

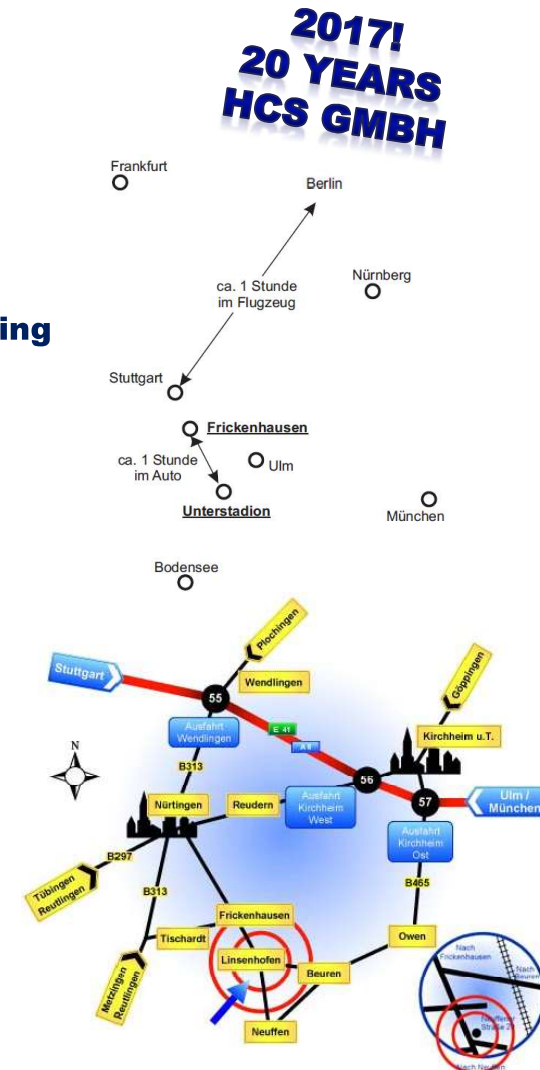


Hydraulic control systems



◆ Company

- **HCS GmbH – in Frickenhausen in the heartland of Baden–Württemberg – since 1997 a competent and reliable partner for all kinds of automation applications**
- **Focus and key competence is on development and manufacturing of electronic control systems for hydraulic and pneumatic applications and Embedded Control**
- **Outstanding customer service and shortest possible implementation leads to satisfied customers with an ever growing client base**
- **Best possible reliability of products and highest quality are part of the success**
- **A powerful team of employees – specialists in their fields are the essential point**
- **With more than 25 years of experience in digital control we are always targeted at the optimum solution**



◆ General History

- **Founded in 1997 as engineering office**
- **2 years of development project for highspeed tilting train**
- **Conversion to GmbH (Ltd) in 2000**
- **Start in 2000 with own product line**
- **From 2006 on modular amplifier DMA**
- **Start of activities in offshore market (2006)**
- **Begin of usage of PROFIBUS (2008)**
- **Realisation of PROFINET Interface (2013)**
- **ATEX/IECEX electronic certified (2014)**
- **Development of IPX5/IPX9 On-Board electronic**
- **Start of development control electronic for new tilting train project (2015)**



◆ Data

- **20 distributors and partners in > 14 countries on all 5 continents**
- **> 80.000 electronic units in the field and more than 3.000 bus-interface applications**
- **> 70 % export rate**
- **Customers on all 5 continents**
- **> 70 man year experience / 10 employees**
- **Philosophy and Destination**
 - **Customer is always key focus**
 - **Flexible but solution oriented acting**
 - **Fast execution and innovative solutions**
 - **Quality oriented completion**
 - **Cost sensitive realisation of requirements**



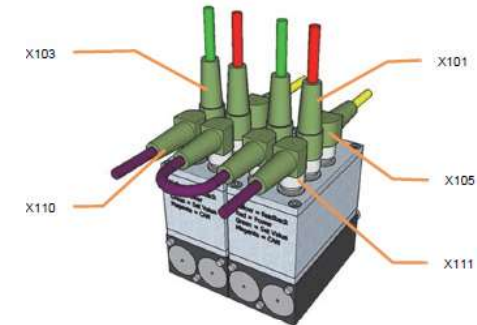
◆ Competencies Electronic development

- Analogue and digital circuit technology
- Equipment for automation engineering
- Core competency in fluid technology
- Bus-Interfaces (PROFIBUS/NET, ETHERNET, CAN)
- Integrated development of Hard-/Software
- PCB and complete systems development
- Specialised on Embedded Control
- Experience in development of electronic equipment for usage in:
 - EX-applications
 - Offshore
 - Mining

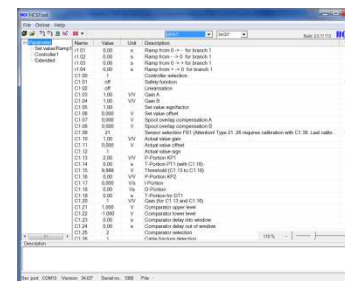


◆ 2016

- „ODC“ first serial application in marine environment
- „ODC“ CAN-Open functionality implemented
- Independant power supply now available for DMA with PROFINET or PROFIBUS
- Pre-development study for LVDT sensor electronics for solenoid manufacturer
- HCSTool new features implemented:
 - help function with integrated manuals
 - zoom function for screen size
- Welcome to our new partners in Italy and the Middle East



CANopen



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◆ 2015

- Start of development of On-Board electronic „ODC“ for general applications



- Certification of PROFINET-Interfaces for DMA by PNO

- Re-development of amplifier and controller board for tilting train application (THC)



- Development and manufacturing of connection and supply boxes for usage in sanitary area



- Total redesign and update of webpage

→ www.h-c-s-gmbh.de

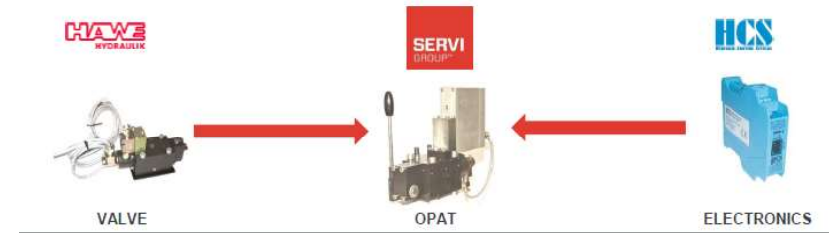


- More than 50.000 DMA reliably used in all kinds of applications



◆ 2014

- **Certification of On-Board electronic „OPAT“ (ATEX and IECEx) by NEMKO/Presafe**
- **Certification of DMA PROFIBUS-Interfaces by PNO**
- **Extension of PROFIBUS functionality by implementation of PROFIDRIVE**
- **PROFINET devices ready for series applications**
- **New partners in Sweden and India**
- **Redesign of adapter for RS232 ↔ USB**
- **Take over of production for several electronic devices for sanitary applications**



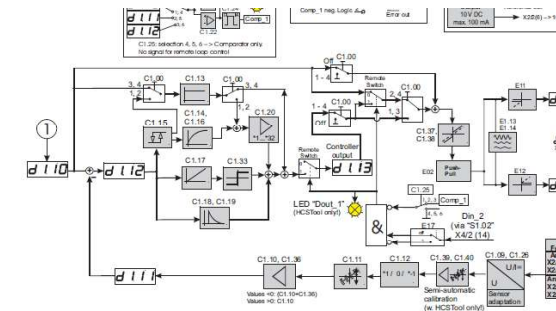
◆ Overview

- **Digital amplifier and controller modules (DMA)**
- **Digital amplifier and controller boards (DAC)**
- **Digital On-Board amplifier and controller (ODC)**
- **Bus-Interfaces (DAC, DMA, ODC)**
- **LVDT sensor interfaces (DAC, DMA)**
- **Parameterisation software (HCSTool)**
- **Commissioning units, hand-held control unit, interface adapter (accessories)**
- **Customer specific adaptations and electronic devices**



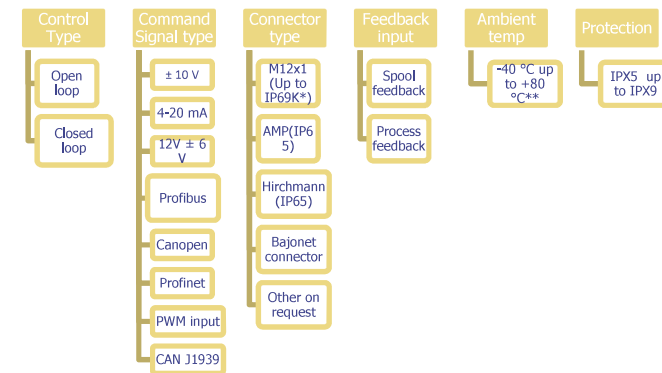
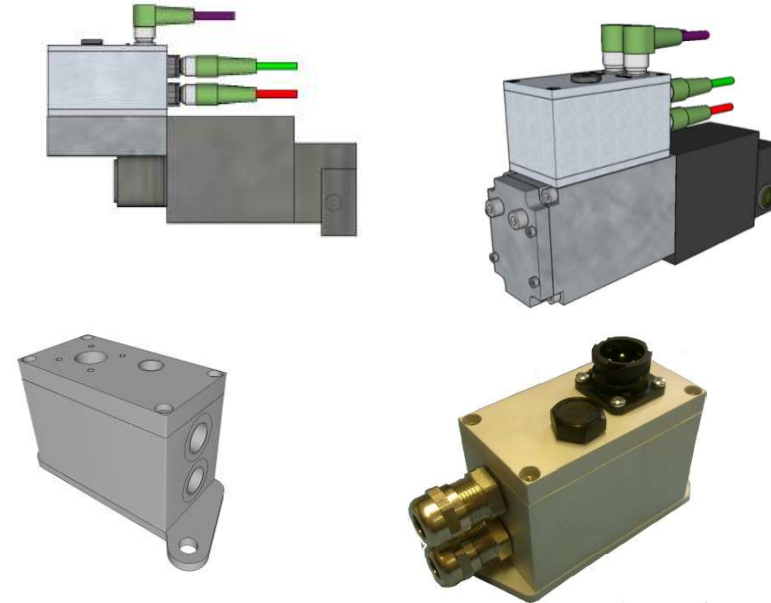
◆ DMA (Digital Module Amplifier)

- 2 and 2 x 1 – channel version – open-loop applications
- Closed loop applications (valve or process)
- With Bus-Interfaces (PROFIBUS, PROFINET, CAN-OPEN, ETHERNET/IP); single/multi-fold
- With LVDT sensor interface
- Commissioning unit, interface adapter
- Customer specific adaptations (soft- and hardware, brand-labeling)



◆ ODC (On-Board Digital Controller)

- 2 and 2 x 1 – channel version – open-loop applications
- Closed loop applications (valve or process)
- With Bus-Interface (CAN-OPEN-BUS)
- Customer specific adaptations (soft- and hardware, housing, connectors)
- Multiple configurations and adaptations possible



◆ HCSTool (Parameterisation-Software)

• For all HCS products universally usable

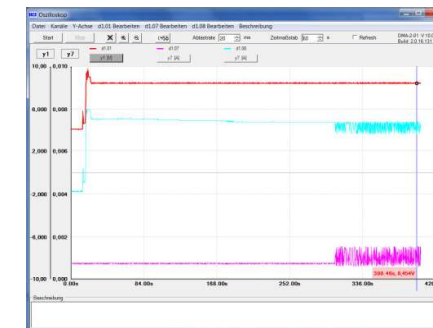
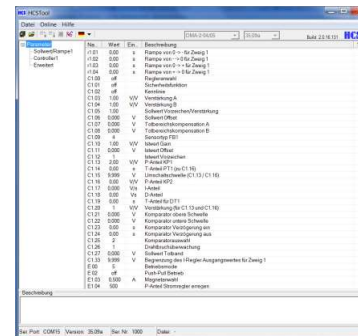
• 3 languages installation (D, E, F)

• With oscilloscope-function

• Free of charge download from our web page

www.h-c-s-gmbh.de/download

• Customer specific adaptations possible (Brand-Labeling, foreign languages)



HCS GmbH

Facts and Data – Products



- ◆ **Customer specific (Adaptations, Electronics)**

- **Brand-Labeling**

- **Special Soft- and Hardware**

- **Engineered to order: fluid technology applications**

- **Engineered to order: Embedded Control applications**

