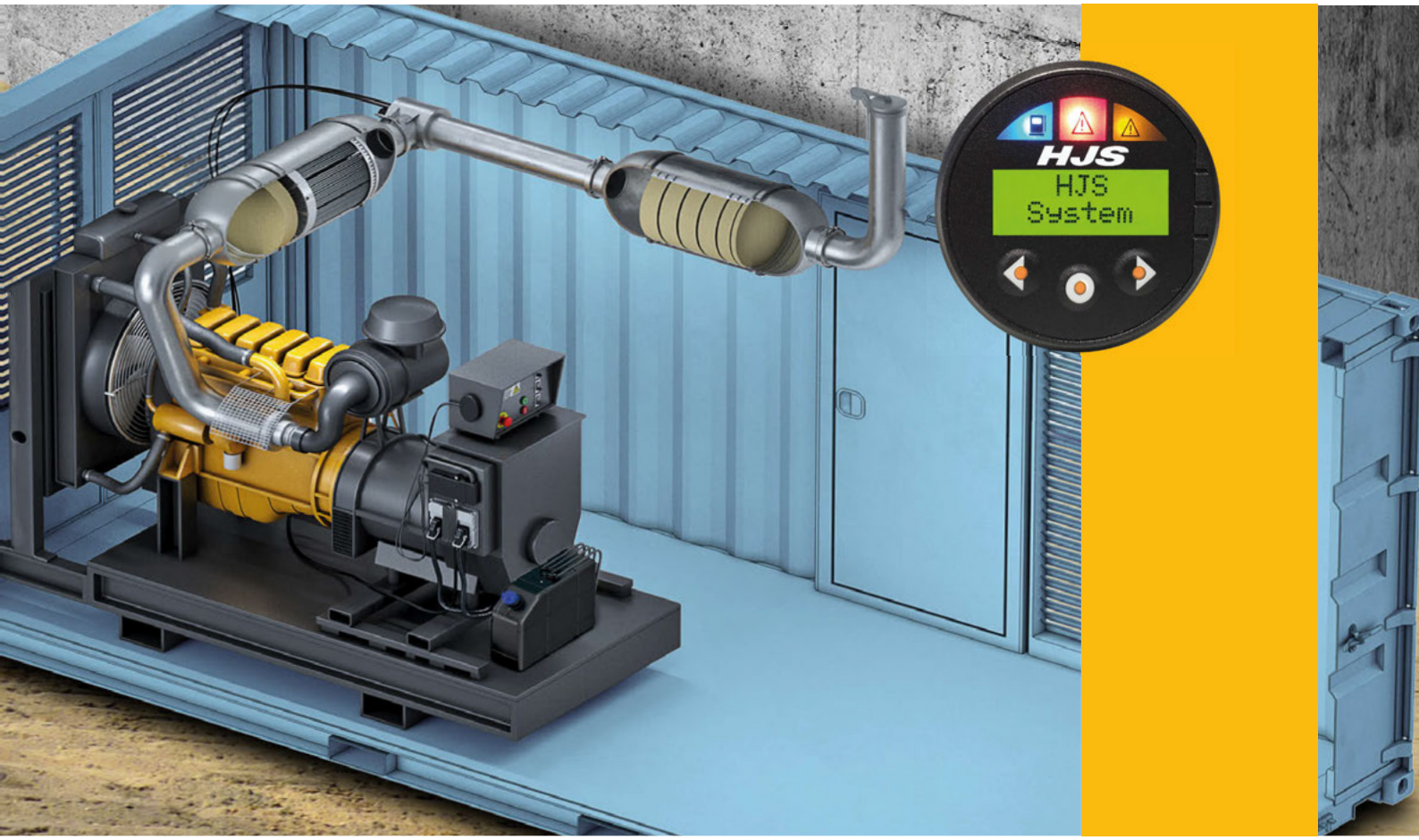
HJS SCR/SCRT-Upgrade Solution
NON-ROAD
User‘s Manual



HJS Emission Technology

1. General

1.1 General

These operating instructions describe the maintenance and use of SCR/SCRT systems.

We strongly recommend that you read and observe these operating instructions in full. The instructions listed in these operating instructions and those specified by the manufacturer must be observed. Failure to comply will result in the exclusion of warranty and liability for personal injury and property damage of any kind on the part of HJS Emission Technology GmbH & Co. KG. The SCR/SCRT system is to be used exclusively for the exhaust gas purification of internal combustion engines. The manufacturer is not liable for improper use. The general accident prevention regulations and other generally recognized safety and occupational health rules must always be observed.

The high level of safety and quality of HJS Emission Technology GmbH & Co. KG is guaranteed by continuous ongoing development.
The illustrations and representations in this document may not be complete and could deviate from the application-specific installation situation. The illustrations are for schematic purposes only. Errors excepted.

No part of this technical documentation may be stored in databases or reproduced in any form or by any means without the prior written permission of HJS Emission Technology GmbH & Co. KG or transmitted in any form or by any means, electronic, photomechanical, recording or otherwise, without the prior written permission of HJS Emission Technology GmbH & Co.

1.2 Intended use

> HJS SCR/SCRT systems are to be used exclusively for the exhaust gas purification of internal combustion engines
> The manufacturer is not liable for improper use.

1.3 Safety instructions

> The battery terminal of the vehicle may be equipped with a pyrotechnical disconnecting element. Work on this may only be performed by persons trained in vehicle pyrotechnics

> The power supply must be disconnected before working on the vehicle electrical system.

> Before starting work, the vehicle/machine must be cooled down to such an extent that burns caused by touching hot parts of the exhaust system or by the escape of cooling water can be rule out.

> The vehicle/machine may only be lifted using suitable lifting gear.

> The general professional safety rules must be observed.

1. General information

1.4 Warnings and symbols

DANGER

Indicates an imminent danger. If the information is not observed, death or serious injury (disability) will result.

WARNING

Indicates a potentially dangerous situation. If the information is not observed, death or serious injury (disability) can result.

CAUTION

Indicates a potentially dangerous situation. If the information is not observed, damage to property or slight or moderate physical injury can result.

NOTE

Indicates general information, useful tips and work recommendations that, however, have no influence on the health and safety of personnel. Highlights useful tips and recommendations as well as information for efficient and trouble-free operation.

Use personal protective equipment! These safety instructions must be observed for the sake of your own safety.

1.5 Abbreviations

AdBlue® - DEF (Diesel Exhaust-Fluid)
SCR - Selective Catalytic Reduction
CRT - Continuously Regenerating Trap
SCRT® - Combination of SCR and CRT

2. System description

2.1 System description HJS SCR

The HJS SCR system operates on the principle of selective catalytic reduction. DEF (a highly pure aqueous urea solution) is stored in a separate tank. This is injected into the exhaust system as required. In the hot exhaust gas stream, the DEF evaporates and hydrolyzes to ammonia. On a special catalyzer, the ammonia reacts with the nitrogen oxide from the exhaust gas to form harmless nitrogen and water vapor.

2.2 System description HJS CRT

The SCR/SCRT system works on the principle of catalytic reduction. A highly efficient oxidation catalyst is connected upstream of a diesel particulate filter. Soot is burned off continuously by NO2 previously formed on the catalyst. In this way, emissions of fine particulates are reduced.

2.3 System description electrical heating

An electric heater installed in the exhaust tract upstream of the DEF injection position also helps at low exhaust gas temperatures, e.g. after a cold start or during operation with low load and low engine speeds in order to maintain adequate exhaust gas temperatures for high efficiency of the SCR/SCRT system. Depending on the equipment variant of the vehicle/engine, the system elements described above are installed.

NOTE

Der The DEF consumption of the retrofitted vehicle/machine (depending on the driving profile/load) is approx. 5% of the fuel consumption.

When refilling the DEF, use only pure DEF according to DIN 70070 or ISO 22241, undiluted and without additives.

Operation of the vehicle with an insufficiently filled DEF tank is not advisable and will result in an error message in the HJS service display.

Operating the vehicle without DEF may result in damage to the DEF metering device.
HJS accepts no warranty or liability for this.

2.4 Normal operation

The HJS SCR/SCRT system does not require constant maintenance during normal operation, apart from the need to top up DEF. The refilling of DEF is indicated via the HJS service indicator, which is located in the driver/operator's field of vision.

The HJS CRT system is monitored continuously. If the max. permissible exhaust backpressure is exceeded, this is indicated via the HJS service display.

In normal operation, the plain text line of the HJS service display shows the message „HJS System".

Fig. 1.0 Normal operation

3. DEF

3.1 DEF refilling

Refill DEF at the latest when the blue lamp lights up. When filling the DEF tank, please ensure that no dirt gets into the DEF tank, as even the smallest contaminants in the DEF can cause damage to the DEF dosing device.

Please fill the DEF tank preferably with a dispenser. Only fill commercially available DEF into the tank. Filling the DEF tank with diluted DEF or other liquids will cause serious malfunctions and system failure.

At temperatures below -7 °C, the contents of the DEF tank may freeze. Damage to the DEF tank or the DEF dosing device will not occur, but the SCR system will be temporarily out of service. This is indicated by a flashing blue indicator light in the HJS service display. Once the tank contents have thawed, the indicator light goes out automatically.

Faults in the SCR system are indicated by a flashing yellow indicator lamp.

CAUTION

Direct contact with DEF may cause discomfort and skin irritation.
Please observe the safety data sheet of the DEF supplier!

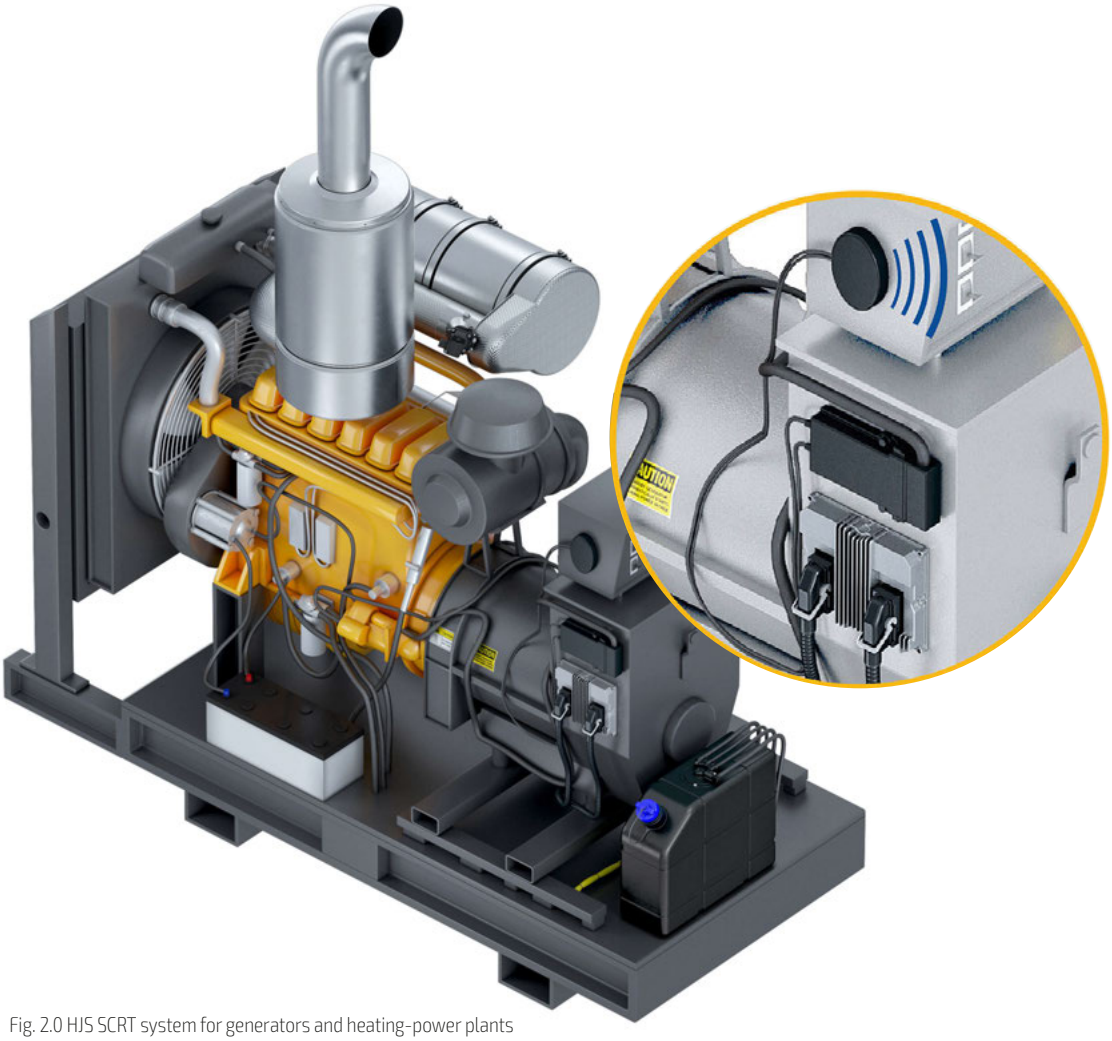
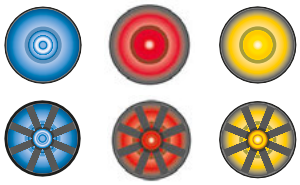


Fig. 2.0 HJS SCRT system for generators and heating-power plants

4. HJS Service Display Module

4.1 Indicator lamp signals

The HJS Service Display Module displays information about the DEF (diesel exhaust fluid) tank level as well as error messages. The table below provides an overview of the displays possible:



Indicator lamp lit constantly

Indicator lamp flashes

Indicator lamps/LCD:	Meaning
HJS System	System is operating trouble-free. Sufficient DEF in tank.
	On reserve – top up DEF!
	DEF tank empty! SCR not operating! Top up DEF! DEF tank frozen! SCR not operating!
	Serious error with the SCR system. Visit a workshop!
	Error with the diesel particulate filter. Filter service!
	Serious error with the diesel particulate filter. Immediately visit a workshop!

4.2 HJS Service display operation

There are three buttons in the lower section of the HJS service display. These can be used to set the system language and call up information on the fill level of the DEF tank or any fault messages.

4.3 Setting the system language

Pressing the left key opens the language menu. The desired language (English or German) can be selected with the right or left button. After approx. 3 seconds, the display changes back to „HJS System“ and the last selected language is set.

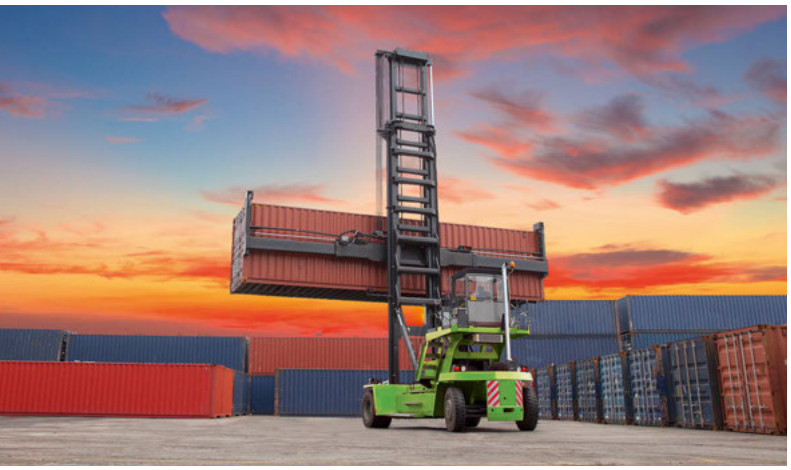
4.4 Fault messages

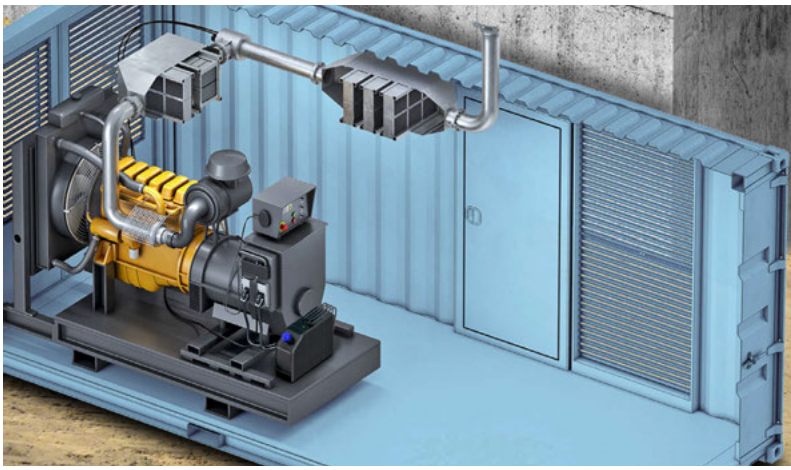
From the standard view, the error menu is accessed by pressing the middle navigation key, followed by pressing the right navigation key twice.
If the middle button is pressed to select the current displayed error, the error address (SPN) is displayed first. After 5 seconds, the error code (FMI) and the frequency with which the error occurred is displayed. If several errors are present at the same time, the next error can be displayed from the SPN or FMI area by pressing the right key. After a further 5 seconds, the display switches back to „HJS System“.

If the middle button is pressed within the SPN or FMI display, the error description appears in plain text for 30 seconds. Press the right arrow key to scroll to the next error address (SPN). Press the left arrow key to scroll back to the previous error address (SPN) or to the next higher menu. If no key is pressed, the display returns to „HJS System“ after 30 seconds.

Put your trust in HJS's SCR® and SCRT® systems and benefit from our many years of experience in the business.

- ✔ Minimal downtimes
- ✔ Extremely low-maintenance
- ✔ Low servicing costs
- ✔ Active protection of health and the environment





HJS Emission Technology
GmbH & Co. KG
Dieselweg 12
D-58706 Menden/Germany
Phone +49 2373 987-0
Telefax +49 2373 987-199
E-mail hjs@hjs.com
www.hjs.com

HJS Emission Technology