type Phoenix Contact
- 0 = without mating connectors
- 4MSTBU = incl. set of connectors, (4 pcs); version: MSTBT 2,5/4-ST BU (blue)
- 4FKCT = incl. set of connectors, (4 pcs); version: FKCT 2,5/4-ST (green)

#### Special Options
- SOOff = version for on/off valves
- SXXLT = low cost version
- S10Vref = with 10 V reference output (e.g. for joy-stick)
- SHAWE = special parameter set for HAWE valves with “twin” solenoid
- SHPR = special current range for HAWE valves with “twin” solenoid
- with current selection: 150 mA, 240 mA, 500 mA, 630 mA, 800 mA
- SCC = Conformal Coating
- Combinations posible! Other on request

---

**Important note:** for ordering of mult-module bus versions refer to according ordering code on page 9

### Ordering code examples:

- **Version for one valve with 2.7 A solenoid; operation in mode 1, including connectors**
  - **DMA-22-01-270-4MSTBU-S0**

- **Version with PROFIBUS for two valves and 0.8 A solenoids; operation in mode 2, including connectors**
  - **DMA-22-02-080-PBDP-4MSTBU-S0**
10 Ordering code, only multi module bus versions (not all combinations available!)

| DMA | M | A | 2 | 2 | M | 3 | 0 | 1 | 01 | 02 | - | P | B | D | P | M | S | T | B | U | - | S | x | x | x | x | x |

**Digital Module Amplifier**

<table>
<thead>
<tr>
<th>Module Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 = DMA-22</td>
</tr>
</tbody>
</table>

**Number of slave modules**
- M2 = 2 slave modules
- M3 = 3 slave modules
- M4 = 4 slave modules
- M5 = 5 slave modules
- Other configurations on request

**Operation modes of slaves (modules)**
- 01 = 1 valve with 2 solenoids
- 02 = 2 valves with 1 solenoid each

Define a maximum of up to 5 slaves (modules)

**Bus Interface (for multi module versions only!)**
- PBDP = PROFIBUS DP; PN = PROFINET
- EIP = ETHERNET/IP; CO = CAN-OPEN

**Connection type Phoenix Contact**
- 0 = without mating connectors
- MSTBU = including all necessary sets of mating connectors, 4 pieces per slave module. Version: MSTBT 2,5/4-ST BU (blue)
- FKCT = including all necessary sets of mating connectors, 4 pieces per slave module. Version: FKCT 2,5/4-ST (green)

**Special part designation number**
- 5 digits

**Important note:**
If special part designation number is unknown please specify each slave module separately by using ordering code from page 6!

See also example below.

---

Important note: for ordering single multi-module bus versions refer to ordering code on page 8

**Ordering code example:**
PROFIBUS version with 3 slaves (DMA modules). Each of the 3 slaves (modules) is the same version for valves with two coils each with 2.7 A including the connectors.
Please specify each of the modules.

**DMA-22-M3-010102-PBDP-MSTBU-Sxxxxx** containing
- DMA-22-01-270-x-S0 (module in operation mode 1)
- DMA-22-01-270-x-S0 (module in operation mode 1)
- DMA-22-02-270-x-S0 (module in operation mode 2)
EC Declaration of Conformity in accordance with EMC Directive 2014/30/EU

HCS Hydraulic Control Systems GmbH
Neuffener Str. 29
D-72636 Frickenhausen

hereby declares that the product described as follows complies in terms of its design, as well as in the version placed in the stream of commerce by us, with the relevant requirements of the directive. This declaration is void in the event of any changes to the product without our written agreement.

Product: Digital Amplifier and Controller Module
Intended use: Automation systems (industrial applications)
Model: DMA-22-x
Rated voltage: 24 V DC; SELV
Rated power: max. 100 W
Protection class: III
Protection degree: IP00 (IP20 on request)
Relevant EC Directive: EMC Directive 2014/30/EU
Applicable EU Standards:
  EN 61000-6-4:2007 + A1:2011
  Germanischer Lloyd VI-7-2 (EN 60945) on request
  Immunity: EN 61000-6-2: 2005

Date/manufacturer’s signature

01.01.2018
Details of signatory: Dipl.-Ing. (FH) Peter Deuschle (General Manager)
Europe I

NORWAY, ALL NORDIC COUNTRIES

Servi AS
Rasmus Solbergs vei 1
N-1400 Ski
Norway
Tel.: (+47) 64 - 979 797
Fax: (+47) 64 - 979 899
Borre.Kleven@servi.no
www.servi.no

SWITZERLAND

GRIBI Hydraulics AG
Lättenstr. 33
CH-8952 Schlieren
Switzerland
Tel.: (+41) 1 - 733 - 40 50
Fax: (+41) 1 - 730 - 58 05
info@gribi-hydraulics.ch
www.gribi-hydraulics.ch

GREAT BRITAIN

Voith Turbo Ltd.
6 Beddington Farm Road
Croydon, Surrey
England CRO 4XB
Tel.: (+44) 208 - 667 0333
Fax: (+44) 208 - 667 0403
nick.moody@voith.com
www.uk.voith turbo.com

ITALY I

BIMAL Spa
Via Monni 18/14.
I-06135 Perugia (PG)
Italy
Tel.: (+39) 075 - 592 1770
Fax: (+39) 075 - 592 1780
a.paolucci@bimal.com
www.bimal.com

ITALY II

Sotek S.r.l.
Via G. Benucci 88
I-06135 Perugia (PG)
Italy
Tel.: (+39) 075 - 592 8710
info@servi.it
www.sotek.it

ITALY III

Asterisco Tech s.r.l.
Via C. Bozza, 14
06073 Corciano (PG)
Italy
Tel.: +39 075 7823791
Fax: +39 075 7823791
castellari@sotek.it
www.a-asterisco.com

SWEDEN I (South-West)

PMC Hydraulics AB
Askims Verkstadsväg 15
Box 1013
SE-43621 Askim
Sweden
Tel.: (+46) 31 - 28 98 40
Fax: (+46) 31 - 28 64 01
Per-Anders.Kaliden@pmchydraulics.se
www.pmchydraulics.se

SWEDEN II (North-East)

Norrlands Hydraulik
Stenhuggargatan 4
SE-913 35 Holmsund
Sweden
Tel.: (+46) 70 - 646 57 57
www.norrlands hydraulik.se

ITALY I

BIMAL Spa
Via Monni 18/14.
I-06135 Perugia (PG)
Italy
Tel.: (+39) 075 - 592 1770
Fax: (+39) 075 - 592 1780
a.paolucci@bimal.com
www.bimal.com

ITALY II

Sotek S.r.l.
Via G. Benucci 88
I-06135 Perugia (PG)
Italy
Tel.: (+39) 075 - 592 8710
info@servi.it
www.sotek.it

ITALY III

Asterisco Tech s.r.l.
Via C. Bozza, 14
06073 Corciano (PG)
Italy
Tel.: +39 075 7823791
Fax: +39 075 7823791
castellari@sotek.it
www.a-asterisco.com

DMA-22-01/02
Revise: R21
09.02.2018
Europe II / ROW I

SPAIN I

HRE Hidráulic S.L.
C / Ibaitarte, 21
E-20870 Elgoibar
Spain
Tel.: (+34) 943 - 742 130
Fax: (+34) 943 - 742 708
hre-hidraulic@hre.es
www.hre.es

SPAIN II

Glual Hidráulica, S.A.
Landeta Hiribidea, 11
E-20730 Azpeitia (Gipuzkoa)
Spain
Tel.: (+34) 943 - 157 015
Fax: (+34) 943 - 157 404
j.valverde@glual.es
www.glual.com

USA I

Serví Fluid Power
22240 Merchants Way | Suite 100
Katy, TX 77449, USA
Tel.: (+1) 281 - 347 8080
info@servi-inc.com
www.servi-inc.com

USA II

NC Servo Technology Inc.
38422 Webb Drive
Westland, MI 48185-1974, USA
Tel.: (+1) 800 - 327 3786
Tel.: (+1) 734 - 326 6666
Fax: (+1) 734 - 326 6669
sales@ncservo.com
www.ncservo.com

USA III

Hawe Hydraulik - East
9009-K Perimeter Woods Drive
Charlotte, NC 28216, USA
Tel.: (+1) 704 - 509 1599
Fax: (+1) 704 - 509 6302
sales@hawehydraulics.com
www.hawe.com

USA IV

Hawe Hydraulik - Central
10920 W. Sam Houston Pkwy N.
Suite 700
Houston, TX 77064
Tel.: (+1) 713 - 300 3260
Fax: (+1) 281 - 970 6692
sales@hawehydraulics.com
www.hawe.com

USA V

Hawe Hydraulik - West
912990 S.E. HWY 212
Clackamas, OR 97015, USA
Tel.: (+1) 503 - 222 3295
Fax: (+1) 503 - 225 5976
sales@hawehydraulics.com
www.hawe.com

CANADA and USA VI

Hydra-Fab Fluid Power Inc.
3585 Laird Road Unit 5
Mississauga, Ontario L5L 5Z8
Canada
Tel.: (+1) 905 - 569 1819
Fax: (+1) 905 - 569 7801
rgores@hydrafab.com
www.hydrafab.com

USA VI

HYDRA-FAB FLUID POWER INC.
3585 Laird Road Unit 5
Mississauga, Ontario L5L 5Z8
Canada
Tel.: (+1) 905 - 569 1819
Fax: (+1) 905 - 569 7801
rgores@hydrafab.com
www.hydrafab.com
## ROW II

### ASIA

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>KC Kim Consulting GmbH</td>
<td>Support in German, English, Chinese and Korean</td>
<td>Industrial Engineering Im- und Export Lilienthalstr. 3 D-30916 Isernhagen Tel: (+49) 0511 - 898809-17 Fax: (+49) 0511 - 898809-29 <a href="mailto:info@kc-co.com">info@kc-co.com</a> <a href="http://www.kc-kim.com">www.kc-kim.com</a></td>
</tr>
<tr>
<td>Hydraulic Specialists Australia Pty Ltd</td>
<td>21 Production Street, Wacol Queensland, Australia, 4076 Tel: (+61) 07 - 3879 4400 Fax: (+61) 07 - 3879 4333 <a href="mailto:brisbane@hsaus.com.au">brisbane@hsaus.com.au</a> <a href="mailto:lharley@qldhsaus.com.au">lharley@qldhsaus.com.au</a> <a href="http://www.hsaus.com.au">www.hsaus.com.au</a></td>
<td></td>
</tr>
</tbody>
</table>

### BRASIL, SOUTH AMERICA

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi Pecas Prestacao de Servicos EIRELI-M</td>
<td>Rua Manoel Mestre, 20 – Sala 01 Vila Rica 18052-350 Sorocaba / SP – Brasil</td>
<td>Tel: (+55) 15 - 3281 4971 Mobile: (+55) 15 - 98141 <a href="mailto:8530friedrich.guther@hotmail.com">8530friedrich.guther@hotmail.com</a></td>
</tr>
</tbody>
</table>

### INDIA

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greentech Engineers Australia</td>
<td>Mr. Vish Karegowda</td>
<td><a href="mailto:contact@greentechea.com.au">contact@greentechea.com.au</a> <a href="http://www.greentechea.com.au">www.greentechea.com.au</a> Skype : grnhorizon</td>
</tr>
</tbody>
</table>